THE ROLE OF TEACHERS IN THE DEVELOPMENT OF NATURALIS INTELLIGENCE IN SCIENCE LEARNING

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Abstract
This study aims to identify the teacher's role in developing naturalist intelligence in science learning at Yapis Kaimana Elementary School. This study uses a qualitative case study approach, with data collection techniques through observation, interviews, and documentation. Data were analyzed using Miles and Huberman analysis techniques, namely data reduction, data presentation, and conclusions. The primary data for this study were school teachers, students, grade 1 teachers, grade 3 teachers, grade 5 teachers, grade 6 teachers, and grade IV science teachers. The results of the study show that the teacher has a very important role in the development of naturalist intelligence in science learning at Yapis Kaimana Elementary School. Teachers use learning methods that focus on observation, experimentation, and hands-on experience to help students understand scientific concepts and build naturalist skills. In addition, teachers also provide opportunities for students to develop their interests and talents in natural sciences through activities such as environmental observations, school gardens, and simple research. This study shows that the teacher's role is very important in the development of naturalist intelligence in science learning at Yapis Kaimana Elementary School. In developing naturalist intelligence, teachers must be able to identify the needs and interests of students and choose appropriate learning methods. In addition, teachers must also help students develop naturalist skills through activities that are relevant to their context and environment. This research can be a reference for teachers and schools in developing science learning that is effective and oriented towards developing students' naturalist intelligence.

Keywords
Naturalist Intelligence, Science, Yapis Kaimana

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INTRODUCTION

Naturalist intelligence is one of the multiple intelligences found in each individual about concern for the natural environment and its contents, including flora and fauna, so if students have good naturalist intelligence, the student has the awareness to love the environment well. Naturalist intelligence is intelligence related to nature or anything related to the surrounding nature (Sadiku et al., 2021). Naturalist intelligence is a person’s ability to be sensitive to the natural environment. For example like to be in the open natural environment, such as beaches, mountains, nature reserves, and forests, so with naturalist intelligence, someone tends to like to observe the natural environment, such as various kinds of flora and fauna and celestial bodies (Uno & Coyle, 2019). Naturalist intelligence is also characterized by the ability to distinguish members of a species, recognize the existence of other species, and map relationships between several species, both formally and informally, so that children who tend to be intelligent in naturalists appear lovers of animals and plants and are sensitive to nature, so that their intelligence can be identified through observation a) their enjoyment of plants such as flowers and caring for plants, appear as if talking to plants; b) their affectionate attitude towards pets, e.g., petting, feeding, and drinking, collecting animals or pictures or miniatures; c) their ability to recognize and memorize the names of types of animals and plants. For example, knowing the names of types of fish and birds and recognizing plants; d) children’s fondness for seeing pictures of animals and often asking questions and when children can read, children often read books about animals and plants; e) sensitivity to shapes, structures, and other characteristics of natural elements, such as leaves, flowers, clouds, and stones; f) pleasure in nature, liking outdoor activities, such as beaches, fields, river gardens, rice fields, and spending time near ponds, and aquariums (Tadkieroatun & Hum, 2018).

