



## An Analysis of Student Learning Challenges in Elementary School Science Subject

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**Abstract:** The aim of this study is to analyze the many aspects of learning challenges that elementary school students encounter when learning science. The method of research was descriptive with a qualitative focus. All the students in classes IV, V, and VI were employed as research subjects. The researcher served as the instrument in this study, supplemented by interview, observation, and documentation criteria, while data analysis was accomplished through data reduction, presentation, and conclusion. As a result of the research, the largest degree of difficulty encountered by the students was with school facilities and infrastructure, at 96.73%, while the second highest level was with the learning media used by the teachers, at 82.45%. The next highest level was the indication of student interest in science lessons, which had a percentage value of 75%. This was because some students still did not comprehend how science was taught, as indicated by the lowest score of 73.90%. The existence of the challenges in science learning had a significant impact on student interest in learning and understanding level, resulting in a less effective teaching and learning process in the classroom. The solution to the above problems is for the teacher to obtain a better understanding of the students' needs while they are studying, for the teacher to employ a variety of learning media that entice students to learn, and for the principal to provide comprehensive facilities that support positive learning outcomes.

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## Introduction

Education is a fundamental aspect to develop since it attempts to establish a learning environment and teaching and learning process that may enable students to be active and maximize their potential (Suyedi dan Idrus, 2019). According to Nurkholis (2013), Education is the process of balancing and improving an individual's growth. Concentration in education and the learning process are comparable in terms of the process of developing one's intelligence and character by transmitting information and knowledge. The country and state will inherit religious beliefs, customs, morality, and knowledge in the future, ensuring that inheritors may confidently envision advancement in the lives of all citizens. Meanwhile, H and Seran (2020) assert that Education is the process of gradually obtaining information, beginning with the moral and social education received from an early age and continuing through maturity without regarding for age constraints or other criteria such as a person's mental and physical health.

Learning that incorporates a variety of models and strategies can greatly assist students in acquiring higher comprehension of the teacher-provided content. However, when the instructor conducts the teaching and learning process in disparate ways, it creates hurdles and exacerbates student comprehension challenges. It can also impact students' perceptions of



their intellect and cause them to resent the learning supplied by the instructor as a result of their diminished interest in the study.

Learning activities are a component of achieving educational competency. Along with other core courses, scientific subjects must be learned and mastered by primary school children, since this lesson is supposed to pique kids' curiosity and aid in their development in terms of asking questions and being able to discover solutions to diverse natural events. However, some students are unable to master the targeted competences owing to hurdles they encounter when attempting to respond to the subjects presented (Immanuel, 2015).

The teaching and learning process that occurs in the classroom is the first step toward establishing a learning objective that will result in student success, and it requires a mediator in learning, namely a teacher, because the teacher is a critical figure who must be directly involved in the process. Each student is unique in their ability, physical abilities, motivations, rationality, and attitude to pupils. This discrepancy results in variances in learning models at each meeting, which can also be a challenge for the students with learning difficulties (Dinatha dan Laksana, 2017).

Complexity in learning refers to a state in which a learning process may be observed via the appearance of several problems that must be overcome in order to achieve the best possible learning outcomes. Perhaps instructors and students can readily comprehend the social, psychological, and sociological aspects of the learning process (Manalu, et al., 2015). Each student is unique in his/her behavior; this difference creates an obstacle for students when the teacher conducts learning; some concepts are considered simple for the students to comprehend, while others are experimental circumstances for the students to grasp; this can also affect the students' enthusiasm for learning. Constantly changing, which might eventually lead to the students being unproductive (Magdalena, 2012).

Learning disorders, more commonly referred to as developmental issues, refer to the students' failure to follow the learning process. The students' challenges with learning can be observed during the classroom learning process; therefore, special attention is required for the students' future development; if the difficulties or obstacles encountered by the students are not monitored, they will be unable to develop the knowledge surrounding them (Akhmad, 2019).

The students frequently face challenges such as a shortage of books that meet their requirements, as well as barriers created by the students themselves, such as a lack of desire and excitement for learning, a lack of reading comprehension, and a lack of numeracy ability (Nuraini dan Abidin, 2020). There are certain signs of the causes of the students' challenges with science learning, specifically their inability to comprehend topics in science lessons, and then there are students who believe that science learning is extremely tough. The students struggle in science lessons because the material is always based on a mathematical system and abstract concepts, which creates an impediment to comprehension. As a result, the goals and minimum criteria for completeness in the science learning process cannot be met, and the majority display the number 75 (Saadah et al., 2019).

