

Strategies for Developing Naturalist Intelligence at Nature Schools

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ABSTRACT

Early childhood education plays an important role and determines for the next child's development. PAUD Institution is the basic foundation in the formation of child personality. Through natural learners gain greater opportunity to develop their naturalist intelligence while in school. This study uses a descriptive qualitative approach with a multi-site study design. The data collection techniques used are interviews, observation, and documentation in the PAUD Alam Berbasis Karakter Sayang Ibu Banjarmasin City and PAUD Alam Darunnajah Banjarbaru City. The informant in this study is the head of the PAUD, teachers, and students. Once data is acquired, it is analyzed by single-site analysis and cross-site data analysis. The validation of data is using the triangulation of sources, and techniques. This research finds several development findings. The strategy used by PAUD Alam Berbasis Karakter Sayang Ibu Banjarmasin City and PAUD Alam Darunnajah Banjarbaru City in developing naturalist intelligence is through natural-based learning. The learning process is done by utilizing the natural environment. While the obstacles experienced by the school in developing natural intelligence are activities at the beginning of the lesson, the lack of teachers following academic qualifications, and financial problems of the school.

Keywords: Strategies, naturalist intelligence

Introduction

Early childhood education is the level of education taken before the child enters the primary education stage. The purpose of early childhood education is to facilitate the growth and development of the child as a whole. Therefore "education for early childhood, especially kindergarten, needs to provide various activities that develop various aspects of child development (Norhafizah et al., 2020). the role of education is critical to a child's future (Baharuddin & Dalle, 2019).

The age of 0-5 years is a critical period for a child to shape his character (Nelson et al., 2019) Early childhood education is at the age of

0-6 years. At the time it was focused on six aspects of development, including the development of religion and morals, art, language, cognitive, emotional, and social. Basic development is directed at the smooth and abusive motor development of the child (Allen et al., 2015) (Baharuddin & Dalle, 2017).

Early childhood education aims to stimulate child growth physically and spiritually to prepare the child to be able to continue the next level of education (Hasnida, 2015). The process of experience experienced by children continuously between learning and the development process through learning experience so that it continues the next stage of development (Meity, 2015).

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The basis of a child's personality is determined by education at an early age because it plays an important role that determines the history of the child's later development (Mulyasa, 2012). Our predecessors stated that children were the successors to the ideals of the nation in the future (Pritchard & Williams, 2011). Therefore, early childhood is prepared and educated to stimulate the ability and skills of children (Rebello Britto, 2012). Child development is all changes experienced by children that include several aspects of change, including physical (motor), cognitive, emotional, and psychological. This is in contrast to the principle of the early development of the child, which will have a major influence on subsequent development, and vice versa. This means that early development will be the basis for future developments. This should be used by educators well because it is the development of children that should be utilized with a good educational pattern.

A kindergarten teacher is required to be creative in creating a fun learning atmosphere and stimulating children's reasoning (Novitawati et al., 2019). Teachers are tasked with helping to develop the values of life, by continuing science and technology and developing the skills of the students (Hamid & Suriansyah, 2019).

In some of the cases, we encounter in society some children are forced to understand and do something incompatible with the child's developmental aspects. Early childhood education institutions are mostly more oriented towards the cognitive aspects of students, namely the academic abilities of children, especially Calistung. The academic ability takes precedence over the demands of parents and is a requirement to enter primary school and children which will be entering elementary school is required to be able to read, write even count, while other intelligence skews left behind including naturalist intelligence, thus making the child's concern for the environment and the environment less. Like there are still we find in the neighborhood around the child who throws garbage carelessly, on the table, under the bench even scattered inside and outside the classroom. Also, children have not been able to name plants because they have never studied

outside the classroom to simply observe the trees around the school, so when children are invited to study outside the classroom, they are still taboo with the objects they encounter every day in the neighborhood. This is part of a child's naturalist intelligence that is still low and needs a strategy to develop it.

