

Natural Material Media as A Means of Developing A Naturalist Intelligence at Labiba Maulida Boyolali Kindergarten

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Abstract

Purpose: This study aims to comprehend children's fine motor skills and their utilization of natural materials and recycled items at Labiba Maulida Kindergarten, situated in the Banyudono District of the Boyolali Administrative Region.

Methodology: Qualitative methods constituted the framework for this investigation. The research focused on children in Group A at Labiba Maulida Boyolali Kindergarten. Data gathering encompassed planning, execution, and evaluation stages, with lesson planning incorporating natural materials within the school environment.

Results: The learning process commenced with the delineation of annual and semester programs, weekly learning schedules, and lesson plans, alongside ongoing learning assessments utilizing anecdotal observations and checklists conducted daily and compiled on a weekly and monthly basis. This study capitalized on the availability of natural materials within the surroundings to gauge the development of naturalistic intelligence. While the ability to select appropriate natural materials is fundamental, proficiency in utilizing them for learning purposes is equally crucial. Nevertheless, challenges were encountered; certain students initially struggled to identify suitable natural materials, perceiving them as lacking educational value. Conversely, some students demonstrated an aptitude for sourcing and utilizing natural materials in their work. Teachers provided incremental support and guidance for those yet to acquire this skill, encouraging them to explore the school environment to familiarize themselves with the natural materials incorporated into the learning process. In summary, cultivating naturalistic intelligence through integrating natural materials at Labiba Maulida Kindergarten yielded demonstrable success.

Introduction Section

Preschool education encompasses the collaborative efforts of educators and parents to foster children's growth and development. It entails creating an environment conducive to exploration for preschool-aged children, enabling them to engage with their experiences freely and fostering opportunities to comprehend and internalize their learning encounters. Imitation and repetitive testing are intertwined with a child's inherent potential and intelligence. In childhood, play is a pivotal avenue for learning; when children engage in playful activities, they assimilate a plethora of knowledge from their daily experiences. Educators and parents can infuse an educational dimension into play by introducing tools or game materials, predominantly leveraging natural resources.

The primary objective of early childhood education is to nurture all facets of a child's development and potential, thereby facilitating their holistic growth following national philosophies. Early childhood education is the concerted effort to establish an enabling environment supportive of a child's journey of exploration, growth, and self-realization (Suryana and Hijriani, 2021). Hence, early childhood education is paramount, affording children access to educational opportunities even before embarking on their formal schooling journey. As Mahyudin (2017) posited, "Education plays a pivotal role in the human development process," underscoring its significance in harnessing human potential. Furthermore, Nurhafizah (2017) contends that "early childhood education exerts a profound influence on children's growth and development, laying the groundwork for their subsequent progression."

The research data collection process unfolds through meticulous planning, execution, and subsequent evaluation. Learning planning, incorporating natural materials sourced from the school environment, forms an integral part of this process. At the research site, the implementation of learning planning commences with the formulation of annual and semester programs, detailed plans, and weekly schedules for learning implementation. These plans adhere to the guidelines outlined by the Ministry of Education, Culture, Sports, Science, and Technology for crafting lesson plans (RPP). Furthermore, learning assessments are conducted daily through anecdotal observations and checklists, with compiled reports generated weekly and monthly.

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Using natural materials as learning aids facilitates direct experiential learning, rendering the educational process more tangible and non-verbal. Given the utilization of natural ingredients, children effortlessly assimilate knowledge concerning real and cost-effective materials. This developmental trajectory assumes paramount importance, ensuring a balanced progression across various facets of development. Such emphasis underscores the significance of harnessing children's potential in alignment with the age-specific benchmarks delineated in the Child Growth and Development Standards (STPPA). As stipulated in the Regulation of the Ministry of Education and Culture of the Republic of Indonesia Number 137 of 2014, these standards underscore the importance of fostering creativity among children aged 4 to 5 years. This entails honing fine motor skills to regulate hand movements (grasping, pushing, tapping) and fostering inventive problem-solving abilities.

Childhood is intricately intertwined with the cultivation of various intelligences, a cornerstone of early childhood care and education (ECCE) or kindergarten institutions. These intelligences encompass a spectrum, including natural intelligence, motor intelligence, visual-spatial intelligence, spiritual intelligence, interpersonal intelligence, mathematical intelligence, multiple intelligences, and verbal intelligence. Encouraging children to adapt to their surroundings is paramount in nurturing their potential.

