Application of Learning to Code with Loose Parts to Improve Children's Early Literacy Skills in Early Childhood Education

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Abstrak

Berdasarkan survey awal dilapangan hampir semua lembaga PAUD mengalami kendala dalam proses penyelenggaraan pembelajaran dimasa pandemi ini. Tidak terkecuali juga lembaga PAUD yang ada di Kabupaten Kudus yang mana menjadi salah satu Kabupaten yang berada dizona merah. Penggunaan *loose part* dalam pembelajaran *coding* untuk anak usia dini menjadi pembiasaan serta sebagai upaya dalam mengoptimalisasikan potensi lingkungan sekitar sebagai sumber belajar anak. Penelitian ini bertujuan untuk meningkatkan kemampuan literasi awal anak pada Pendidikan Anak Usia Dini melalui pembelajaran *coding* berbasis loose part. Penelitian ini merupakan penelitian kualitatif lebih spesifik pada penelitian tindakan kelas (*Classroom Action Research*). Penelitian ini dilaksanakan di TK Muslimat NU Nawa Kartika dan menjadikan peserta didik kelompok B2 sebagai subyek penelitian, adapun jumlah peserta didik pada saat penelitian ini berjumlah 15 anak yang terdiri dari 8 anak perempuan dan 7 anak laki-laki. Hasil penelitian menunjukkan berdasarkan hasil perhitungan, pada pra siklus kemampuan literasi awal anak di TK Muslimat NU Nawa Kartika Kelas B2 baru mencapai 27% anak yang telah dikategorikan mampu, pada siklus I mengalami peningkatan menjadi 60%, dan pada siklus II Ketercapaian literasi awal anak sudah mencapai 86%. Jadi, dapat terjadi peningkatan kemampuan literasi anak setelah menggunakan pembelajaran *coding* berbasis *loose part*
Kata Kunci: *Pembelajaran Coding, Loose Part, Literasi Awal Anak, Pendidikan Anak Usia Dini.*

Abstract

Based on the initial survey in the field, almost all PAUD institutions experienced problems implementing learning during this Pandemic. The PAUD institution in Kudus Regency is no exception, one of the red zone regencies. Therefore, using loose parts in learning to code for early childhood becomes a habit and an effort to optimize the potential of the surrounding environment as a source of children's learning. This study aims to improve children's early literacy skills in Early Childhood Education through loose-based coding learning parts. This qualitative research is more specific to classroom action research (CAR). This research was carried out at the Muslimat NU Nawa Kartika Kindergarten and made group B2 students as research subjects. In contrast, the number of students at the time of this study amounted to 15 children consisting of 8 girls and seven boys. The results showed that based on the calculation results, in the pre-cycle, the early literacy ability of children in TK Muslimat NU Nawa Kartika Class B2 only reached 27% of children categorized as capable. In the first cycle, it increased to 60%, and in the second cycle, early literacy achievement was already up to 86%. So, there can be an increase in children's literacy skills after using learning to code with the loose part.
Keywords: *Learning to code, loose part, early childhood literacy, early childhood education (PAUD)*

INTRODUCTION

Childhood education is an educational service intended for children before entering primary education. At this time, children must get the proper educational stimulation, and this is a form of concrete effort in carrying out coaching for children in the golden age (Husna & Nurhafizah, 2022: 24; Husna & Eliza, 2021: 39; Husna & Mayar, 2021: 9665). The implementation of learning will be carried out through the provision of educational stimuli that are by the child's psychological condition, namely the concept of playing, so that it will support the process of growth and development of children both physically and spiritually (Husna & Nurhafizah, 2022). Education services for early childhood can be implemented through formal, non-formal, and informal channels. So early childhood education must be prepared in a planned and *holistic manner* so that in the golden age, Children do not just disappear without proper stimulation but must be designed to support maximum growth and development of children (Husna & Mayar, 2021).

During the Covid-19 Pandemic, there were many changes in the implementation of activities, one of which was a change from public activities, which incidentally were usually carried out in public places and had to be limited to being carried out at home. This condition also impacts the world of education, where the implementation of learning activities that are usually carried out in schools must be limited to face-to-face learning (Abdusshomad, 2020; Sholihah, 2020), including the implementation of early childhood education. Educators and parents are required to adapt to changes, one of which is a change to technology and information literacy as a substitute tool in implementing learning so that the role of educators and parents is vital in the sustainability of the implementation of learning in early childhood.

Based on the results of several previous studies regarding the implementation of learning during the Covid-19 Pandemic, it was found that parents and students experienced several problems, ranging from; (1) unclear learning implementation guidelines; (2) parents' understanding of early childhood learning is minimal; (3) limited availability of children's learning media at home; (4) there are new habits that are more fun playing gadgets; (5) psychological parents who are not ready to accompany children to study at home, (6) other responsibilities of parents to think about the needs of life and their respective jobs; (7) the inability of parents in the availability of internet credit/quota (Pudyastuti & Budiningsih, 2021; Suhendro, 2020; Harahap et al., 2021; Satrianingrum & Prasetyo, 2020).