The early childhood education institution Alam Sayang Mother and early childhood education institution Alam Darunnajah is an educational institution that is not only oriented towards cognitive aspects but strengthens with other aspects of development, it is seen from a nature-based learning approach. Learning is done in the wild and learning methods and classroom/room concepts directly blend with nature. The uniqueness and peculiarity of this natural school is the difference compared to other schools. Learning done in the outdoors makes the opportunity to develop naturalist intelligence greater, as children are directly related to the environment. Learning through the outdoors makes the child look more active and enthusiastic following the lesson, as when learning to plant, water crops, and clean garbage, and remove grass. Children in nature schools are more courageous and creative in exploring and experimenting.

How to learn through nature more effectively for early childhood, the learning system can be set by increasing the chances of students learning through the natural environment. We should also present nature as its world in a classroom/school environment so that students are directed to explore naturalist intelligence, meaning that students are given a targeted opportunity in developing their naturalist intelligence during the learning process in school.

Naturalist intelligence is simply the ability of a person to adjust and relate to nature (Wirdianti et al., 2019). Gardner thinks Natural intelligence is a difficulty in recognizing and categorizing species such as flora and fauna in the natural environment, recognizing diverse species, observing relationships between species, and also regarding sensitivity to phenomena that occur such as cloud formations and mountains (Pradana, 2018; Ningrum et al., 2018).

Children with natural intelligence mostly have a strong perception ability to see what is happening in their environment. It is because it has become one of the characteristics of early childhood, namely, high curiosity. All forms of curiosity always want to be answered and proven (Kidd & Hayden, 2015).

Learning in a natural environment (natural school) does not have to buy or make learning media, but must adapt to aspects of early childhood development. The learning process by using the natural environment as a learning resource is very diverse so it is not rigid and boring. Various aspects of child development are seen when learning in nature because PAUD curriculum there are many themes related to nature including plant themes, animal themes, water, fire and air themes, and themes of the universe. So that the development of naturalist intelligence can be well stimulated.

Armstrong explained that "living classrooms" need to be provided for children at home and at school. It can provide experience and opportunities for children how to take good care of nature, such as processing the garden, caring for pets, and learning the system of life, so that the child is closer to nature and develops naturalist intelligence through the nearest environment of the child (Sholikah & Andajani, 2015). The child's learning resources will be more natural and enjoyable when out of class, while the child's learning resources are feasible and possible in facilitating the learning process. These media can foster naturalist intelligence to stimulate the realm of child intelligence.

Material and Methods

This research used a qualitative descriptive approach with type multi-sites research design and data collection techniques through observation, interviews, and documentation. As for being an informant in this study are, the principal of Early Childhood Education, teachers, and students. Once the data is obtained it is then analyzed with a single site analysis and cross-site data analysis. While data validity checks are carried out with the triangulation of sources and techniques.

Results and Discussion

Natural intelligence is one of the intelligences developed in educational institutions, especially in natural schools. Natural intelligence is related to the environment and natural symptoms.

The strategy of natural intelligence development

Strategies used by PAUD Alam Berbasis Karakter Sayang Ibu Banjarmasin and PAUD Alam Darunnajah Banjarbaru in developing naturalist intelligence is through nature-based learning. The learning process is carried out by utilizing the school environment as a source and learning media for children. Schools make the outdoors a place to learn, as well as nature as an object of learning. The use of natural materials as a learning medium, allowing children to experience firsthand the materials studied, thus making the learning process comfortable and conducive to students. The creation of a conducive and also comfortable environment for learning is highly expected by children (Suhaimi, 2016). Activities at nature centers are more widely carried out outdoors, utilizing facilities and learning materials in school, such as, playing sand, utilizing trees, counting leaves on twigs, observing the difference in the color of leaves. Naturally, the learning process in the center of natural materials can stimulate natural intelligence found in early childhood. Outdoor learning also allows teachers to make learning planning with games, Through games, children can learn to be active, creative, and innovative to create new things (Aisyah et al., 2018).

In addition to utilizing the natural environment in the school, nature-based learning is also done at the peak of the theme. At the height of the theme, children were invited to study at designated places at the beginning of the new teachings, places visited in the form of nature tourism or zoos.

