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Loose Parts: Stimulation of 21st Century Learning Skills (4C Elements)

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Abstract
There are many problems faced by teachers in stimulating children's development. One of them is the 4C skills. Teachers give more assignments contained in the Children's Worksheets, even though in the surrounding environment there are many materials that can be used as learning media. This study aims to develop a learning model by utilizing loose parts media to stimulate children's 4C skills. The type of research used is research and development adapted from Borg & Gall, Dick, Carey, & Carey, and Hannafin & Pack. The research uses material expert validation, language, media, and learning design. Data collection techniques through observation, interviews, and documentation. The results of the study show that learning models using loose parts media can stimulate children's 4C skills. Aspects of critical thinking, when finding a problem, children can solve it by continuing to try. Creativity, children have the skills to think outside the box, try to assemble from various loose parts, develop ideas, and find new innovations. Collaboration, children can work together and quickly adapt to others. Communication, children can share thoughts, questions, ideas, and play experiences.

Keywords: *loose parts; 4c skills; early childhood; model development*

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Introduction
Actual data from Richard Florida (Florida et al., 2015:57) in The Global Creativity Index 2015 suggests that the level of creativity of Indonesian children ranks 115th out of 139 countries, with a creativity index of 0.205. This proves that the creativity of early childhood especially in Indonesia must receive special attention and needs to be improved. There are many problems faced by teachers in the learning process as an effort to stimulate early childhood development and creativity. This problem can be seen in the child's developmental achievements when participating in the learning process, namely the child's creativity is limited, the ability to communicate and collaborate is still low (Prameswari & Lestariningrum, 2020). This is because the teacher gives more assignments which are contained in the Children's Worksheet (Safitri & Lestariningrum, 2021). Teachers also rarely use loose parts media in learning, teachers tend to use ready-made media and sources (purchased products)

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there by reducing the creativity of early childhood. In addition, in the process of implementing learning in the classroom, children are more likely to be consumptive, not as creators who create their own tools and play media.

The results of Torrance's research study suggest that at an early age, children's 4C skills should have developed, such as children being able to think fluency, children being able to think flexibility, children being able to think originality, and children being able to think in detail/elaboration, (Gencer & Gonen, 2015). 4C skills are not innate by someone but these skills are obtained from a process of training, learning, and experience (Redhana, 2019). Teachers play an important role in preparing superior generations. Not only have the ability but also have the skills needed in this century (Nugraheni, 2019).

This skill is very important given to children from an early age to prepare children to be successful in facing a challenge in a complex life process so that they have a strong personality. Children will need to think critically in counteracting all the influences of technology, be able to analyze what to do and collaborate is also needed so that children have a network in self-development, especially mastery of good communication. When children have very good communication skills, children are able to channel their ideas so that they can find solutions to problems and can have readiness in real life when dealing with an environment where children grow and develop. The ability of children to solve problems comes from continuous physical and psychological activities which need to be stimulated from various investigative activities where children will discover and build knowledge concepts that exist in the environment around Catron and Allen, (Widiastuti et al., 2018). Based on these problems, it is necessary to develop learning media that can stimulate the 4C skills of early childhood through varied learning and in accordance with 21st century developments.

One of the media that can stimulate early childhood 4C skills is through loose parts media (Flannigan & Dietze, 2017; Prameswari & Lestariningrum, 2020). Loose parts are pieces that are free to play and cannot be predicted what they will become (Kiewra & Veselack, 2016). These loose parts can be separated and put back together, can be carried, combined, lined up, moved and used with other materials, Haughey (Daly & Beloglovsky, 2014; Siantajani, 2020). This loose parts media is practical, attractive, and easy to find in the environment where children live. Some examples of loose parts media are dry leaves, pinecones, shells, branches, wood and other natural objects. Teachers and parents can collect loose parts media in the surrounding area without paying a fee.

Loose parts media provides a place for children to express their creativity by using materials that can be manipulated, changed, and recreated (Gull et al., 2019). Loose parts media not only stimulates aspects of early childhood development, but also helps children connect themselves with their surroundings. Children can use loose parts media to shape and make games according to the ideas of the child (creator). This will develop imagination, communication, collaboration with peers, critical thinking and creativity.