Based on the initial survey in the field, almost all PAUD institutions experienced problems implementing learning during this Pandemic. The PAUD institution in Kudus Regency is no exception, one of the red zone regencies. It even had time to go viral at the national level with the reported increase in positive cases of Covid, which increased fantastically. One of the PAUD institutions in the center of Kudus City is the NU Nawa Kartika Muslimat Kindergarten. This institution is included in the category of favorite schools for PAUD level in Kudus. The institution's condition, which has students from various sub-districts in Kudus City, even some from outside the district, has created a separate polemic regarding the continuity of the learning process during this Pandemic.

When learning activities for early childhood must be carried out from home or with the term Learning From Home, the learning media that can facilitate the implementation of learning are minimal in the form of gadgets and worksheets. This habituation eventually also causes new problems, which incidentally hurt the growth and development of early childhood. Overtime use of gadgets in early childhood will severely impact children's health, which can be seen clearly by increasing stress, tantrums, and boredom. So the social-emotional development of children will

indirectly have a huge impact even though the stage of development in early childhood is one of the most critical factors in the achievement of children's character attitudes from an early age. Moreover, the implementation of online learning accompanied by parents at home is not guaranteed to run well, starting from the limitations of the educational game tools (APE) used that are not by the learning objectives so that the use of APE during BDR learning becomes a severe problem for every early childhood education institution.

After receiving the green light to conduct limited face-to-face learning from the Kudus COVID-19 task force, as well as various kinds of input and pressure from parents to implement limited face-to-face learning immediately, the institution decided to make innovations in learning for early childhood during the Pandemic. This learning innovation is deemed necessary to be implemented as soon as possible considering that children have not received adequate learning for too long, one of which appears to be children's social and emotional attitudes that are not well controlled, especially with habituation during lockdown children only play gadgets at home.

On this occasion, the researchers and educators at the NU Muslimat Kindergarten Nawa Kartika took the initiative to do loose part-based coding learning for group B children. This group was chosen because it prepares children to enter elementary school, hoping that problems regarding children's early literacy skills cannot be maximally stimulated. So that children will get used to critical thinking and problem solving from an early age.

The loose media part is considered appropriate and effective enough to be a solution in the availability of early childhood learning media. Loose part media can help children spark their creativity by using used goods as children's play media. Several previous studies also support this. Namely, *loose part media* can effectively increase creativity and learning outcomes in early childhood (Imamah & Muqowim, 2020; Lestari & Sriyanto, 2020). *Loosepart* learning is also effective when studying from home (Siskawati & Herawati, 2021). However, research on the *loose media part* limited face-to-face learning (blended *learning)* has not been found.

Using *loose parts* in learning *to code* for early childhood becomes a habit and an effort to optimize the potential of the surrounding environment as a source of children's learning. Therefore, to be a learner, *coding* is usually carried out using the sophistication of information technology, but in early childhood, learning can also be applied using media close to children (Satrianingrum, 2020; Hasbi, 2020).

Children's creativity can be increased by using loose parts media. Loose parts from environmental materials around children can be used as educational learning media. The use of loose parts is a medium that is applied in the implementation of learning as a substitute for the use of manuals or worksheets (Nurjanah, 2020; Safitri & Lestariningrum, 2021; Farikhah et al., 2022; Nurliana, 2022). As a result, there is an increase in children's creativity, with children exploring directly in an educational learning environment rich in creative ideas, increasing curiosity and optimizing the use of the five senses in the children's playing process (Safitri & Lestariningrum, 2021). Meanwhile, in this study, the loose part becomes the object of coding learning, so a selection of loose part materials supports the indicators of coding learning.

METHOD

Research Approach and Method

This qualitative research is more specific to classroom action research (Classroom *Action Research*). Research by taking actions taken by teachers in their classrooms by self-reflection so that they can improve performance as professional teachers in the hope that children's abilities are

improving. Classroom action research is a series of research activities designed to improve the quality of classroom learning. In more detail, by looking at each stage of learning activities and bringing up action in the classroom as part of efforts to improve learning practices in the classroom (Widayati, 2008).

In carrying out this research, the researchers carried out collaborative activities with the Muslimat NU Nawa Kartika Kindergarten, which involved starting from the principal and especially the involvement of class teachers who were the subjects of this study with students aged 5-6 years as the object of research. So between the researcher and the principal, the classroom teacher, it begins with equalizing perceptions of understanding and mutual agreement regarding their respective roles during the research. So that it will all boil down to the purpose of this research, which is to improve the early literacy skills of Nawa Kartika's Muslimat NU Muslim Kindergarten children.