The students' challenges with learning are the indicators of how students are attempting to link and enhance the abilities they already possess with the concepts they have just acquired, beginning with how to comprehend, reason, and evaluate the teacher-provided content (Fadhil, 2020). Learning will not be successful or efficient unless the students perceive the lesson to be fascinating, particularly in primary school science courses, which are characterized by the presence of kids who dislike the topic. This is due to the students' insufficient reciprocal feedback throughout the learning process and a lack of motivation to study in the classroom, and it was discovered that some students refused to attend scientific



classes since the teacher's document does not reflect entice students to like science lessons (Rasdawati et al., 2012).

The students' development and future will damage if the teachers and the parents do not address their students' and their children's challenges promptly; as a result, students will continue to face barriers while learning and resolving their problems. Students that have challenges throughout the learning process are sometimes labeled as foolish or failed children, which worsens their situation and exacerbates their learning issues as a result of external pressure (Husein, 2020).

Science subjects are the ones of several other subjects at the elementary school level that serve as a forum for developing the students' abilities to think analytically about various types of events that occur in the natural environment and to solve problems intensively, as well as to build the students' skills and confidence. , then science subjects at the elementary school level should focus on the direct transfer of knowledge through scientific inquiry. (Astutik, 2012). According to Andriana et al (2020) In the science learning process, the emphasis must be on offering direct experience to the students in order for them to gain self-confidence and an understanding of their surroundings, which will enable them to locate the learning idea being studied indirectly.

According to Awang (2015), Educational competency may be attained by a variety of activities, one of which is the study of Natural Science subjects, which the elementary students must comprehend and grasp. Natural Science lessons in elementary school provide a chance for the students to develop the ability to ask questions, encourage curiosity, and solve problems relating to natural events in their environment. According to Mujakir (2015), Natural sciences are subjects that include biology, physics, geology, and astronomy. Natural science education may also be merged with disciplines unrelated to the field of study, as this lesson is not only a mix of biology, physics, chemistry, and space, but also a natural science. In the other hand, Rahayu et al (2012) assert that natural science, is the study of living and non-living substances, as well as natural phenomena. It also encompasses biology and physics.

Surya (2017) asserts that Learning about natural sciences is inextricably linked to students' exploration of knowledge about the natural environment, such that studying natural sciences systematically entails students learning about the process of new discovery, rather than simply mastering natural science concepts such as theories, principles, and facts. Natural sciences may also be utilized to teach students about their surroundings, themselves, and the opportunities for development in real life. Science may also be defined as theoretical knowledge combined with unique accomplishments such as performing and ending an experiment, allowing for the development of students' abilities in teaching and learning activities. The educator's grasp of how to conduct learning is critical, beginning with the use of learning media, the application of learning models and methods, the way of presenting content, approaches to students, and student-friendly language. Because it can help pupils overcome hurdles encountered during the learning process.

At State Elementary School No. 5 of Binanga Dua (SDN No. 05 Binanga Dua), Silangkitang District, South Labuhanbatu Regency, science learning is one of the subjects offered in classes IV, V, and VI. According to statistics acquired from one of the school's teachers, the students face a variety of challenges when it comes to comprehending the content presented by the teacher in science subjects. The aim of this study is to analyze the many aspects of learning challenges that elementary school students encounter when learning science. The expectation is that this research would enable the teachers to properly understand the challenges faced by each student in class, allowing for a more conducive



learning environment and easier achievement of learning objectives. The principals should also evaluate learning facilities and infrastructure in schools to help eliminate barriers to learning and to help enhance the quality of the school and the students.

### **Research Method**

The descriptive method was used with a qualitative approach in this investigation. The subjects of this study were all the students at State Elementary School No. 5 of Binanga Dua (SDN No. 05 Binanga Dua), Silangkitang District, South Labuhanbatu Regency, totaling 114 students, with a concentration on class IV, class V, and class VI students totaling 33 students. The researcher was the primary instrument in this research, as he or she went directly to the field to gather information about the issues at hand. The scale used in this study was a Likert scale, and the data analysis technique was based on the collected data, so the percentage value of each response would be determined. According to Sugiyono (2008) The Likert scale is used to assess an individual's or group's attitudes, characteristics, and perceptions of social issues.

The data collection technique was as follows: first, observations were made to ascertain and collect concrete data about the problems that occur, then a questionnaire sheet was distributed to the entire sample, and finally, interviews with students were conducted to elicit additional information about the obstacles encountered. pupils in grades IV, V, and VI. This study's data analysis approach was an interactive model. Miles and Huberman (2014) assert that Qualitative data analysis activities are carried out interactively and constantly till the data is saturated. The analysis process involves the data reduction, the data display, and the conclusion drawing/verification (Miles, Huberman and Saldana, 2014). As a result, the researchers gathered data through writing, revising, categorizing, decreasing, presenting, and summarizing numerous hurdles encountered by the elementary school students studying science. Case study data can be gathered from all people involved or from a variety of sources (Prawanti dan Sumarni, 2020).