Handyman, Benson, Ullah and Telford, (Prameswari & Lestariningrum, 2020) suggest several benefits of playing with loose parts in the learning process, including: 1) increasing the level of creative and imaginative play, 2) children playing more cooperatively and being able to socialize, 3) children -children are physically more active 4) improve communication skills. In other words, the concept of learning using loose parts media is learning that has relevance and is also meaningful for early childhood. This is because by using loose parts children will have 4C skills as the goal of mastering skills in the 21st century according to the identification of the National Education Association (Redhana, 2019) including critical thinking, creativity, communication and collaboration.

Nicholson (1971) in (Haughey & Hill, 2017) suggests seven types of loose parts, including: natural-based objects, wood and bamboo, plastic, metal or metal, ceramic or glass, cloth or ribbon, and packaging materials. Loose parts can be used in game-based learning to stimulate creativity and increase passion in children (Gençer & Avci, 2017). Natural experiences help form mental structures. This can stimulate children to imagine and foster

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creativity potential by providing children with free space and the necessary materials (Sutton, 2011). Loose parts provide opportunities for children to increase creativity, collaborative behavior, communication, and cognitive function (Houser et al., 2019).

The results of Spencer et al's research (Spencer et al., 2019) suggest that educators assess loose parts as being able to help children build relationships, develop skills, leadership, gain self-confidence and independence. The results of Spencer's research also show that children who use loose parts media will stimulate an attitude of sharing and caring for the environment. Loose parts media will make children able to connect themselves with their environment. Children need an environment in which they can manipulate, discover, build, evaluate, and modify their own constructs and ideas through play. Children need opportunities to develop a sense of belonging to the environment in which they play. The introduction of loose parts such as scrap materials, sand and water increases the likelihood of children engaging in this type of behavior even in built environments both outdoors and indoors.

There are many research results that examine the effectiveness of loose parts media in stimulating early childhood skills and development. One of them is that loose parts media can stimulate children's cognitive development (Rahma et al., 2023), social behavior can also be stimulated through loose parts (Wardhani et al., 2021). Loose part media can overcome the boredom of children while studying during the Covid 19 pandemic (Simon Harun & Rahardjo, 2022). In addition, there are many research results suggesting that loose parts media can stimulate early childhood creativity (Safitri & Lestariningrum, 2021; Mardiyah & Hambali, 2022; Oktavia Lestari & Karim Halim, 2022). However, there has been no research related to the development of a complete learning model by utilizing loose parts media. The novelty in this study is that the design model combines three design models from Borg & Gall, Dick, Carey, & Carey, Hanaffin & Peck. Then, at the stage of developing and sorting learning materials, the researcher developed four bases, namely the environmental foothold where the teacher organizes the environment, determines when to play and where to play. Furthermore, on the basis before playing, there are three stages carried out by children, namely the orientation of types of play, building inspiration, demonstrations. On the basis of play, stimulation of creativity, critical thinking, communication, and collaboration through sensorimotor play, role play, and development. Lastly, after playing, classically evaluation and reflection is carried out.

The quality and depth of the outdoor play experience can be enhanced when children use loose parts media (Änggård, 2011; Maxwell et al., 2008). Loose parts media that can be removed, installed, and put together give children the freedom to develop their playing experience based on children's ideas, ideas, and creativity, not games predetermined by the teacher (Änggård, 2011). Philosophy was born since 1970 which was popularized by Simon Nicholson about loose parts in line with the needs of children to have 21st century skills, namely 4C skills, communication, collaboration, creative, and critical thinking (Siantajani, 2020).

Methodology

This study aims to develop a learning model by utilizing loose parts media to stimulate 21st century learning skills, namely: collaboration, communication, creativity, and critical thinking for early childhood. The subjects in this study were 5-6 year old children at IT Pelita Hati Kindergarten, Palu, totaling 21 people. The research was conducted in May-September 2021. Primary data was collected through direct observation when children were playing loose parts media. The focus of the research related to the 4C skills of early childhood was then analyzed using the achievements of early childhood development in Permendikbud number 137 of 2014. In addition, data collection was carried out through interviews with teachers and parents and documenting all activities that had been carried out.

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This research and development process uses the Borg and Gall model with the Dick and Carey system design model and the Hannafin and Peck model. The Dick and Carey model was adapted by Borg and Gall (Gall, 2015) as an R&D model and is called the Steps of System Approach Model of Educational Research and Development. The research & development steps can be seen in Figure 1.