The process of implementing classroom action research includes four stages, namely planning in the form of drafting designs and instruments, action with the implementation of learning in class during research, observing the effect of the implementation of learning, and reflecting by analyzing and observing lack of implementation to find a formula for improving learning improvement (Widayati, 2008). The research steps for each cycle can be illustrated in the following cycle:
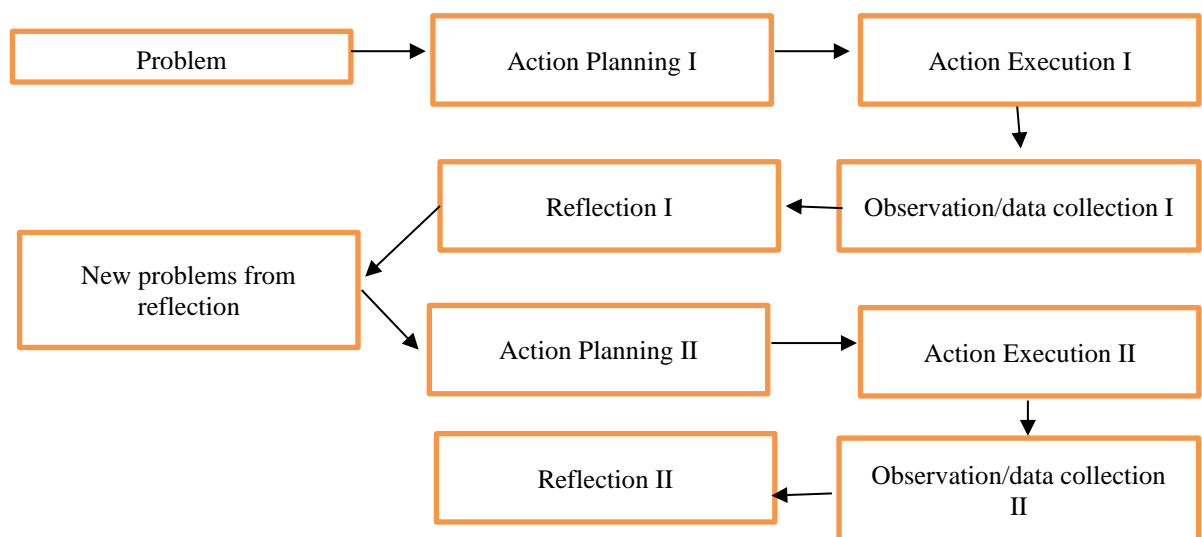

Figure 1. Classroom Action Research Process

Research Location and Time

Researchers conducted research activities with the theme of loose part-based coding learning to improve early childhood literacy skills at an early childhood education institution in Kudus City. The selection of this research location was based on considerations and initial findings related to PAUD institutions that already had early literacy problems during this Pandemic. Finally, one institution was chosen, the NU Nawa Kartika Muslimat Kindergarten.

NU Nawa Kartika Muslimat Kindergarten is an institution that, in terms of accreditation score, gets an A and is located in the middle of the city due to the diversity of students' backgrounds. So that more and more conflicts are faced in implementing learning during the Pandemic.

This study's research implementation and data collection were carried out from September to

October 2021.

Research Subjects and Collaborators

This research makes group B2 students research subjects. The number of students at the time of this study amounted to 15 children consisting of 8 girls and 7 boys. The role of collaborators in CAR is as a person who assist in planning and implementing research. In this study, the collaborator was the class teacher of the B2 group, Mrs.

Data Collection Techniques and Research Instruments

Data collection techniques used in this study include:

1. Observation

In this study, researchers and collaborators (class B2 teachers) acted directly as observers during *loose part-based coding learning* implementation in the classroom. Observations were made to get a candid picture during *loose part-based coding learning* implementation in the B2 group class, which was used as the subject of this research. As for the observations that have been carried out starting from the initial activities of the teacher doing apperception by using the *loose part*-based coding learning concept, followed by the core activities when the child plays according to his creativity and the role of the teacher accompanying him, continued with the children's activities during the break and closed with the last activity in the form of evaluation and strengthening, given by the teacher to the child.

In the implementation of observations, in addition to observing the implementation of coding learning, the essential thing in this research is the observation technique. Researchers collaborate with educators to assess the achievement of children's early literacy development. At this stage, it becomes a crucial part to be able to measure the achievement of children, so an instrument for observing children's early literacy skills is needed with a checklist.