School activities conducted outside of the school environment should involve the community, one of which is parents so that it is expected that the activities carried out by the school can run properly (Suhaimi, 2017). Fam-

ily involvement in early childhood through institutional program planning activities disseminated to all schools, and including parents (Maimunah et al., 2018). Parental involvement affects the characteristics of the child (Yulianti et al., 2018). As the house that was the first curve that shaped the development of children's education (Pauls et al., 2013; Rebello Britto, 2017).

Hamzah revealed that children who have naturalist intelligence tend to like to observe the natural environment such as various kinds of rocks, types of soil layers, various kinds of flora and fauna, celestial objects, and so on (Hamzah, 2010). The same thing about small levels of matter, naturalist intelligence can be realized in investigative activities, experiments, finding elements, natural phenomena, weather patterns, or conditions that change the characteristics of an object (e.g. ice melts when exposed to solar heat) (Maftoon & Sarem, 2012; Mimura, 2013; Musfiroh, 2010; Putrawan, 2017). The natural environment will be a favorite place for children who have high natural intelligence, such as liking coastal environments, mountains, rivers, and so on. They enjoy the proximity to nature. Children also enjoy activities that are directly related to nature such as liking camping, cycling, fishing, gardening, walking, and so on. Children who have naturalist intelligence also have a high curiosity about the conditions in their environment. A child's high curiosity makes the child wonder and wants to know the answer (Spektor-Levy et al., 2013) with so many questions, the child will gain new knowledge that can explore the child's intelligence (Olsher & Kantor, 2012) This is as explained by Musfiroh on indicators of naturalist intelligence for early childhood, among others:

1. Children are more out of the class than in the classroom. Children also like to approach the window and look out and report to educators what they see outside the window.
2. Children (tend to be males) are attracted to hordes of small animals such as ants and looking for the nest, even daring the river to look for fish and catch eels in the rice fields.

3. Children love collecting animal mini toys and enjoy the practice of collecting leaves and flowers in books.
4. Children are interested in seeing magazines with pictures of animals and plants and pretending to read the text on the side or below the picture.
5. Children have the pleasure (yet can be called hobby) towards animals such as fish. They begin to observe the movements of the fish, pay attention to the growth of the fish, and feed it well.
6. Children look happy to be in the garden, do not damage the plants that are in it, asks about the names of flowers, sometimes seem to talk to plants.
7. Children aspire to be gardeners, florist, wild animal conqueror, mountaineer, surfer, astronaut.
8. Children are interested in observing natural symptoms, such as rain, volcanoes, wind, wet or fallen trees, clouds, or floods.
9. Children are not afraid of animals, such as caterpillars, are not easily disgusted with animals such as worms and cockroaches, and dares to approach the kitchen, and do not cry when the cat reacts somewhat aggressively.
10. Children choose a holiday to the zoo, mountain, beach, or village (Musfiroh, 2010).

The learning process is carried out by utilizing the school environment as a source and learning media for children. Nature-based learning activities are more focused on the center of natural materials. Activities at the nature center are more outdoor, utilizing the learning facilities in the school. In addition to utilizing learning facilities in schools, learning in the center of natural materials also utilizes materials that are already available in nature, such as, playing sand, utilizing the trees around the school, counting the leaves on the twigs, observing the difference in the color of the leaves, and others. naturally, the learning process in the center of natural materials can stimulate natural intelligence found in early childhood.

In contrast to the results of the above research, Ace explained naturalist intelligence

can be stimulated through various things for example through the verbal introduction of science, the provision of science books, VCD animals/plants, farming activities, watering flowers, keeping poultry, collecting natural objects that are in his left, such as rocks, sand, nuts and other things that are from nature. The learning process using a scientific approach is directed so that students can formulate problems (by asking many questions), not just solving problems by answering them (Daud, 2017; Zaim, 2017). Children who have naturalist intelligence tend to be bold holding animals, fond of flowers and plants, and taking care of the environment around them (Zen & Sihes, 2017).

Musfiroh added Children like to investigate the various lives of small creatures such as worms, ants, and leaf caterpillars. Children love to observe mounds of soil, check animal tracks, scrape the soil, observe hiding animals, and then catch and stab them to find out the entrails of animals. Children with high naturalist intelligence tend to love the outdoors, get intimate with pets, and even spend their time near aquariums. They have a great curiosity about the ins and outs of animals and plants. Children with high naturalist intelligence tend not to be afraid of holding insects and being near animals (Musfiroh, 2010).