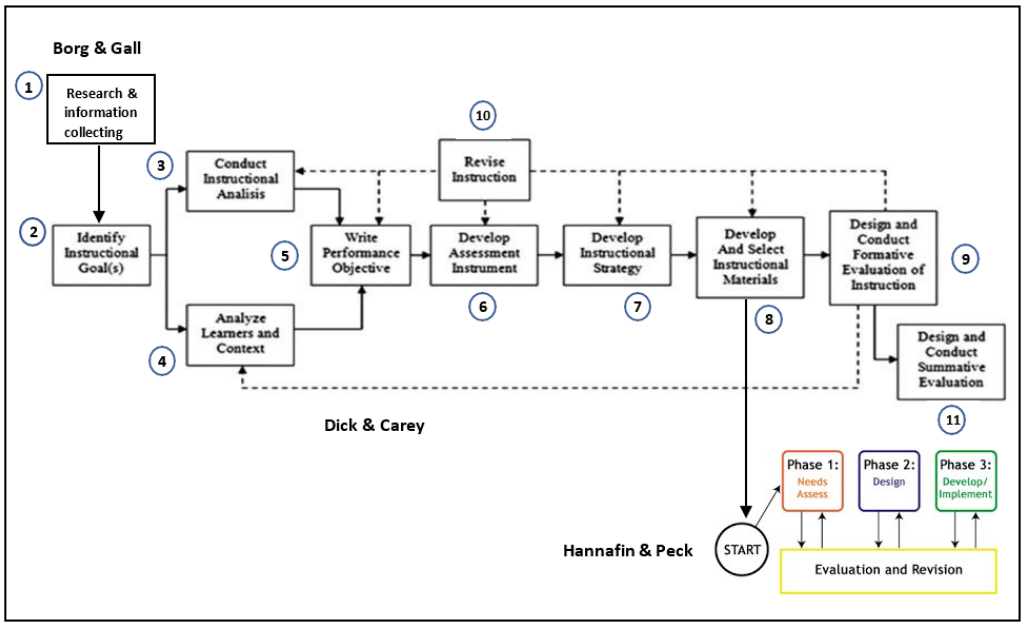

Figure 1. Research and Development Models adapted from Borg & Gall (1983), Dick, Carey & Carey (2015), Hannafin & Peck (1988)

The selection of the Dick & Carey development steps in the research and development carried out by this writer is due to the fact that the Dick and Carey model is a procedural model so that each stage of implementation is sequential, systematic, and easy to implement. In addition, this systems approach is a link between each component, especially the relationship between instructional strategies and the desired learning outcomes. Specific instructions targeted at the skills and knowledge to be learned help provide the appropriate conditions for learning outcomes (Dick, Carey, and Carey, 2015:9). In the eighth step of the Dick & Carey design model for material development, collaboration with the Hannafin and Peck development model is for the development of learning media for the reason that the Hannafin and Peck model is a product-oriented model.

This study uses data collection techniques namely: observation, interviews, and documentation. The instrument has been validated by experts before being used in the field. As for the analysis technique with a qualitative approach from Miles and Hubberman namely data reduction, data display, and drawing conclusions and verification. In addition, researchers also used quantitative analysis using the percentage formula. The indicator of success in this study was a significant increase in children's 4C skills after implementing this learning model.

Results and Discussion

Research and Information Gathering Stage

The research and information gathering stage was carried out by means of a literature study by seeking information and data about loose parts media that can be used to stimulate 4C skills that are in accordance with the characteristics of early childhood and those in the national curriculum, especially in Early Childhood Education. This preliminary study will answer the following questions: 1) are there learning development guidelines or a special

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curriculum on loose parts media that can stimulate the 4C skills of early childhood?; 2) what is the content of the guidelines for the development of 4C skills learning for early childhood?; 3) is the content in the guide also applicable to Early Childhood Education (ECE)?.