2. Interview

Interviews were conducted with principals, teachers, and students to find out the responses of teachers and children about learning to code using *loose media parts.*

Table 1. Grid of Interview Materials

Interview Source	Interview Material
Principal	Institution profile Institutional curriculum Institutional advantages Problems in the Implementation of Education during the Pandemic Learning challenges during the Pandemic Hope or target of the institution in this learning year during the Pandemic Parents' demands on institutions as providers of early childhood education during a pandemic
Classroom teacher	Learning curriculum Learning Media Parents' demands on children's achievements Obstacles and barriers to learning during the Pandemic Availability of infrastructure for pandemic learning Institutional support for the implementation of learning during the Pandemic

Interview Source	Interview Material
	Challenges and learning targets during the Pandemic
	Teacher creativity in learning
	Teacher professionalism in assisting children in learning during the Pandemic
	Learning management strategies during the Pandemic
	Achievement of children's success during learning during a pandemic
Companion Teacher	The class teacher and mentor collaboration
	Obstacles in the implementation of learning
	Availability of infrastructure, media, and environment in pandemic learning
	Division of duties and responsibilities between class teachers and assistants
	Challenges and expectations of children's learning during a pandemic
Learners	Feelings of children participating in learning during a pandemic
	Children's comfort during learning
	Children's ability to understand early literacy concepts
	Children's skills in conveying ideas and creativity

3. Field notes

In the implementation of learning in early childhood education, field notes are commonly referred to as anecdotal notes, which are an inseparable part of the stages of child development assessment in the form of descriptive narratives that appear or are seen during children's playing activities.

4. Documentation Method

Documentation is a method to obtain or know something with books and archives related to the research. For example, documentation was used to obtain school data, school profiles, sources of educators and teaching staff, condition of school students, and names of children in group B 2 NU Nawa Kartika Muslimat Kindergarten, as well as photo recordings of the research action process.

Data analysis technique

The data analysis technique is a stage in research to find and organize into a coherent and systematic data unit starting from observation data, interviews, field notes, and documentation.

CAR in conducting data analysis using descriptive analysis type. The descriptive analysis describes an object, condition, or system of thought on the thoughts obtained, both qualitative and quantitative data.

CAR to measure success or failure. The actions taken have been carried out by increasing children's early literacy skills with percentage analysis.

$$P = f/n \times 100\%$$

Information:

P = Percentage of literacy learning

f = number of children who have changed

n   = Total number of children

In this study, the researcher is said to be successful if the child's early literacy ability after receiving *loose part-based coding learning* reaches 75%.

Table 2. Child Development Achievement Criteria Score

Score	Criteria
100 – 81%	Very Well Developed (BSB)
80 – 61%	Developing as Expected (BSH)
60 – 41%	Start Growing (MB)
40 – 0%	Undeveloped (BB)

Performance Indicator

Performance indicators are a measure of the success of the research. In this CAR, performance indicators are measured based on the actions taken by researchers. The action in this CAR is said to be successful if some students can achieve the predetermined indicators, namely 75% of the success indicators. By showing the results of children's early literacy skills after getting *the loose part-based coding learning,* it can be said that there is an increase in early literacy skills in NU Nawa Kartika Muslimat Kindergarten.

RESULTS AND DISCUSSION

In the odd semester in the 2021/2022 school year, NU Muslimat Nawa Kartika Kindergarten has five major themes that are revealed in sub-themes. Because learning in PAUD is thematically based, this research activity will also take from the sub-themes that the institution has planned. The following are the details of the themes and sub-themes in the odd semester program for the academic year 2021/2022 in appendix 9. This research was carried out during the theme of My Needs and Animals.

Table 3. Research Results of Children's Early Literacy Ability

RESPONDENTS	Age (years)	Pre CYCLE	Cycle I	Cycle II
1	6, 3	MB	BSH	BSB
2	6	MB	BSH	BSH
3	5	B B	MB	MB
4	5,10	MB	MB	BSH
5	6	BSH	BS B	BS B
6	6.6	MB	BSH	BSB
7	6.3	BSH	BSH	BSB
8	6.1	MB	MB	BSH
9	6	BSH	BS B	BS B
10	6	MB	BSH	BSH
11	5,10	MB	MB	BSH
12	5.9	BB	BB	MB
13	5.8	MB	MB	BSH

14	6	BSH	BS B	BS B
15	5, 4	B B	BSH	BSH

Pre-cycle stage

NU Nawa Kartika Muslimat Kindergarten is an educational institution under the auspices of BPPMNU Nawa Kartika Kudus. NU Nawa Kartika Muslim Kindergarten, which received an A accreditation, has a vision of the institution, namely good manners and excellence in achievement. The character values that become the institution's flagship are the character of religious manners, creativity, critical, and nationalism. However, do not miss that the institution has myriad achievements for both institutions, educators, and their students.

Figure 2. Photos of Championship Achievements that have been obtained Muslimat NU Nawa Kartika Kindergarten

It starts with the first finger painting winner by a national level educator, the first winner of the provincial level children's song competition, and many other achievements that NU Nawa Kartika Muslimat Kindergarten has carved. So do not be surprised if it becomes one of the favorite kindergartens in Kudus Regency because it has also been proven to send their students to enter their favorite elementary and Islamic boarding schools in Kudus and the surrounding area. In addition, almost 50% of NU Nawa Kartika's Muslimat Kindergarten graduates are ranked in the top 10 at the elementary school level or above, which are spread throughout the Kudus Regency so that this Kindergarten gains the complete trust of the Kudus community and its surroundings.