Students who have naturalist intelligence dare to do things that are usually considered disgusting and considered naughty students because they carry out activities such as looking for worms in garbage piles, climbing trees to find out the shape of bird nests, collecting dried leaves to be used as accessories, also adventuring on beaches, swamps, rivers and in the open, so often students like them are punished and forbidden to do these activities and without realizing that Such prohibitions and punishments may result in the non-development of the naturalist intelligence of our students.
Current phenomena that occur various kinds of disasters everywhere, such as landslides, floods, abrasion, forest fires, also lack of availability of clean water, and reduced endemic animals and plants due to the hunting of rare animals and plants. All these phenomena are caused by the actions of humans themselves, who do not care, understand, love, and protect the surrounding environment, animals, and plants. In other words, the loss of their naturalist intelligence. If this phenomenon occurs continuously and is not developed into the intelligence of naturalists and students, it will have a fatal impact on later life. So naturalist intelligence is very important to be developed early in elementary school education because of changes in conditions and phenomena that will have a negative impact. The importance of developing naturalist intelligence is also supported by (Yunisari & Amri, 2016), who said that the importance of developing naturalist intelligence is because the reality that occurs today is that many individuals do not develop naturalist intelligence. This is evidenced by the number of humans who carry out illegal logging, burn forests, litter, and do not care about the environment. Naturalist intelligence is also very important to develop because it involves the ability to recognize forms in the surrounding nature, namely birds, flowers, animals, and other flora and fauna. According to Amstrong, naturalist intelligence is needed by everyone from an early age because this intelligence is able to maintain and maintain their instincts to live comfortably in the wild with God’s creatures, such as knowing and loving flora and fauna (Prezylia et al., 2021).

Natural science (IPA) is one of the fields of study at the elementary school education level, which is very fun learning because students learn directly about themselves, animals, plants, and the environment and nature. (Sulistriani et al., 2021) Said that science in elementary schools is also one of the learning programs that aim to improve and develop knowledge, skills, attitudes, and scientific values in students as well as love and appreciation for the greatness of God Almighty. In essence, science is a scientific product, scientific process, and scientific attitude (Tursinawati, 2016). Science is a course that discusses natural signs that are arranged systematically based on the results of experiments and observations made by humans (Nurmaliah et al., 2021). Science learning is also a subject in elementary schools that provides understanding and improves and develops potential as well as attitudes, skills, and knowledge to students scientifically so that students have a sense of love and appreciation for the greatness given by God Almighty (Yusnita et al., 2021). In addition, science in elementary schools must be able to create a meaningful learning atmosphere with the aim
that students can understand science material as a whole and can always be connected and applied in everyday life (Rahmawati, 2019).

The role of teachers in education has a strategic role and is said to spearhead educational success. The role of the teacher is very important because the teacher determines the quality of the output and outcomes produced by the school. Because it is the teacher who plans the lesson and implements the lesson plans that have been made while assessing the learning that has been done (Hamid, 2018). Teachers also have an important role as the frontline in the world of education and realize what the learning objectives in determining the quality learning process are (Viona & Ayurachmawati, 2022). Because without the role of teachers, whatever educational goals are formulated will never be achieved by students (Darmadi, 2018). The role of teachers also includes many things, namely being able to act as teachers, class leaders, mentors, organizers of the learning environment, lesson planning, supervisors, motivators, and evaluators (Jahara et al., 2019).

In carrying out their role, teachers must be able to understand and have teacher competence as a basis for professional educators. Meanwhile (Daryanto et al., 2022) stated that the role of 21st-century teachers is not easy. Namely, teachers are expected to be able to carry out learning that relies on and implements the four pillars of learning recommended by the UNESCO International Commission, namely: 1) Learning to know, 2) Learning to do, 3) Learning to be, and 4) Learning to live together. In addition to the role of teachers in carrying out 21st-century learning with the four pillars of UNESCO, teachers also continue to strengthen their competencies so that they become professional teachers (Wulan, 2021). The professional role of teachers in developing learning that seeks to improve intelligence, technical, authoric, conceptual, and moral as needed through education. So that it can develop various potentials, especially naturalist intelligence which can have a good impact on the sustainability of a generation that cares about the environment and is in the content of science lessons (Ardiansyah & Sulistiyowati, 2018).