The results of this preliminary study show that there are no guidelines for developing learning, especially loose parts media, in stimulating the 4C skills of early childhood. The second finding relates to the content of the teaching modules and the curriculum for stimulating 4C skills, which are only intended for educational level units ranging from early childhood education to senior high school. Building concepts and developing learning at the elementary school grade level is not even possible to apply in ECE. In addition, the concept of 4C skills that has been formulated is too broad in scope. This is a problem because conceptually the development of thinking skills in early childhood is still at the sensorimotor to concrete operational stages. Introducing the concept of 4C skills namely critical thinking and problem solving, creativity and innovation, collaboration, and communication at a broad level is not easy for children to understand even though children do not directly experience these 4C skills.

The two main results of this literature study gave rise to the idea of the importance of a learning design that can stimulate the 4C skills of early childhood. The next activity is exploring learning conditions to stimulate early childhood 4C skills. The next step taken by the researchers was to hold a focus group discussion (FGD) with several kindergarten teachers in Palu City.

The FGD findings concluded that until now, learning guidelines related to stimulating 4C skills for Early Childhood Education have never been formulated in a comprehensive and holistic manner. Even though the basis for integrative development has been stated in the Child Development Achievement Standards formulated in Permendikbud number 137 concerning National Standards for Early Childhood Education, in the 2013 curriculum reference, it is not found in more detail.

Identify Instructional Goal

At this stage it aims to determine what new information and skills students will have and master after completing instructional (Dick et al., 2015, p. 6). The learning objectives to be achieved through this model are: 1) children can make a product from loose parts; 2) children can solve problems when playing loose parts; 3) children can work together to make a product from loose parts with their friends; and 4) children can communicate the experience of playing loose parts.

Conduct Instructional Analysis

Instructional analysis is a procedure, which when applied to an instructional goal, will result in an identification of subordinate skills needed for students to achieve instructional goals (Dick & Carey, 1978). Based on the results of the preliminary study, various information was obtained related to the instructional needs of students in PAUD institutions in Palu City, namely the stimulation of 4C skills, namely communication, collaboration, critical thinking, and creativity.

Analyze Learners and Contexts

The results of the preliminary study describe the characteristics of students, namely: 1) students do not have the creativity as expected; 2) students tend to play individually; 3) students have not been able to express the experience of playing that has been done; 4) students tend to play ready-made game tools; and 5) students cannot solve the problems they face even though the problems are small, they always need support from the teacher.

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Write Performance Objectives

Based on the instructional analysis related to students' initial knowledge and abilities, specific statements will be formulated in terms of what abilities and skills are expected to be mastered by students when they complete learning.

Develop Assessment Instruments

Based on the specific learning objectives that have been formulated, an assessment of the ability of students is developed to show the extent to which the specific learning objectives have been achieved by making instruments to achieve the expected competencies. Therefore it is necessary to design an assessment instrument. The stages in designing the instrument are as figure 2.

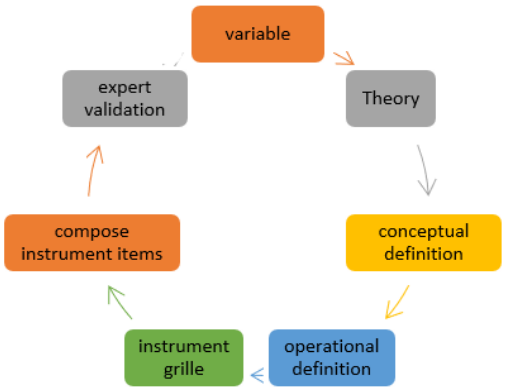

Figure 2. Develop Instruments

Table 1. Loose Parts Media

No.	Loose Parts Type	Ingredients	Documentation
1.	Grain Loose Parts	1) pinecones, 2) shellfish, 3) rice colored red, yellow, and green, 4) soybean seeds, 5) nutmeg seeds, 6) corn kernels, 7) green bean seeds, and 8) stones given the colors blue, yellow, and green to make it more interesting.	 **Figure 3. Grains**
2.	Loose Parts Natural Materials	1) bamboo, 2) coconut shell, 3) dry leaves, 4) wooden branches, 5) wooden blocks, and 6) small bamboo.	 **Figure 4. Natural Materials**
3.	Used Loose Parts	1) bottle caps, 2) used plastic spoons, 3) plastic threads, 4) used buttons, 5) used pipettes, 6) used plastic cups, 7) used pipes.	 **Figure 5. Used**
4.	Loose Parts Artificial Materials	1) styrofoam, 2) pieces of metallic paper, 3) colorful sticks, 4) colorful woolen threads, 5) patchwork pieces, 6) and geometrics from metallic.	 **Figure 6. Artificial Materials**

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Develop Instructional Strategy

Dick, Carey, and Carey (2015: 7) classify learning activities with four components, namely: a) pre-learning activities such as stimulating motivation and focusing attention; b) presentation of new content with examples and demonstrations; c) active learner participation and practice with feedback on what they are doing; and d) follow-up activities that assess student learning and relate it to new skills to be applied in the real world.