After the myriad achievements obtained by the institution and a high sense of trust from the community to provide quality early childhood education services consistently, NU Nawa Kartika Muslim Kindergarten strives always to be creative and provide solutions to the changing developments of the times and the demands of this pandemic condition.

During this Pandemic, the implementation of learning must continue. However, this pandemic condition makes children's enthusiasm and early literacy skills experience a decline. Children are more engrossed in playing with gadgets at home during a pandemic, and parents lack the power to control their children's new habits, which incidentally leads to a decline in children's early literacy skills.

Figure 3. Children Make Maracas from Used Bottles and Corn Seeds During Pre-Cycle Observation in Group B2

At the time of this pre-cycle, it was observed that children had begun to adapt to limited learning activities designed by educators with thematic learning that only provided two types of play daily and remained with the application of health protocols. However, in practice, children's creativity is not facilitated, so children's early literacy skills that should be able to recognize reading and writing, arithmetic, science, ICT, finance, culture, and nationalism are not optimally developed. Children are still imitative with what the teacher demonstrates, and they are only limited to finishing without knowing the meaning of the play activity. This was supported when the researcher interviewed one of the students saying, "I made what the teacher ordered. Corn was put in a closed bottle and collected" the child did not understand the meaning of the indicators for introducing science to the concept of sound in the room. Moreover, I do not understand the difference between whether a little or much corn inserted will produce the same sound.

Likewise, in the activities carried out on playing buttons, children imitate making the word "teacher" they only uniformly complete the task without any creative power to create the word "teacher" from materials other than the teacher's example because, indeed, each child is limited by the availability of APE buttons of one color, even though in the class there are various other APEs that can be presented as variations of children in creating something.

Figure 4. Children imitate the example of making the word "teacher" from buttons

Overall, after observing for one week in group B2, it was found that the data on the development of students by class teachers that the researchers got showed indicators of early literacy in underdeveloped children.

Based on pre-cycle observations, some children got 20% BB, 53% MB, 27% BSH, and 0% BSB. So it can be concluded that in the pre-cycle, children's early literacy skills in NU Nawa Kartika Kindergarten Class B2 only reached 27% of children categorized as capable.

The following is the achievement of children's early literacy development during the pre-cycle in the form of a pie chart.
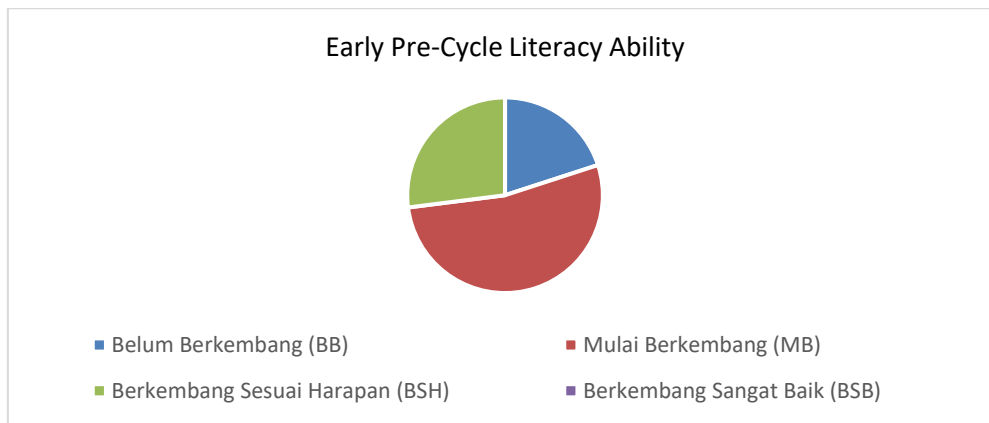
Early Pre-Cycle Literacy Ability

- Belum Berkembang (BB)
- Mulai Berkembang (MB)
- Berkembang Sesuai Harapan (BSH)
- Berkembang Sangat Baik (BSB)

Figure 5. Pie Chart of Children's Early Literacy Ability Results in Pre-Cycle

So, this finding becomes the basis for the need to follow up with a treatment that can improve children's early literacy skills during the Pandemic according to the conditions in the field. So the researcher and the teacher designed a loose part-based coding learning design, assuming that it can improve children's literacy skills later.