Yapis Kaimana Elementary School, located on Lettu Idus Street, Kaimana Regency, West Papua Province, is an Islamic elementary school. When researchers made initial observations, there were various beautiful plants and flowers neatly arranged and shady overgrown with trees around the field and school entrance. As for what was said by Mrs. MN as the principal after the researcher conducted an interview, every time they entered new teaching, students were required to bring ornamental plants that were already in pots which were then cared for by students and accompanied by each homeroom teacher, as for other programs, namely: School garden activities are carried out
planting short-term crops such as spinach, cassava, kale, and mustard. As for living dispensary activities such as ginger, turmeric, and other medicinal plants, for student friends, students participate in maintaining, loving, and feeding Herwan around the school. According to Mrs. MN, the benefits of the program are that students can love and care for plants and animals from an early age so that they can have a positive impact on the environment in the future (Sumitra & Panjaitan, 2019). The role of teachers in this program is to guide, give direction, motivation and always give a good con toh. For learning, especially science learning, researchers conducted an interview with homeroom teacher IV Mrs. NR about how the role of science teachers is to develop naturalist in-person intelligence at school. According to her, what is done is to prepare a growing learning process to develop the naturalist intelligence of students. By utilizing school programs such as school gardens and potted plants in accordance with the science material, Scan develops students’ naturalist intelligence in science learning (Rosiana et al., n.d.). The homeroom teacher of class IV also provided information that students really like plants and animals, and this can be seen neatly arranged in beautiful, fresh, and lush potted ornamental plants in the classroom and outside the classroom. Many fourth-grade students also like to keep their favorite pets, and the animal they keep the most is cats (Anggraini, 2018).

The results of observations in the field researchers found that the atmosphere in the school was very conducive and orderly (Tokan, 2016). Learners are very friendly and show respect to everyone they meet. In addition, researchers also found that there were students without orders who were repairing some fallen flowerpot plants scattered around, watering the plants, and pulling weeds in the flowerpots (Junilasari et al., 2017). Researchers also saw students littering in the trash even though it wasn’t their schedule and not their classroom area. Thus, this study is to analyze and describes the role of teachers in the development of naturalist intelligence at Yapis Kaimana Elementary School.

METHOD

In this study, the method used is qualitative because the problems in the field are very complex, holistic, dynamic, and meaningful, so social situation data cannot be captured by other research methods. There are several stages that must be carried out in this research, namely, the pre-field stage, implementation, data analysis, and report writing. In pre-field activities, researchers first compile research proposals or proposals containing systematic and rational steps set by researchers.
Primary sources Researchers use interview results obtained from informants about research topics as primary data. So that the primary data from this study are school teachers, student affairs, grade 1 teachers, grade 3 teachers, grade 5 teachers, grade 6 teachers, and grade IV science teachers. This information is obtained by establishing close relationships through good communication and kinship. Data collection techniques in this study, namely observation, interviews, and documentation.

FINDINGS AND DISCUSSION

Findings

Based on the findings that researchers found during field research related to the role of teachers in the development of naturalist intelligence at SD Yapis Kaimana, the research findings are as follows:

Table 1. The Role of Teachers in the Development of Naturalist Intelligence at Yapis Kaimana Elementary School