The discourse on childhood potential invariably intersects with discussions on intelligence, which plays a pivotal role in human development, representing the pinnacle of human capability. Since intelligence is an inherent attribute present in all individuals since birth, its manifestation varies depending on the environmental influences shaping each individual. Given that childhood serves as an investment in future adulthood, the role of children's intelligence cannot be overstated. While intelligence serves as a metric for individual achievements, it primarily underscores the potential inherent in each individual. It is worth noting that individuals can absorb diverse forms of information.

The cultivation of naturalistic intelligence should commence early in childhood, capitalizing on the rapid developmental pace and instilling values conducive to future life. Educational objectives at this stage encompass fostering children's intelligence, enhancing sensitivity, fostering environmental awareness, nurturing leadership qualities, and promoting active engagement in conservation efforts. The overarching aim is to augment children's understanding of the natural world, leveraging naturalistic intelligence as a conduit. Natural intelligence should be nurtured early, fostering an innate inclination to coexist harmoniously with nature and other divine creations.

Children are naturally curious about their environment, even if it is limited to basic knowledge about animals and plants. Cultivating a love for the environment should begin early childhood as children become aware of their surroundings. Instilling affection towards trees, animals, and other natural elements is imperative to foster a deeper understanding of nature as they age (Musfiroh, 2014). Widayati (2010:17) defines natural intelligence as the ability to discern the diversity of plants and animals, as well as other natural phenomena such as the solar system and various galaxies. Budiningsih and Muhammad (2012:91) characterize naturalistic intelligence as the capability to perceive, comprehend, and identify signs of natural changes within the environment, with an emphasis on recognizing beauty and order. Siantayani (2011:79) elaborates that naturalistic intelligence involves recognizing the natural forms present in our surroundings, encompassing flowers, trees, and animals.

However, a prevalent issue in this study is the deficiency in children's innate intellectual abilities, particularly concerning environmental awareness. Initial observations during learning activities reveal a lack of concern among children for environmental preservation. For instance, many children demonstrate indifference towards tasks such as disposing of litter, collecting fallen leaves, or cleaning up debris. Addressing this challenge necessitates a focus on developing naturalistic intelligence. This can be achieved by providing opportunities for children to engage with natural materials in their environment and encouraging them to participate actively in environmental conservation efforts.

The current reality of naturalistic intelligence in early childhood care and education (ECCE) learning is characterized by a prevailing reliance on traditional, teacher-centered approaches. Teachers often take a more dominant role than children, limiting the latter's opportunities to develop their ideas, concepts, and thoughts. Moreover, the application of naturalistic intelligence in both classroom and extracurricular settings remains suboptimal, with limited utilization or a complete absence of such practices. Many educators have yet to fully leverage the rich natural environment surrounding schools, including plants, animals, and other natural elements, as integral components of children's learning experiences. Consequently, children may struggle to articulate their perspectives, generate ideas, think creatively, and engage in hands-on exploration, thus underutilizing their innate intellectual capacities.

To address this gap, educators can enhance their skills through various intellectual initiatives and embrace more effective teaching strategies and approaches. Specifically, prioritizing integrating natural materials into learning activities can foster a deeper connection with the environment and stimulate children's curiosity, creativity, and problem-solving abilities. By embracing these approaches, teachers can create enriching learning environments that empower children to explore and engage with the natural world, nurturing their naturalistic intelligence and fostering holistic development.

Natural materials, readily available in the surrounding environment, serve as invaluable resources for learning, offering a cost-effective and easily accessible means to enrich educational experiences. According to Yukananda and Oktarani (2017), these materials encompass a diverse array of items such as stones, wood, twigs, leaf seeds, leaves, and bamboo, all of which can be utilized as learning aids. Incorporating natural materials into the learning environment enables teachers to facilitate holistic development across various domains, including cognitive, social, emotional, linguistic, fine and gross motor skills, and foster religious values and life skills.

Furthermore, utilising natural materials can nurture creativity and imagination, as emphasized by Musfiroh (2018). Children can use these materials to create artwork or craft products, enhancing their artistic expression. Bamboo, stones, seeds, leaves (dry or wet), and tree branches are among the natural materials that lend themselves well to supporting games and activities, stimulating children's fine motor skills development. Engaging in activities that require intricate hand movements, such as cutting and crafting, encourages physical dexterity and coordination, contributing to overall motor skill enhancement. Consequently, this approach promotes creativity and facilitates physical activity, aligning with the developmental needs of young children.