Cycle Stage I

Figure 6. Cycle I . Activities

Based on the results of the first cycle in loose part-based coding learning, it can be seen that children's early literacy skills are 7% BW, 33% MB, 40% BSH, and 20% BSB. So it can be concluded that in the first cycle, children's early literacy skills in NU Nawa Kartika Kindergarten B2 only reached 60% of children categorized as capable. The following is the achievement of children's early literacy development during the first cycle in a pie chart.
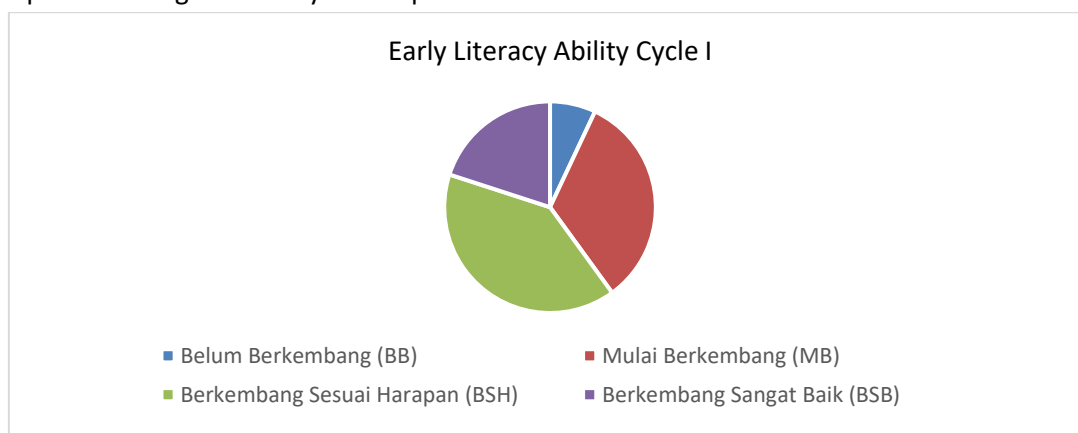

Early Literacy Ability Cycle I

- Belum Berkembang (BB)
- Mulai Berkembang (MB)
- Berkembang Sesuai Harapan (BSH)
- Berkembang Sangat Baik (BSB)

Figure 7. Pie Chart of Children's Early Literacy Ability Results in Cycle

Reflection and Evaluation

Reflection and evaluation are decisive at the end of each cycle of implementing classroom action learning. For example, the reflection of the first cycle was carried out after going through the observation stage on loose part-based coding learning activities with the theme of my needs and sub-theme of clothing.

This activity focuses more on the achievement of children's early literacy skills. Based on the calculations from observation activities in cycle I, there is an increase of 33% from the previous activity (pre-cycle). However, the achievement of children's early literacy, which is only 60%, still needs follow-up to be carried out in the second cycle because it has not yet reached 75%.

If in the analysis of the shortcomings of the implementation in the first cycle, the teacher in designing loose part media is less varied in the variety given, and the play activities presented are less challenging for children to explore themselves in the child's ability to solve problems in each variety of play.

In addition, it was also found that some children were less enthusiastic about participating in playing activities. This is because they were still not used to learning in class, and it was a challenge for teachers to build children's motivation to be comfortable and happy playing at school.

So it is necessary to continue developing loose part-based coding learning activities that are more creative in the variety of games and variations of the loose part media. So the hope is that it will be part of the stimulation for children in improving children's early literacy skills, both in children's ability to read and write (listen, speak, read, write), as well as numeracy skills, introduction to basic science, use of essential ICT, introduction to finance culture and education child's sense of nationalism.

Cycle II Stage

Figure 8. Photo of Cycle II Activities

In implementing the second cycle in the observation stage, researchers used an observation sheet instrument on the level of achievement of children's development for abilities in children's early literacy.

Based on the results of the second cycle in loose part-based coding learning, it can be seen that children's early literacy abilities are obtained by percentages of 0% BB, 14% MB, 46% BSH, and 40% BSB.

The following is the achievement of children's early literacy development during the first cycle in a pie chart.
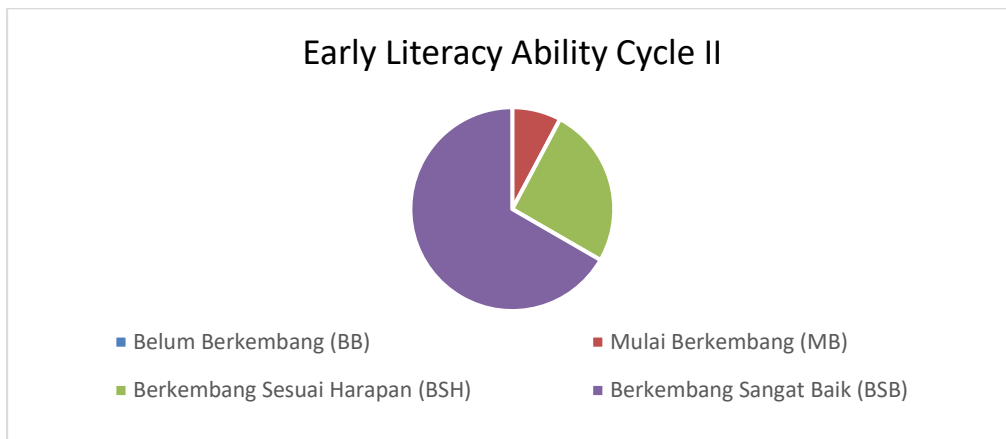
Figure 9. Diagram of Children's Early Literacy Ability Results in Cycle II

So it can be concluded that in the second cycle, the early literacy skills of children in the Muslimat NU Nawa Kartika Kindergarten Class B2 only reached 86% of children categorized as capable.