Develop and Select Instructional Materials

At this stage learning materials are developed that will be used by students during the learning process to achieve learning objectives. The learning materials developed are in the form of loose part media consisting of: 1) loose parts made from grain materials; 2) loose parts made from natural materials; 3) loose parts from used materials; and 4) loose parts from artificial materials. Media There are several loose parts game media used in this study. The media is easy to find around the house and school. The loose parts media used in this study are as table 1.

Implementation of Learning Models with Loose Parts

After determining the type of loose parts that will be used by children in playing, the next step is knowing the stages of implementing loose parts games. The flowchart of the implementation of the loose parts game in stimulating the 4C skills of early childhood can be seen in the image below.

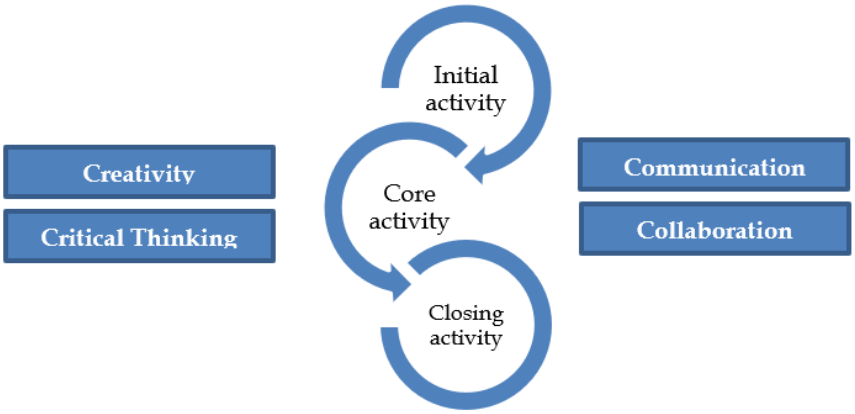

Figure 7. Learning Model Before Revision

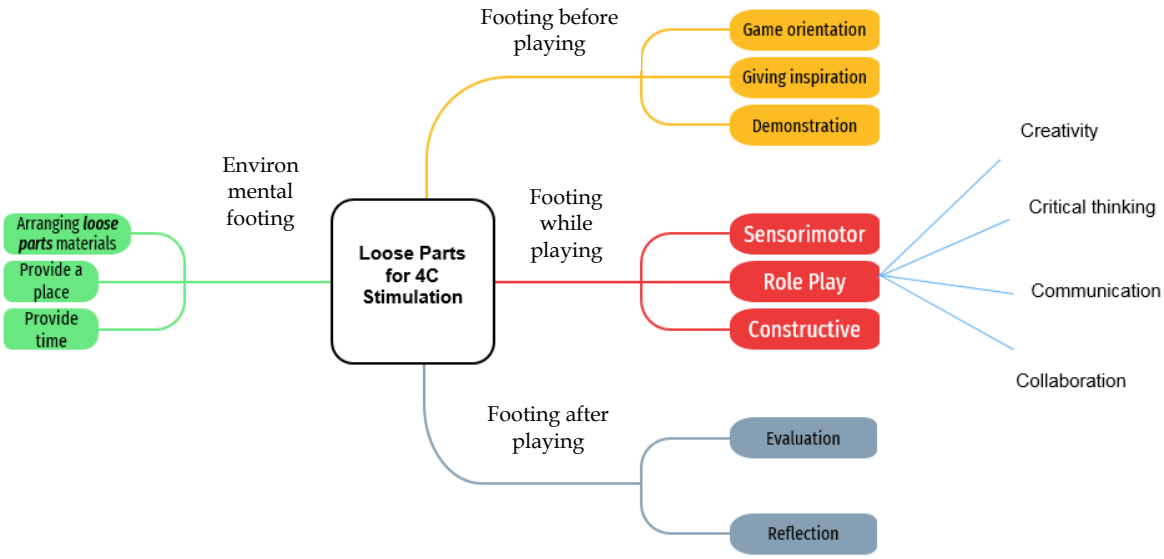

Figure 8. Learning Model After Revision

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Based on this figure, the implementation of the loose parts game to stimulate children's 4C skills is carried out through 4 stages. The four steps are as table 2.