### **Results and Discussion**

The study gathered data on the challenges faced by students using interviews and questionnaires completed by respondents, which included all the students in classes IV, V, and VI, a total of 33 students, At State Elementary School No. 5 of Binanga Dua (SDN No. 05 Binanga Dua), Silangkitang District, South Labuhanbatu Regency. Observations were done of the principal in order to ascertain the elements that impact the challenges experienced by the students throughout the learning process at school, particularly in science subjects, which are one of the lessons required at the elementary school level.

The findings of these observations can be used as indicators for conducting interviews with numerous students in order to compare the results of the questionnaire to the results of the interviews in order to acquire the most accurate data possible. Researchers employ three primary indications to conduct interviews with students: (1) students' comprehension of science learning, (2) how the teachers teach patterns in class by the media, and (3) how the students respond when the facilities and the infrastructure are completed. The researchers conducted interviews with 6 students in classes IV, V, and VI, with the aim of serving the researcher in optimizing the study results. The researchers discovered a variety of replies that varied according to the student's state, as well as some answers that shared some characteristics, as described below:

The first question is if the science teacher's subject matter is simple and easy to understand. "Yes, it's pretty simple," stated the class-IV student with the initials "SIE" and



"KPL." "Pretty challenging," stated the class-V pupil with the initials "NZ" and "IR." Additionally, "very tough" This was communicated by the students in class 6 using the initials "AMP" and "NEP." According to the responses of many students, the implementation of learning has not been entirely successful, since there are the students who do not understand the content delivered by the teacher in the classroom. This is due to the existence of the students who dislike science subjects; hence, it is natural for the students to struggle to comprehend the content provided by the teacher. The second question is on the teacher's teaching methods while presenting material, whether it is fascinating or not. "Yes, interesting," as provided by class-IV pupils with the initials "SIE" and "KPL." "Yes, interesting," as expressed by class-V children with the initials "NZ" and "IR." "pretty interesting," as described by class-VI students with the initials "AMP" and "NEP." Their responses also differed; some stated that it was interesting, while others stated that it was pretty interesting; this is due to the teacher's method of instruction or the teacher's attention to various students, which causes discomfort and discomfort. The students are drawn to the teacher's method of instruction.

According to Sulthon (2016), Students' satisfaction of learning cannot be divorced from the process of interaction between teachers and students during the learning process, as well as the teacher-student relationship, which serves as a barometer for establishing the optimal learning circumstances. Teachers must provide learning methods that are appropriate for students' abilities in order to develop learning competencies, as well as learning facilities that facilitate students' comprehension of subject matter, thereby making the learning process active, effective, creative, interesting, and also satisfying. According to Sanita & Anugraheni (2020), The learning environment must be likely to nurture comfort ability, rather than being only focused on discussion and material; this must be accomplished by the instructor in his or her role as an educator in the classroom. Additionally, the learning process must present students with experiences, encourage student participation, and allow opportunities for students to experiment without the teacher's awareness.

The third question, if each student is interested in science learning, if there is a science laboratory room and a garden as a learning tool. The answer is "Yes, I am really interested and excited," by the students with the initials "SIE" and "KPL" indicated. "Of course I'm excited," the class-V students with the initials "NZ" and "IR" expressed. "Yes, I am really enthusiastic to study," as expressed by the class-VI kids with the initials "AMP" and "NEP." Their responses varied, but all stated that they would be more enthusiastic if there was a laboratory room and garden available as a learning tool for science, because the learning process does not end in the classroom; it must extend outside the classroom as well, allowing students to conduct new experiments on the surrounding environment.

The results of observations of school administrators and discussions with representatives of the students in classes IV, V, and VI reveal challenges to the students' science learning. Their challenges are identified using four primary indicators: the students' interest in science lessons, the students' understanding of the science learning process, the teachers' use of media learning, and school facilities and infrastructure. It is critical to understand so that the teachers may give appropriate knowledge and learning based on their students' requirements, hence reducing the number of obstacles encountered by students and preparing them to become excellent forerunners.

The results show that the obstacles faced by the class-VI students are fairly high, with the students' interest in science lessons at 77%, the students' understanding of the science learning process at 79%, and the teachers' use of learning media at 87%, while the highest

level of challenges is the availability of facilities and infrastructure provided by school to support maximum learning outcomes in science learning at a percentage value of 99%.