In addition to utilizing the natural environment in the school, nature-based learning is also done at the peak of the theme. At the height of the theme, children were invited to study at designated places at the beginning of the new teachings, places visited in the form of nature tourism or zoo.

Jarot Wijanarko in Latansa Hafizotun mentions that the development of naturalist intelligence can be done through a visit to the zoo (Hafizotun, 2017). Through learning in the zoo the child can observe directly against the object, in this case, the animal, so that it provides quick knowledge for the child. Teachers teach children directly about animal names, how to care for animals, feed animals, and more. It is also revealed by Maryanti, et al. (2019) Taking children to the zoo can foster the natural intelligence of the child, but the child can directly objectify animals and plants. Children are expected to be critical and logically thinking

through direct learning in nature (Cassidy & Christie, 2013; Karadağ & Demirtaş, 2018). Learning at the zoo also keeps children from getting bored (Maryanti et al., 2019).

Musfiroh added that the naturalist will be seen as a child who is animal and plant-loving and sensitive to nature, such as beaches, fields, gardens, rivers, rice fields, and nature limited to spending time near ponds or near aquariums (Musfiroh, 2010). Naturalist children will also choose to vacation to a zoo, mountain, beach, or village, rather than vacationing in a market or mall.

Constraints in developing natural intelligence

Early activities

From the test results, it can be seen that Asymp. Sig (2-tailed) for the attitude variable towards the profession is 0.300, work motivation is 0.140, work discipline is 0.290, and teacher performance is 0.078. This is because the Sig value is greater than 0.05 (significance level). Therefore, the data for the variables of attitudes towards the profession, work motivation, work discipline, and teacher performance are normally distributed.

In the early activities of the teaching-learning process, teachers have difficulty in conditioning students to prepare for the learning process. Whereas the interaction of teachers and students who run well will determine the success of students in understanding learning materials (Cinantya et al., 2018). Children who are highly motivated in learning will quickly understand the learning material (Dzanic & Pejic, 2016) on the other hand, children who lack motivation in learning will find it difficult to understand the learning process (Koca, 2016).

In the early days, the child was more active in playing with friends, regardless of the teacher's explanation. According to Fadillah Anak at an early age is very susceptible to short concentration so that the attention of the child at an early age is easily distracted when he feels that the activities that were previously carried out are felt by the child no longer interesting. The child will immediately turn his attention to something he considers more interesting. Early childhood has characteristics. Each child also

has different characteristics (Drachsler & Kirschner, 2011; Gilakjani, 2010). Among them is still having a taste for "me". Where the child still thinks more about himself than anyone else. Usually, the child will whine even manages when his wishes are not fulfilled and will seize someone else's toy when he wants to own the toy regardless of the person's feelings (Fadillah, 2016). Barnawi explains the characteristics of early childhood learning as follows: 1) children learn through play, 2) children learn by building their knowledge, 3) children learn scientifically, 4) children learn best if what they learn to consider all aspects of development, meaningful, interesting, and functional (Barnawi, 2012). According to the character, various ways can be done in early childhood education such as games, singing, rhythm, fairy tales, stories, sports, plays, role play, language, art, religion, and the natural environment (Santoso, 2012).

Early childhood characters are very different from adults. The characteristics of early childhood are very prominent about very unique children's learning activities such as egocentric, active and energetic, have a strong curiosity and high enthusiasm for many things, are exploratory and adventurous, express their behavior relatively spontaneously, happy and rich with fantasy, still easily frustrated, still lack consideration in doing things, have short attention, passionate about learning new things, and learning a lot from firsthand experience. This can be done by teachers to overcome obstacles when giving a foothold to the child during learning. A kindergarten teacher is required to be creative in creating a fun learning atmosphere and stimulating children's reasoning (Aslamiah, 2011). Therefore, teacher competency greatly affects the success of the learning process (Aslamiah, 2016), one of which is professional competency (Suhaimi, 2016).

Number of teachers

The number of teachers becomes one of the constraints of developing the naturalist intelligence of the child. The school has only one teacher for one center, so the limited power of these educators will have a negative impact

when one of the teachers is unable to attend the school. Schools should have escort teachers.