By providing a safe and stimulating collage environment using natural materials, educators aim to empower children to explore their creativity freely, encouraging them to experiment with various combinations of materials and colours to produce unique creations. This hands-on approach fosters a sense of autonomy and ownership over their learning experiences, enabling children to express themselves artistically while honing their fine motor skills and fostering a deeper connection with the natural world.

Using natural materials as a medium for collage enhances children's fine motor skills and fosters naturalistic intelligence development. Engaging in collage activities involving natural materials requires the refinement of motor skills, as children manipulate their hands and fingers to cut, arrange, and assemble various elements. As Azhar suggests, collage entails assembling disparate media into a cohesive composition, resulting in a two-dimensional artwork. This process integrates and coordinates fine motor skills and encourages creativity and artistic expression.

Collage activities serve as a platform for refining children's fine motor skills, particularly through sensory-rich experiences such as cutting and pasting. Repetitive engagement in these activities further hones children's abilities, enhancing their dexterity and coordination.

Given those mentioned above, it becomes evident that educators may currently underutilize the natural environment—including animals, plants, and other elements—as a pedagogical resource in early childhood education. Consequently, this study uses natural materials to cultivate naturalistic intelligence among children at Labiba Maulida Boyolali Kindergarten. Educators can nurture children's appreciation for the natural world through targeted interventions that integrate natural materials into learning activities while fostering cognitive and motor skill development.

Research Method

The aim of this study was to explore children's fine motor skills and the utilization of natural materials and recycled items at Labiba Maulida Kindergarten, located in the Banyudono District of the Boyolali Administrative Region, utilizing a qualitative approach. This research adopts a qualitative methodology, which Moleong defines as a research approach that generates descriptive findings through words or narratives concerning individuals and their observable behaviors (Moleong, 2010).

Qualitative methods were selected for several reasons. Firstly, they are deemed more straightforward to implement, allowing for a direct examination of the dynamic relationship between researchers and participants. Additionally, these methods facilitate a deeper understanding of the intricate interactions with prevailing value systems (Moleong, 2011). Qualitative research entails the observation, interview, and documentation of the research subject, yielding detailed and comprehensive insights. The data obtained in qualitative research is predominantly descriptive, comprising written narratives aligned with the research objectives outlined in the research focus (Ahmad, 2011). Accordingly, this study involves meticulous observation to glean authentic information on the predefined research objectives. The focal point of inquiry revolves around using a collage environment to enhance the fine motor skills of kindergarten students at Labiba Maulida.

The data for this study encompass two main categories: primary and secondary. Primary data refers to information obtained directly by researchers through observation, interviews, and documentation. Conversely, secondary data is acquired indirectly, often sourced from published archives or historical reports (Silalahi, 2003).

In this research, data collection techniques include observation, interviews, and documentation. Observation entails direct scrutiny by researchers to ascertain the prevailing conditions and circumstances pertinent to the research topic. Researchers meticulously observe and record the actual situation of each research object, encompassing teaching and learning processes, supporting facilities, and activities involving natural materials and recycled items relevant to college media activities at Labiba Maulida Kindergarten in the Banyudono Regency Subdivision of Boyolali. Additionally, structured free interviews, a combination of open-ended and structured questions, are employed to glean participant insights (Arikunto, 2016).

Researchers employ documentation techniques to gather data from documented sources, such as daily learning implementation plans (RPPH), attendance records, or other relevant documents related to the study objectives. This method aims to provide insights into the operations and practices at Labiba Maulida Kindergarten.

The research adopts an analytical approach to examining the collected data. Miles and Huberman's interactive descriptive analysis framework encompasses three main steps: (1) data reduction, (2) data presentation, and (3) drawing conclusions or verification. To ensure the reliability of the findings, the research employs triangulation—a data validation technique that utilizes multiple data sources or methods for cross-validation or comparison purposes (Arikunto, 1989). This

study implements triangulation based on three dimensions: source triangulation, triangulation of data collection techniques, and temporal triangulation.