In addition to the children's literacy skills observed on the assessment sheet, observations were made on children's playing activities. Everything that happens and is done by the child is recorded in a separate field note sheet. This becomes a reinforcing document that can be used to describe the development of children's abilities that occur, whether it is planned in the RPPH or separately.

This field note is carried out in the form of a narrative obtained based on observations and from the results of simple interviews with children. So every child's activity is observed in detail, concerning the child's literacy ability and in other aspects of development such as social, emotional, religious, and moral values, a sense of nationalism, children's cultural values, and so on.

Figure 10. Children's activities are observed carefully and carefully

As for other incidents carried out by children, not by the learning scenario in the RPPH, they will still be observed and recorded in the anecdotal notes made by the teacher when accompanying children to play the variety of games of their choice.

Reflection and Evaluation

Reflection and evaluation are decisive at the end of each cycle of implementing classroom action learning. The reflection from cycle II was carried out after going through the observation stage in loose part-based coding learning activities with the animal theme, chicken sub-theme

This activity focuses more on achieving children's early literacy skills based on the results of calculations from observation activities in cycle II. As a result, there is an increase of 26% from the

previous activity (cycle I). As a result, the achievement of children's early literacy has reached 86%, which means it is above 11% higher than the achievement indicator that must be improved in the target of this study, which is 75%.

Success in early literacy skills of this child can be seen in detail at the level of achievement of each indicator, including children can read and write with specifications for reading and writing, arithmetic, basic science, essential ICT, basic finance, culture, and nationalism.

In addition, it was also obtained an evaluation of the implementation of coding learning that accustoms children to be independent in thinking as in the child's ability to *solve problems* from a variety of children's play activities chosen.

For example, when a child plays with the chicken maze looking for food, the child is free to determine which road the chickens can take later to find food. Some children take the initiative to find the shortest path so that the chickens will immediately get food, and some children choose the long route because it is a big road according to the child will be fast and safe to the food. So the diversity of the way children solve problems in the game becomes the child's independence in determining the child's way of thinking. Only later will the teacher strengthen the child's work so that the child can determine his attitude confidently as a child's educational experience for the future.

Before discussing the research results, the process and overall research results can be seen in the following table:

Table 4. Overall Research Results on Loosepart-Based Learning and Coding

Aspect	Pre Cycle	Cycle I	Cycle II
Model	Thematic classical learning	Coding learning	Coding learning
Media	LK, pencil paper	Loose part 2 varieties	Loose parts of various types
Early Literacy Indicator	1. Read and write: • *Hear* • *Speak* • *Read* • *Write* 2. Counting 3. Basic shit 4. basic ICT 5. Financial 6. Culture 7. Nationalism	1. Read and write: • *Hear* • *Speak* • *Read* • *Write* 2. Counting 3. Basic shit 4. basic ICT 5. Financial 6. Culture 7. Nationalism	1. Read and write: • *Hear* • *Speak* • *Read* • *Write* 2. Counting 3. Basic shit 4. basic ICT 5. Financial 6. Culture 7. Nationalism
Time	45 minutes	60 minutes	60 minutes
Observation	Children are not very enthusiastic passive, less initiative waiting for teacher's instructions, more help	Children begin to be interested in playing on their own according to the child's choice, lack initiative, depending on the teacher when playing each type of	Children are enthusiastic, interested in the provided loose part media and initiative, feel free to play, are more confident, and have minimal assistance.

Aspect	Pre Cycle	Cycle I	Cycle II
		play chosen, still with help.	
Reflection analysis		Children can independently choose the variety of play, but independence when completing the game lacks confidence and still tends to imitate using their chosen loose plate.	Children seem confident, enjoy the loose part design provided in a variety of games, can complete it in their way, and can even inspire other friends
Early literacy skills	27% (4 out of 15 children received BSH)	60% (6 BSH children, 3 BSB children out of 15 children)	86% (7 BSH children, 6 BSB children out of 15 children)

Children's early literacy is one of the competencies that must be improved and is the focus of this research. Various efforts are designed to improve children's early literacy skills with loose part-based coding learning.