In addition to the lack of teachers, the linearity of teacher education qualifications is also a problem, there are still many teachers who are non-educational education qualifications, some even only high school graduates. Whereas one of the successes of the school is determined by the teacher factor, especially the competence owned by the teacher (Aslamiah, 2016). If reviewed by Permendikbud No. 137 of 2014 on Education Standards and Paud Education Personnel that the academic qualifications of class teachers namely S1/D-IV early childhood education or S1/D-IV psychology obtained from accredited study programs (Nofalia, 2018).

Academic qualifications are one of the absolute conditions that teachers must-have. Academic qualifications have an influence on teachers in carrying out their duties. The importance of early childhood education requires teachers to be professional educators. To be able to be said as a professional teacher one of the requirements is to have an academic qualification that corresponds to the field to be taught.

Financial

Financial problems are also experienced by both schools, it has an impact on the provision of learning support facilities, such as educational aids. Teachers only take advantage of existing school facilities, as a result, some children have to take turns when using props. Another impact experienced on children's theme peak activities. The peak theme that is ideally implemented at the end of the learning theme is the lack of budget also impacts on the peak activities of the theme, the peak of the theme can only be done once in the semester, when the ideal is each end of the theme. The school's operational funding depends solely on the student's SPP.

Good management in the management of educational institutions becomes one of the absolute requirements in improving the quality of educational institutions. One of the things that make the process of all the management of educational institutions in finance. Similarly, Egi

and Wardha in Raudhah point out that the accuracy of financial management is a seriousness in the management of institutions that are very important to the sustainability of the institution. financial management of the institution properly and appropriately (Dilla, 2019).

This is because good and proper financial management will have a profound impact on the efficiency of funding in the overall implementation of school activities programs in achieving its objectives. Many schools are unable to do optimal teaching activities, simply because of financial problems. The financial problems are good in payroll teachers even in the procurement of learning facilities and infrastructure. Today the demands of cheap and quality education, but institutions that are flexible always require costs or funds that are also not few (Dilla, 2019).

Solutions to overcome natural intelligence development constraints

Efforts made by PAUD Alam to overcome the obstacles that occur in different schools, it is following the constraints they face. PAUD Alam Based Character-Based Dear Mother Banjarmasin constraints that appear more emphasized on the aspect of the shortage of teachers and many children who are less focused on giving a foothold. Meanwhile, in PAUD Alam Darunnajah Banjarbaru is more to the financial aspect that impacts on the procurement of facilities supporting the learning process and the addition of teachers. Here are the solutions are done by both PAUD institutions in overcoming the obstacles faced by.

Emphasis on less focused children

The footing is an important part of the learning process, therefore footing should be an important concern for teachers, when the teacher sees the giving of teacher footing ineffectively, then the teacher gives an approach to the child who seems to understand the explanation of the teacher, the child who does not want to play, or there is a child who takes the toy then spontaneously the teacher will direct his attention to the student concerned and give a reprimand.

Teachers as the spearhead of learning, the teacher chooses a model, learning strategies are quite suitable for learning success (Tharayil et al., 2018). Teachers are implementers in various activities in schools, especially in early childhood educational institutions. Teachers as educators should be able to know developmental psychology and the role of teachers in the learning process. Teachers play a role in helping and directing children in solving problems (Singer et al., 2014). The ability of teachers to deliver learning materials that motivate and can coordinate children in the class (Metroyadi & Mardhiah, 2018). Developmental psychology is necessary to provide a variety of systematic, logical, and planned efforts, for the potential of students to be developed.

According to Mulyasa explained that teachers as teachers are more emphasized on the aspects of delivering new knowledge for students. This role is not rigidly understood that conveying science should use the method of lectures. However, teachers have a responsibility to design learning, implementing, and assessing the results (Sartika & Munastiwi, 2019).

In addition to being a teacher teachers also act as motivators. The learning process will be successful when students have the motivation in learning. Therefore, teachers need to develop learning motivation for students. To obtain optimal learning, teachers are required to creatively evoke the spirit of learning students, so that effective learning behaviors are formed.