Table 2. Results of the Analysis of Loose Parts Game Implementation

No.	Activity Documentation	Analysis Results
1	 **Figure 9. Initial Activities**	Before entering the core activities, the teacher first gives instructions regarding the activities to be carried out. The teacher gives an example of how to use loose parts media. The teacher gives freedom to each child to be creative according to their ideas and ideas.
2	 **Figure 10. Critical Thinking and Problem Solving**	When children play using loose parts media, children choose the type of loose parts themselves to use, namely loose parts made from natural, artificial, used materials, and seeds. Children can solve their own problems and reason about what works they will make. In the picture, it can be seen that the child is using glue to glue the loose parts onto the paper.
3	 **Figure 11. Creativity and Inovation**	Children make and create works according to their ideas and imagination. Children are free to be creative by using loose parts materials provided by the teacher. The work created by children is different from other children. This proves that children have a lot of creativity and innovation in creating things.
4	 **Figure 12. Communication**	This aspect of communication arises spontaneously when children play. Children communicate with their friends, ask the teacher, and answer questions. Children's vocabulary increases through playing loose parts activities, especially since the media has just been introduced. Children often ask the teacher how to use the loose parts media.
5	 **Figure 13. Collaboration**	When playing loose parts, children collaborate in making works. Teachers continue to monitor children especially when learning is carried out during the Covid 19 pandemic. Children are free to use tools and loose parts materials and work together in sticking and combining these media into a joint work.

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Stage 1 is the environmental footing

At this stage it consists of 3 activities namely: 1) the teacher first prepares the tools and loose parts materials to be used, 2) the teacher provides a large place so that children can play freely, and 3) the teacher provides time to play so that children can explore all existing materials and make a product in accordance with the idea and creativity.

Stage 2 is the footing before playing

At this stage, there are three activities carried out by the teacher, namely: 1) game orientation where the teacher explains the play activities that will be carried out by the child, 2) providing inspiration to children either through storytelling activities or singing a song according to the theme, and 3) demonstration, namely the teacher gives an example of how to use the loose parts material.

Stage 3 is the footing when playing

At this stage, the teacher provides three kinds of play namely: sensorimotor games, role playing, and development games. In carrying out this play activity, children are free to use various loose parts materials provided by the teacher. Children are free to make any work according to the child's imagination. The teacher only acts as a facilitator who is always ready to provide motivation, scaffolding, and assistance to children. When children do their activities, 4C skills build up by themselves. Teachers only provide support and reinforcement to children so that these skills are properly stimulated.

Stage 4 is the footing after playing

At this stage, the activities carried out are evaluating and reflecting. The teacher evaluates using the question and answer method to the children regarding the meaningful experiences they had that day. The teacher also asked the children's feelings when playing loose partsAt this stage, children are also allowed to tell about works made using loose parts.

Implementation

Implementation After the loose parts game was implemented, the researcher then tried to analyze the research findings based on observational data, interviews, and documentation studies. The results of the analysis of the implementation of the loose parts game can be seen in table 2

Desaign and Conduct Formative Evaluation of Instruction

Evaluation stage, researchers evaluate the learning model and learning media. The evaluation carried out is oriented towards the validity of the learning media and models developed through media experts, material expert, linguist expert, and instructional design experts. as well as the results of learning media trials. The table 3 are the results of expert tests on learning models using loose parts media to stimulate the 4C skills of early childhood.

Table 3. Validation Test Results

Expert validator	Average value	Description
Media expert	4.56	Very worthy
Material expert	4.73	Very worthy
Linguist expert	4.60	Very worthy
Instructional design experts	4.57	Very worthy
Average value	4.62	Very worthy

Based on table 3, the media expert's assessment of the learning model using loose parts media is 4.56 (very worthy). Then material expert with a value of 4.73 (very worthy), linguist

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with a value of 4.6 (very worthy), and learning design expert with a value of 4.57 (very worthy).