Result and Discussion

Result

Learning planning

The implementation plan for fostering children's naturalistic intelligence at Labiba Maulida Kindergarten in the Banyudono District, Boyolali Regency, Central Java, is formulated based on data collected through documentary tests and interview observations. Learning planning at the research site commences with the formulation of annual and semester programs, weekly learning plans, and schedules. The execution of the Lesson Plan (RPP) adheres to the guidelines outlined by the Ministry of Education, Culture, Sports, Science, and Technology. The comprehensive study planning encompasses annual program flow, semester programs, weekly study plans, and daily study plans, serving as a valuable reference and guide for nurturing naturalistic intelligence within the research setting.

The daily learning agenda at this research site prioritizes plant-related topics, focusing on ornamental plants and flowers. Learning activities entail planting flowers and tending to plants. The Lesson Plan for naturalistic intelligence is meticulously crafted within this thematic framework to align with the learning activities. These activities are executed in a controlled and systematic manner to ensure effective learning outcomes.

Implementation

This learning process unfolds through observation and interviews, with teachers meticulously following lesson plans during instructional activities. During an interview with one of the kindergarten teachers, Labiba Maulida, it was revealed that children embark on weekly nature walks to explore human interactions and delve into nature, the environment, and the wonders of God's creation. Central to the educational ethos at Labiba Maulida Kindergarten is cultivating naturalistic intelligence during early childhood. Teachers orchestrate activities leveraging natural materials as pedagogical tools, aligning with the goal of nature education and instilling a sense of environmental stewardship among children.

The development of naturalistic intelligence encompasses nurturing children's appreciation for their surroundings, including flora, fauna, and fellow humans. Various natural materials are integrated into teaching and learning activities to facilitate this process. Through on-site observations, teachers employ diverse pedagogical approaches, such as environmental learning, utilizing plants as instructional aids, and conducting outdoor lessons. These nature-centric strategies are seamlessly integrated into the kindergarten's curriculum and can be implemented flexibly across different settings in the Boyolali district.

For instance, children engage in hands-on activities using plant materials as learning aids. Leaves are fashioned into hats, while seeds are utilized for collages, fostering creativity and resourcefulness. Additionally, banana gedebog leaves serve as materials for crafting children's toys, exemplifying the utilization of natural ingredients in educational endeavors. Through observations, it becomes evident that students demonstrate naturalistic intelligence when they utilize nature as both a learning setting and medium. Moreover, they exhibit ingenuity by creatively incorporating natural elements into their learning experiences tapping into the resources available in the natural environment.

Cultivating naturalistic intelligence empowers children to develop a profound appreciation for the environment, encompassing human interactions and fostering reverence towards animals and plants. This cognitive aptitude equips children with the skills to effectively utilise various natural materials in teaching and learning activities. Individuals endowed with naturalistic intelligence exhibit a keen sense of environmental stewardship, demonstrating a commitment to safeguarding nature from harm and mitigating ecological imbalances, coupled with an innate affection for the flora and fauna.

Children with naturalistic intelligence typically exhibit a penchant for animals and plants, displaying a penchant for activities intertwined with nature. Early childhood education programmes tailored to children aged 4 to 5 years incorporate elements that nurture naturalistic intelligence, aligning with the child's developmental stage. These programmes imbue children with practical skills, such as watering plants and tending to the greenery in their surroundings. Through experiential learning practices, children internalize the importance of nurturing plants, as evidenced by their daily watering routines. Moreover, they are encouraged to engage with plant life within the school environment and uphold cleanliness in their surroundings daily.

Evaluation

Based on the findings from document screening and interviews, an evaluation was undertaken at Labiba Maulida Kindergarten to assess the developmental abilities of the children. This evaluation serves to gauge the impact and progress of children's growth and development, as outlined by the Ministry of Education, Culture, Research, and Technology (Kemendikbud, 2021).

According to interviews with kindergarten teachers, this evaluation occurs daily following the conclusion of activities, with teachers assessing multiple students each day. The assessment process involves the documentation of anecdotal notes and checklists, conducted daily and compiled into weekly and monthly reports. The primary objective of this assessment is to measure the children's knowledge and skill levels. Daily evaluations are conducted using submission forms, checklists, and anecdotal notes, with the results serving as guidelines for reporting children's growth and development to parents. The ultimate goal is to communicate the impact of enhancing children's physical development.