Replace teachers who are not present

A limited number of educators can affect the learning process of teaching in schools, schools only have one teacher for each center, so when the teacher is not present will have an impact on the learning process at the center in question. The solution used by the school when the teacher is not present is to visit the children to another center or the teacher will be replaced by the principal at a time when the principal is not unable to.

Engage parents, communities, and governments

The solution by the school in overcoming financial limitations is to involve various parties,

ranging from parents of students, the community, and also the government. By engaging these parties, the school hopes to get help from donors to provide a gradual injection of funds towards the provision of learning support facilities at PAUD Alam Darunnajah. In addition to hoping to donors from the elderly and the community, the school also seeks to apply for assistance to the Education Office in the form of an operational PAUD assistance fund. Schools need to socialize the problems faced in the community, so it is expected that the emergence of public care and sympathy to be involved in assisting the school (Suhaimi, 2017).

Education financing has differentiated resources into several groups, namely government, community, parents, and other sources (OECD, 2017). The funding received will be used in some educational financing within the institution consisting of investment costs, personal costs, and operating costs. The investment costs of the education unit include the cost of providing facilities and infrastructure, the development of human resources, and fixed working capital. Personal expenses include the cost of education that students must incur to participate in the learning process. Operating expenses include the salaries of educators and education workers as well as all allowances attached to salaries, materials or educational equipment, maintenance of infrastructure, consumption, transportation, water, and so on (Dilla, 2019).

Create and take advantage of existing facilities

The solution to the limitations of APE facilities in PAUD Alam Darunnajah makes them utilize natural materials that are around into

learning media, such as banana trees, leaves, twigs, trees, sand, and others. The use of natural materials makes children more productive, creative, and independent. This material-based learning medium is expected to help teachers in stimulating aspects of children's intelligence. All aspects of children's intelligence will be stimulated by the development of the natural intelligence of the child because it is directly sourced from the natural environment.

Sujiono and Sujiono (2010) stated that learning in the center and stimulating and developing the potential and intelligence of children naturally. Musfiroh mentions that naturalist intelligence in the introduction of nature, plants/plants, and the animal world can be stimulated by the selection of natural media, leaves, or direct interaction with animals (Musfiroh, 2010). Saripudin added that nurturing plants is part of how to develop a child's natural intelligence. The activity can be done by bringing children to grow flowers, vegetables, or fruit. A quick choice of flowering or fruiting plants, such as growing tomatoes, strawberries, cucumbers, carrots, various flowers, and so on. In the process of planting, invite the child to measure the height of the plant, calculate the number of leaves, count the number of flowers, and so on. This activity provides an understanding of the calculation, and how to measure height, which improves its logical-mathematical intelligence. Develop its rugged motor, train patience, and responsibility (Saripudin, 2017).

The data obtained from the two institutions are compared in table 1:

Table 1. Comparison of Findings from Site 1 and Site 2

| No. | Research focus | Data of site 1 | Data of site 2 |
|-----|-------------------------|---|--|
| 1. | Development strategies | Utilizing nature as a learning medium. The teaching-learning process is done in a natural environment. | The nature-based defense is carried out on the center of natural materials only. |
| 2. | Development constraints | The process of granting a foothold at the beginning of the learning process and the limited number of teachers. | Lack of Finance impacts the provision of learning support facilities. |

| | | |
|-----------------------------|---|--|
| 3. Development Solutions | Emphasizing less focused children, replacing teachers who are not present | Create and utilize existing facilities, involving parents, communities and governments |
|-----------------------------|---|--|

Conclusion and Recommendation

The strategy used by PAUD Alam Based character-based Sayang Ibu Banjarmasin City and PAUD Alam Darunnajah Banjarbaru City in developing naturalist intelligence is through nature-based learning. The learning process is done by utilizing the natural environment. Nature-based learning activities are more focused on the center of natural materials. While the obstacles experienced by the school in developing natural intelligence are activities at the beginning of the lesson, the lack of teachers following academic qualifications, and financial problems of the school.

The next researcher's advice could be to examine more deeply the implications of natural schools. The results of this study can also be used as a reference for further researchers to conduct development research related to PAUD Alam.

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