The formative evaluation steps are: one to one trials, small group trials, and field trials. The results of the formative test of the learning model using loose parts to stimulate the 4C skills of early childhood can be seen in the following figure 14.

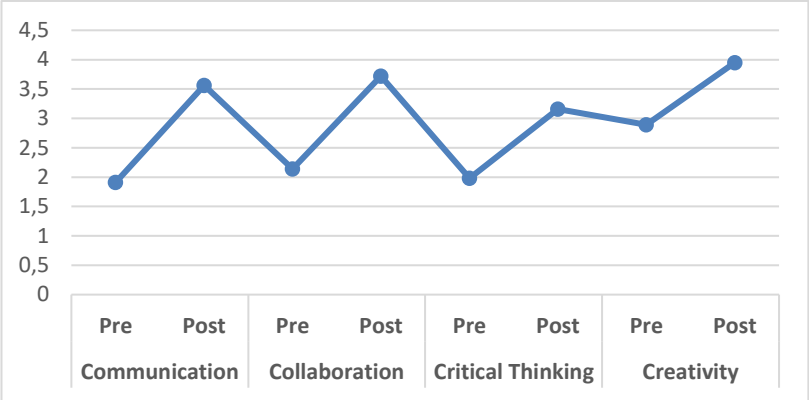

Figure 14. 4C skills of early childhood on field trials

Based on the data above, there is a significant increase in the 4C skills of early childhood after the learning model using loose parts is applied. This can be seen in the aspect of communication, the average number of children in the pre-test, which is 1.91, increased to 3.56 in the post-test. Furthermore, in the aspect of collaboration, the average of the children in the pre test was 2.14 which increased to 3.72 in the post test. Aspects of critical thinking, the average child on the pre test, which is 1.98, increased to 3.16 on the post test. In terms of creativity, the average of the children in the pre-test was 2.89 which increased to 3.95 in the post-test. Based on these data it can be concluded that the learning model using loose parts is effective in stimulating the 4C skills of early childhood.

In addition, researchers also tested the practicality and attractiveness of this learning model. Based on the results of statistical tests, it was found that this learning model was practically used in early childhood, namely in the range of scores $3.4 < x \leq 4.2$. The results of the model's attractiveness test were at a score of $x > 4.2$ which can be concluded that this learning model is very interesting for children in developing 4C skills.

Revision Instruction

The final step in the design and development process is revising the lesson. Data from formative evaluations are summarized and interpreted to identify difficulties students experience in achieving goals and link these difficulties to specific deficiencies in teaching. The data from the formative evaluation is not only used to revise the learning itself, but is used to re-examine the validity of the learning analysis and assumptions about the characteristics of students.

Discussion

Based on the results of research and development through the use of loose parts media to stimulate 21st century skills in early childhood, it shows that the learning model developed is very feasible for use in stimulating 21st century skills. The use of loose parts media can stimulate 4C skills in early childhood, namely: critical thinking and problem solving, creativity and innovation, communication, and collaboration. The discussion regarding the 4C skills can be seen below.

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Playing is the most effective activity for increasing creativity in an educational environment (Tok, 2021). Therefore, teachers should package learning programs based on play activities (Starko, 2005; Ranjan & Gabora, 2013; Bramwell et al., 2011). The importance of playing in the construction of knowledge and learning. Loose parts provide opportunities for children to have unstructured play that is not dominated by adults.

If loose parts media is applied according to the stages of the child's age by using the rules of the learning process according to the child's mindset, it will be able to improve critical thinking skills, try to find creative ideas, be able to solve problems, and stimulate children's developmental achievements. When children play using concrete or real objects and come into direct contact with these objects, children can freely explore, observe, and play, children will construct their knowledge and bring out their creativity.

Originality is an important part of the creative process (Runco & Jaeger, 2012) Mayersky: 2015). People who think creatively often think differently. There is a way of thinking based on building relationships between unrelated things. Creative thinking involves using different ways of thinking when producing or presenting ideas (Fox & Schirrmacher, 2014). Children express their own creativity through thinking (Fox & Schirrmacher, 2014). Researchers have found that creativity is influenced by the social environment (Mullet et al., 2016).

In an educational environment that promotes creative thinking, children's creative ideas are considered important and they can express their ideas freely. Children are given time to form their creative expressions. This educational environment is organized with supporting materials that allow children to have their own creative expression and free choice (Fox & Schirrmacher, 2014).