**Table 1. Results of Filling in Class 6 . Questionnaire**

CLASS-VI		
1	The students' interest in science lessons	77%
2	The students' understanding of the science learning process	79%
3	The teachers' use of learning media	87%
4	The facilities and infrastructure provided by the school	99%

The class-V students encountered challenges such as the low students' interest in science lessons (76%), the low students' understanding of the science learning process (79%), and the low teachers' use of learning media (86%), while the highest level of challenges encountered by the class-V students is also the same as that faced by the class-VI students, namely the lack of facilities and infrastructure provided by school to support maximum learning outcomes in science learning.

**Table 2. Class-V Questionnaire Results**

CLASS-V		
1	The students' interest in science lessons	76%
2	The students' understanding of the science learning process	79%
3	The teachers' use of learning media	86%
4	The facilities and infrastructure provided by the school	89%

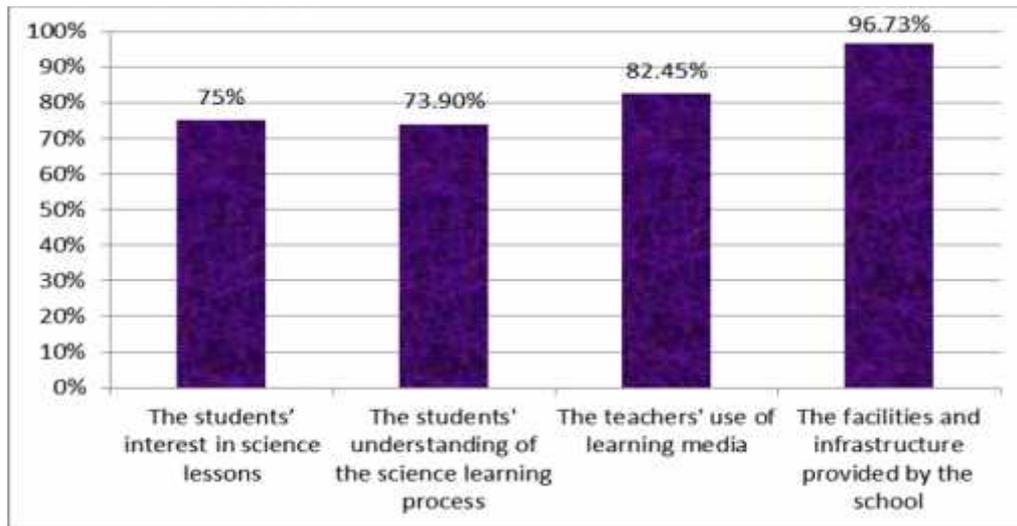
But the results of filling out the questionnaires obtained from the fourth grade show some significant differences with the fifth and sixth grades, namely: The students' interest in science lessons at 99%, then the students' understanding of the science learning process at 87%, the teachers' use of learning media at 92%, and the facilities and infrastructure provided by the school at 96%.

**Table 3. Class-IV Questionnaire Results**

CLASS-IV		
1	The students' interest in science lessons	99%
2	The students' understanding of the science learning process	87%
3	The teachers' use of learning media	92%
4	The facilities and infrastructure provided by the school	96%

## Discussion

The following bar chart summarizes the results of the questionnaire and interviews done by researchers with class-IV, -V, -VI students at State Elementary School No. 5 of Binanga Dua (SDN No. 05 Binanga Dua), Silangkitang District, South Labuhanbatu Regency:



**Diagram 1. Research results for all The class-IV, -V, -VI students**

The following 4 indicators were employed in this study: (1) the students' interest in science lessons; (2) the students' understanding of the science learning process; (3) the teachers' use of learning media; (4) the facilities and infrastructure provided by the school. According to the bar chart, the greatest difficulty pupils face is in terms of school facilities and infrastructure, with a percentage value of 96.73%, since State Elementary School No. 5 of Binanga Dua (SDN No. 05 Binanga Dua) only has a library room, a laboratory room, a garden or a living pharmacy garden. Additional education in the form of specialized tutoring is unavailable, which is one of the factors impeding students' progress in science. While the second greatest level is found in the educational media utilized by the teachers, with an 82.45% value. On average, the teachers at UPTD SD Negeri No 05 Binanga Dua, particularly in classes IV, V, and VI, bring only textbooks as learning material; given the absence of projectors at the school, teachers conduct the teaching and learning process entirely through teaching-learning activities. take notes without giving additional learning resources such as pictures or objects. The third highest level is the indicator of student interest in science lessons, which has a percentage value of 75%. This is because some students still do not comprehend how science is taught, as indicated by the lowest score of 73.90%. These two indicators are inextricably linked because if students dislike science lessons, their level of knowledge will decline as well.