<table>
<thead>
<tr>
<th>No.</th>
<th>Role</th>
<th>Short Description</th>
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<tbody>
<tr>
<td>1.</td>
<td>Educators</td>
<td>That the role of teachers as educators in the development of naturalist intelligence in terms of the application of scientific disciplines is seen at the teacher's entrance time at 6.30, then at 7.00 students and homeroom teachers each refract of watering plants, caring for plants, caring for school gardens for the class that manages them, picking up garbage and throwing it into the trash can according to the type of waste so that later it can be recycled such as making flower pots from used bottles, Making crafts from plastic, as well as foliage waste make fertilizer. Then at 7.15, the teaching and learning activities began to run. The development of students' naturalist intelligence has been programmed in school programs with the types of activities that exist to hone and grow students' naturalist intelligence at Yapis Kaimana Elementary School.</td>
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<tr>
<td>2.</td>
<td>Discipline</td>
<td>That the role of teachers as educators in disciplining students for the development of naturalist intelligence at SDN Yapis Kaimana has been well established and running well, which can be seen from the discipline of time, morning activities such as morning apples, caring for plants, school gardens, and carrying out teaching and learning activities.</td>
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<td>3.</td>
<td>Responsibility</td>
<td>A person's behavior and attitude in carrying out their duties and obligations. The role of teachers as educators to educate students is responsible for the development of naturalist intelligence at Yapis Kaimana Elementary School. That the role of teachers as educators in instilling a responsible attitude towards the development of naturalist intelligence has gone well by being responsible for maintaining the cleanliness of the classroom and outside the classroom and school environment, being responsible for the plants cared for and plants in the school environment, caring for potted ornamental plants well, and the school garden.</td>
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<td>4.</td>
<td>Penalties and Rewards</td>
<td>The punishment in case of indiscipline is given a warning letter, but more than four times will be called by the parents. While the punishment for damaging plants is that students must plant ornamental plants in pots and then take care of them until</td>
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they thrive, then students are required to make a record of the planting process until plant growth. While awards are given to students, student groups, and classes who are creative in doing new works, managing school gardens that are considered successful, and other competitions such as school gardens.

5. **Supervisor**

That the role of teachers as educators in the development of naturalist intelligence at SD Yapis Kaimana also guides students on tasks that are in terms of directing students to care for the environment, guiding and directing in grouping plants, and guiding students when exploring the school environment or outside the school.

### Discussion

The educator is the role of the teacher who educates professionally in the school so that all attitudes and sayings are imitated by the students. With teachers as educators, teachers can educate in the sense that teachers change and shape the behavior and personality of students so that they can be manifested in everyday life (Juhji, 2016). The finding of the teacher’s role as an educator in the development of naturalist intelligence at Yapis Kaimana Elementary School students is to instill discipline, responsibility, as well as punishment and reward. Dissipin is carried out by the teacher as an educator, which is time discipline that can be seen when at the teacher's entrance time at 06.30, then at 07.00 the students and their homeroom teachers each refraction of watering plants, caring for plants, caring for school gardens for the class that manages them, picking up garbage and throwing it into the trash can according to the type of waste so that later it can be recycled such as making flower pots from used bottles, Making crafts from plastic, and foliage waste is made fertilizer. Then at 7.15, the teaching and learning activities began to run. As for the development of naturalist intelligence, students have been programmed in school programs with existing types of activities to hone and grow the development of students’ naturalist intelligence at Yapais Kaimana Elementary School. Discipline is an obedient attitude or behavior that shows order and obeys all the rules that apply in a place. Discipline will make the situation safe and can form a positive attitude and develop various potentials and have an impact on the development of one's intelligence. (Solihati, 2019) said that discipline is something related to one's self-control over the form of rules.

Thus discipline will shape a person in utilizing time so that everything runs effectively and efficiently. In addition, discipline will make a person capable in his life. Because according to (Abbas et al., 2022) that discipline is also useful for respecting time, so someone who succeeds in life is someone who is diligent in learning and appreciates the time obtained from the learning practice process, and the results obtained will benefit themselves and others. The role of teachers as educators in shaping disciplinary attitudes through time, discipline, and habituation can have a positive impact on students in understanding, loving the environment, and developing students’ naturalist
Responsibility is the behavior and attitude of individuals in carrying out their duties and obligations. The role of teachers as educators to educate students is responsible for the development of naturalist intelligence at SD Yapis Kaimana can be seen in the responsibility of caring for plants, such as moistening the soil, pulling weeds, and watering plants regularly. Students are also responsible for caring for waste inside and outside the classroom. In addition, peseta students always carry out class pickets to take good care of the school garden without being instructed by the teacher or homeroom teacher. The role of teachers as educators in instilling an attitude of responsibility can be formed by providing instructions and tasks to students. This is in accordance with the (Azizah, 2021) statement that creating students to be responsible must start with assigning assignments. Based on the findings and theoretical studies, researchers concluded that the role of teachers as educators in forming attitudes of responsibility is based on habituation and assignment to students.