Critical thinking skills arise when children encounter problems in playing activities. For example, when a child wants to combine loose parts, the child will think about how to combine the two materials. Based on that, the child will think of using glue to glue the material together. In early childhood, habituation to critical thinking needs to be done consistently. This skill can also be honed through the question and answer method, in which the teacher asks several questions to the child. This is also in accordance with the opinion of Imamah who argues that when children find out about an object or problem the child will definitely ask a lot of questions. Sometimes children find out from simple problems to complex and more complex problems (Imamah & Muqowim, 2020).

According to Handyman, Benson, Ullah and Telford, (Trinanda & Yaswinda, 2022) stated the benefits of playing using loose parts media in the learning process, namely increasing creativity, critical and imaginative thinking. When children play using loose parts, children will have thinking that leads to thinking skills at the problem solving stage, increasing children's ability to think critically, imagine, see solutions, and explore children's abilities, especially when children fully explore the experience of playing. When children find problems in playing, the teacher does not immediately help solve these problems. Teachers should provide support and guidance to children to solve their own problems.

Communication skills in the ability to effectively articulate thoughts and ideas using oral, written, and nonverbal communication skills in various forms and contexts. Communication skills occur when children carry out various conversations with friends during play. Children will develop more systematic, logical, and rational concepts due to social interaction (McLeod, 2018). The teacher can also ask a number of questions related to the work that the child will make so that it stimulates the child's expressive language. At the end of the play activity, children can tell their friends the work they have done. Through this storytelling activity can add to the vocabulary of children.

The same thing was also stated by Apriansyah (2022) in their research entitled the development of a game model based on used goods to build 21st century competencies in early childhood. Based on the results of his research, it was stated that the results of the effectiveness test in developing a game model to improve 21st century competence obtained a

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value or score of 0.312 located in the interval 0.30 ≤ 0.70 with a moderate classification, in other words the effectiveness test could be declared effective. Therefore, it can be concluded that the loose parts game model can develop creativity, critical thinking, communication and collaboration in early childhood (Apriyansyah, 2022).

Collaboration skills in 21st century learning are very important and must be owned by children to achieve meaningful and effective results. The ability to collaborate also prepares children to work in teams. Based on (Surowiecki, 2005), collaboration in groups with various individual backgrounds will give better results and produce intellectual decisions than someone who is an expert in making decisions.

According to the results of research (Shanti et al., 2015) in developing collaboration competencies in children requires innovative and fun types of games for children. This is evidenced from his research, namely the development of dancing ball games and giant turtles, can enhance the development of collaboration in children .

When the children play loose parts, some of the children work together in groups to complete one piece of work. These collaboration skills can encourage children to help each other, appreciate the work of friends, and be responsible for completing tasks together. Children's skills in collaborating with friends can also stimulate aspects of social-emotional development. Children can help their friends when facing difficulties. This is according to the opinion of Ramani & Brownell, namely an activity designed together in certain situations, allows problem solving skills to develop from cooperative interactions (Ramani & Brownell, 2014).

Based on the results of the research and discussion above, it can be concluded that the learning model by utilizing loose parts media can stimulate the 4C skills of early childhood namely: creativity, critical thinking, communication, and collaboration. This is in line with the research results of (Safitri & Lestariningrum, 2021; Oktavia Lestari & Karim Halim, 2022 Mardiyah & Hambali, 2022; Oktavia Lestari & Karim Halim, 2022) which states that loose parts media can stimulate early childhood creativity; research results of Imamah (Imamah & Muqowim, 2020) which states that loose parts media can stimulate critical thinking skills; Prameswari states that loose parts media can stimulate the achievement of 4C in early childhood (Prameswari & Lestariningrum, 2020).

Conclusion

This research and development produces the final product in the form of a learning model manual that utilizes loose parts media in stimulating the 4C skills of early childhood namely: creativity, critical thinking, communication, and collaboration. Based on the results of the study it was stated that the learning model by utilizing loose parts media could stimulate 4C skills, the product in the form of a guidebook and the resulting media were deemed fit for use in early childhood learning. Teachers are advised to use loose parts media and give children the freedom to play to develop all their potential so that children can develop according to their times.

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