Let us look at the graph of the results of children's early literacy achievements. It can be seen starting from the pre-cycle conditions where the child's early literacy ability has only reached 27%. There are many factors behind it. Based on interviews with class B teachers, the early literacy skills of children aged 5-6 years should have reached 50% and above, but this condition cannot be fulfilled because the stimulation given to children is still minimal, especially in this pandemic condition. With the government's policy limiting the implementation of direct learning in the classroom, this cannot be done for this academic year. Children's motivation and interest in learning at home are also less than optimal. They spend much time playing, which lacks educational programming and parental supervision.

The following are the achievements of improving children's early literacy skills in NU Nawa Kartika Kindergarten Group B2 after getting the application of loose part-based coding learning starting from the pre-cycle, continued in the first cycle and stopping in the second cycle, which is presented in the form of a bar chart as follows:
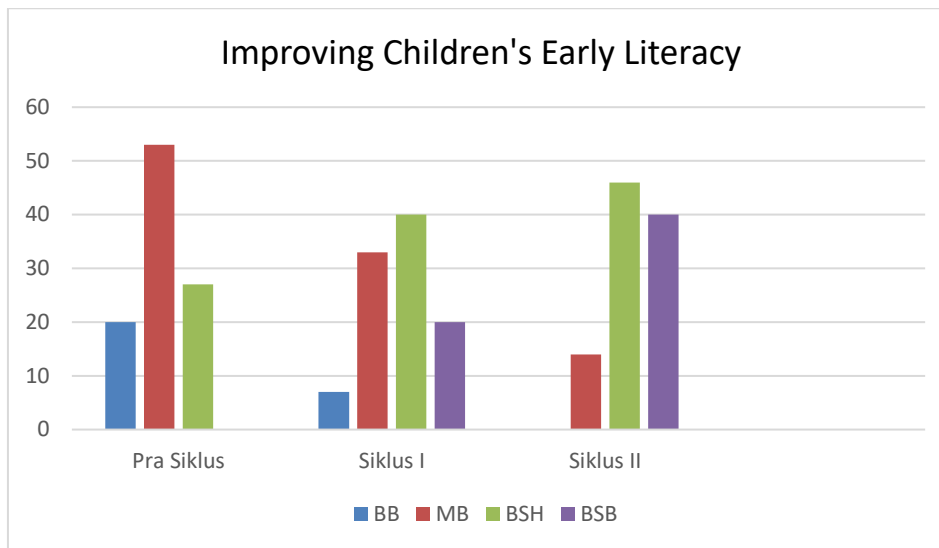
Figure 11. Diagram of Children's Early Literacy Improvement Starting from Pre-cycle, Cycle I, and Cycle II

Based on the results of calculations, in the pre-cycle, the early literacy ability of children in NU Nawa Kartika Kindergarten Class B2 only reached 27% of children categorized as capable. However, in the first cycle, it increased to 60%, and in the second cycle, the child's early literacy achievement reached 86%.

The results of the diagram above show that there is an increase in children's literacy skills after using *loose*-based *coding* learning *parts. This is in line with several research results that show coding learning can improve early* childhood literacy skills (Harahap & Eliza, 2022; Mutoharoh, 2020). In addition, several research results show that loose part media can improve early childhood literacy skills (Ridwan, 2022; Istim et al., 2022).

CONCLUSION

Learning in early childhood becomes something urgent to be considered and developed by all educators. Creating quality learning during any conditions must continue, including the COVID-19 Pandemic. As a result of the findings in the field, educational problems must be immediately sought for creative educational solutions to minimize risks.

NU Nawa Kartika's Muslimat Kindergarten is one of the institutions in Kudus that is experiencing problems organizing learning during this Pandemic. One of the problems is the early literacy ability of group B2 children who are not maximally developed. Even though this is one of the basic foundational needs of children to be ready to continue at the elementary education level (SD), the researchers, together with class B2 teachers, conduct collaborative classroom action research.

One solution is to learn *loose part-based coding* to improve children's early literacy skills. Based on the implementation results in the pre-cycle, it was found that the initial literacy ability of children had only reached 27%, which means that only 4 of 15 children in one class already had early literacy skills that developed as expected. Furthermore, treatment was carried out in class B2 with loose part-based coding learning in the first cycle, with an increase in children's early literacy abilities by 33% from the pre-cycle. This means that the achievement of children's early literacy skills in the first cycle has reached 60%.

The success of increasing children's early literacy in cycle I still have to be continued in cycle II, seeing that achievement has not reached 75% classically. Then given loose part-based coding learning with more diverse variations of loose part media, it can increase children's ability to reach

86% classically. This means six children have developed literacy skills very well, and seven have developed as expected. Moreover, only two children are still at the stage of starting to develop their literacy skills. So the implementation of loose part-based coding learning in early childhood can effectively improve children's early literacy skills in the B2 group of Muslimat NU Nawa Kartika Kindergarten.

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