Punishment and reward are one form of action taken by teachers as educators, and it is because these students have done slowly and gained achievements. Punishment by teachers in the field of education is a way to develop naturalist intelligence at SDN Yapis Kaimana so that students who violate the rules will be deterred and no longer repeat the same mistakes. As found by the role of teachers as educators at SDN Yapis Kaimana, punishment late for students who are not disciplined, such as being late three times in a row or in one month four times, will get a warning letter through each teacher’s homeroom teacher in writing. However, if the student is still late, a summons letter will be issued to the parents.

During this time, if the student is late, the principal finds out the reason for the student’s delay through the student affairs and homeroom field so that the reason for the delay can be known because the distance between home and school is too far. Educational punishments are given to students who damage crops, trees, and garbage. The educational punishment given aims to develop the naturalist intelligence of students at Yapis Kaimana Elementary School because punishing with violence will not benefit elementary school students. So that the educational punishment given is that students are required to plant two ornamental plants in pots and then take care of these plants, namely compulsory plants in class, and plants from the punishment given. To control these students, cooperation between homeroom teachers and students to monitor the progress of these students is passed through a liaison book that functions so that students can write their activities and plant
The role of teachers as educators in rewarding students at SDN Yapis Kaimana is to provide creative students, students, or groups of students to manage used materials, manage school gardens for harvesting, classroom hygiene, and create school gardens. The reward is the act of rewarding a person or group involved in performing positive actions and acting in a better direction. This is also in line with the opinion (Syawaludin & Marmoah, 2018) that giving awards or rewards given to outstanding students in the field of education is useful for arousing or encouraging children to do something more. So that the role of teachers in the development of naturalist intelligence as educators in providing punishment and rewards through planting ornamental plants in pots and then being treated and writing developments in connecting books can have a deterrent impact as well as be more motivated in awarding. The role of the teacher as a guide in the development of naturalist intelligence at SDN Yapis Kaimana is that the homeroom teacher acts as a coach. It is focused on directing students to understand what is done so that it is useful in loving the environment, plants, and animals and maintaining the cleanliness of the environment.

With the role of the teacher as a guide, students can feel directly about nature by doing gardening activities, walking around the school environment, collecting garbage and disposing of it in its place, planting ornamental plants in pots, loving surrounding animals, and exploring as activities. As for the findings in the field, researchers saw that first graders were being guided to observe animals in the school garden, and students were very happy to have attitudes that showed affection towards the observed animals.

CONCLUSION

Based on the results of research on the role of teachers in developing naturalist intelligence in science learning (qualitative study of SD Yapis Kaimana), researchers can conclude that the role of teachers in developing naturalist intelligence at SD Yapis Kaimana is that teachers act as educators who form attitudes of discipline, responsibility, punishment and reward to students, mentors, parents, managers, facilitators, motivators. The role of teachers in developing naturalist intelligence in learning Science at SDN Yapis Kaimana is utilizing school programs such as potted ornamental plants as science learning in the classroom. And school gardens as science learning outside the classroom, Creating fun learning, Making mapping of science materials that utilize school programs and preparing LKPD to facilitate the learning process for students, Supporting factors for the role of development.
teachers in developing naturalist intelligence in science learning at Yapis Kaimana Elementary School are a natural school environment, Full support from the principal and good communication between teacher councils. There are school programs in the development of naturalist intelligence, support from parents and students who are characterized by caring for the environment, responsibility, discipline, independence, and student awareness; inhibiting factors are, Still a lack of teacher understanding of naturalist intelligence, Facilities in the development of naturalist intelligence only on safe tan, have not been seen in animals, School gardens and school gardens have not been neatly arranged, science teachers are limited in determining activity ideas and have not fully understand structuring the learning of naturalist intelligence.

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