Labiba Maulida Kindergarten's evaluation process targets several children daily, encompassing assessments of their abilities and an evaluation of the overall learning process at the year's end. The aim is to identify any challenges teachers encounter in implementing the curriculum and ascertain the level of achievement of predetermined indicators.

Discussion

Utilizing natural materials and fostering naturalistic intelligence yields significant benefits for early childhood development. According to Sanjaya (2008), the learning process aimed at nurturing naturalistic intelligence should encompass several key components:

- 1) Incorporating a structured learning plan to cultivate children's naturalistic abilities.
- 2) Providing direct exposure to nature, supplemented with educational materials covering plant taxonomy, ecology, and environmental pollution.
- 3) Supplying learning resources such as diagrams depicting the human body and its organs.
- 4) Implementing practical activities such as farming and fishing tailored to local contexts.
- 5) Developing educational processes that enhance children's environmental awareness.

Moreover, a study by Milin and Halida (2014) underscores the efficacy of learning programmes utilizing plants in enhancing naturalistic intelligence among 5-6-year-old children. This involves meticulous planning of teaching topics and subtopics, customization of learning materials, utilization of plant-based media, and developing and assessing observation maps to evaluate children's proficiency and aptitude.

Activities outlined in research projects, as noted by Maryanti (2019), aim to enhance children's scientific intelligence through various steps, including the creation of Lesson Plans (RPPM), Daily Learning Implementation Plans (RPPH), development of research tools, and preparation of instructional materials. In fostering children's naturalistic intelligence, teachers employ natural materials for early childhood education, leveraging the natural environment surrounding them, including plants, stones, dry leaves, and other elements. The development of naturalistic intelligence facilitates children's appreciation for the environment, extending beyond human interactions to include animals and plants and fostering adeptness in utilizing diverse natural materials in educational activities.

Despite using natural materials in the learning process, children may not fully grasp the benefits of these resources. However, their capabilities can be enhanced through improved understanding and support from parents and educators in identifying and addressing their needs. Research conducted at Labiba Maulida Kindergarten reveals challenges in children's access to natural materials within their environment. Therefore, efforts are required to enhance our capacity to select suitable natural materials from the surroundings.

In addition to the ability to select natural materials, the capability to effectively utilize these resources is a crucial aspect of the learning process. Teachers play a pivotal role in facilitating children's use of natural materials as educational aids. Some students may initially perceive natural materials as unsuitable for learning purposes and struggle to identify or collect them from the environment. Conversely, others demonstrate an innate curiosity and explore natural materials to create artistic works. In response, teachers acknowledge and commend students' efforts, providing encouragement and step-by-step guidance to enhance their creative abilities.

For students who require additional support in utilizing natural materials, teachers offer motivation and systematic guidance to foster their creative skills. Furthermore, educators encourage children to explore the school environment, highlighting natural materials that can serve as educational resources. Observations reveal that teachers execute learning activities in alignment with predetermined scenarios, which are sequential steps devised to ensure the delivery of structured learning experiences (Suningsih, 2018).

The development of children's naturalistic intelligence through engagement with natural materials is anticipated to enhance their gross and fine motor skills, contributing to their holistic development. This approach cultivates adaptability as children learn to navigate and interact with their surroundings. Consequently, the successful implementation of naturalistic intelligence development initiatives at Labiba Maulida Kindergarten underscores the efficacy of utilizing natural materials in early childhood education.

Conclusion

This research employs qualitative methods under "Natural Material Media" to foster the naturalistic intelligence of children at Labiba Maulida Boyolali Kindergarten. Grounded in data collected through written assessments, observations, and interviews, teachers diligently adhere to lesson plans during instructional activities, followed by daily assessments conducted through anecdotal records and checklists. The findings of this study yield two significant conclusions: firstly, incorporating academic materials as learning mediums enhances children's creativity, and secondly, utilizing natural materials promotes the development of fine and gross motor coordination during early childhood. Furthermore, the research outcomes relating to using natural media as educational aids are reinforced through extracurricular activities, allowing children to integrate natural materials within the school environment effectively.

Acknowledgement

The researcher thanks TK Labiba Maulida for granting permission to conduct research from inception to completion. Appreciation is also extended to the students who consistently participated in this research endeavor. Their cooperation and engagement greatly contributed to the success of this study.

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