The results of research conducted by Haqiqi (2018) shows that The challenges experienced by junior high school students in Semarang are mostly due to two things: internal and external influences. Internal influences include student interests, inherent abilities, drive, and intellect. While external elements include the availability of learning facilities in schools, the manner in which instructors conduct the learning process, the facilities and infrastructure available in schools, and student activities.

Student learning barriers are also examined by Adi et al, (2021) precisely in the online learning process, which shows that There are various negative effects associated with the implementation of learning, including challenges to student comprehension of the subject matter, a lack of excitement for learning, limited facilities, and expensive internet restrictions. The findings of the researchers' research bear various parallels to those of earlier studies, including student and student obstacles in terms of learning interest, learning facilities, and the manner in which teachers conduct learning.



Hutari et al, (2015) assert that One of the challenges to be addressed in science education is student interest in learning. The students' lack of interest in science lessons is frequently caused by monotony; they also seek out other activities that are not related to the teaching and learning process. This frequently occurs when the instructor conducts learning solely through the teacher and the classroom, omitting anything else that can stimulate the students' interest and satisfaction in learning science.

Hartatiek et al, (2018) assert that One of the factors contributing to low motivation and poor student learning results in science subjects is a consistent teaching and learning process. Learning facilities or science learning media must be constructed, since learning media may be created using common household items such as plastic bottles, cardboard, and paper. Apart from being a supplement to traditional learning media, it has the potential to indirectly reduce environmental pollution. While the study of Portanata et al, (2017) The success of science education is determined by a number of coexisting elements, the most critical of which is the teacher. The teachers are expected to foster a positive and engaging learning environment through their approaches and instructional media selections. Several types of learning media that can stimulate thought and captivate students include vivid image media that captures the attention the students' interest in science, powerpoint media, audio visuals, and animation.

One of the learning media that the teachers can use is the internet. Because accessing the internet is no longer difficult, teachers can use gadgets to carry out the learning process and assign assignments to students, allowing teachers to shift their focus away from print media and books in the classroom instruction (Budiyono, 2020).

Facilities and infrastructure according to Tanjung et al (2016) are elements that are important in the teaching and learning process in schools and become a resource that must be prioritized both in schools with accreditation A, B to schools with low accreditation or C. Education can be of high quality if the school has enough facilities and infrastructure, but the level of learning will be inferior if these facilities and infrastructure are not present. One of the issues confronting education in Indonesia today is the low quality of learning processes and outcomes caused by a lack of community and government-provided educational facilities. This is consistent with the results of the study by Megasari (2014), Facilities and infrastructure management is a critical function that must be carried out to ensure their maintenance and proper usage. The principal is responsible for facility and infrastructure management because facilities and infrastructure enable pupils to study maximally and efficiently. If management is properly done, it will have a beneficial effect on the learning process for students and will enable them to accomplish the learning competency targets.

According to Widiawati et al, (2015), Science education in elementary schools must be engaging by incorporating simple investigations, discussion, and direct observation of the environment or natural surroundings, as this method of instruction can increase the student curiosity, concentration, and also help the students more easily comprehend what they are learning. Science is currently being developed. Learning such ideas fosters critical thinking attitudes and prepares the students for a longer period of time, as well as serves as a solid foundation for boosting the students' comprehension of the content being taught.

## **Conclusion**

The study's results show that the maximum level of learning challenges encountered by the students is related to school facilities and infrastructure, at 96.73%, while the second highest level is related to the learning media used by the teachers, at 82.45%. The next highest level is the indicator of the students' interest in science lessons, which has a



percentage value of 75%. This is because some students still do not understand how science is taught, as indicated by the lowest score of 73.90%. The existence of challenges in science learning has a significant impact on the students' interest in learning and level of understanding, resulting in a less effective teaching and learning process in the classroom. The solution to the above is for the teachers to obtain a better understanding of the needs of the students while they are studying, for the teachers to employ a variety of learning media that entice the students to learn, and for the principal to provide comprehensive facilities that support positive learning outcomes.

### Recommendation

The findings of this study may be utilized as a reference point for science subject teachers in order for them to have a better understanding of and acquaintance with the many varieties of challenges encountered by students when learning science subjects in class. The principal can also improve science learning facilities by establishing a laboratory room to minimize different challenges to elementary school students learning science and enhancing several aspects that support science learning so that it can be maximized, all while paying attention to students' needs both inside and outside the classroom.

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