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Development of Instructional Model to Know Color Based on Natural Material to Improve the Creativity of Early Children

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Abstract

This research aims to develop an instructional model to recognize colors with materials sourced from nature in learning arts and culture as a specialized learning mediumatthe kindergarten level. Data collection was carried out by observation through the checklist assessment instrument. The checklist instrument was made as a measure of children's performance in kindergarten. Products developed before being tested were validated by a team of experts consisting of material experts, media experts, and design experts. The validation results from the expert team were used as input for revising the developed product, after which field trials were carried out to determine the effectiveness of the developed product. Based on the results of field tests, it was found that the products produced were practical and feasible to increase the creativity of early childhood. The implication of this research is tostill early childhood creativity with the learning environment.

Introduction

Early childhood education includes all the efforts and actions made by educators and parents in the process of care, nurturing, and education in the child by creating an aura and an environment where the child can explore experiences that provide opportunities to know and understand the learning experience he or she has gained from the environment, through observing, mimicking and experimenting that takes place over and over again and involves the child's full potential and intelligence. Early childhood development requires supervision, both from parents and teachers, to have good traits and mental. This effort is made so that children of pre-school age are better prepared to follow the following education.

McConnell suggests that creativity related to classrooms goes beyond art class and school projects (McConnell, 2009). Best of all, creativity in the school is about how a teacher lures students and inspires them to learn. Teachers practicing developing creativity generally focus on creating a rapidly evolving classroom culture on creativity(Loyola, Grimberg, and Colomer, 2020). Build a strategy repertoire designed to spark new ideas, unleash a spirit of the invention on students, and adapt and create curriculum needs. All it takes is innovative learning. Children need to experience unexpected and uncertain things. Creative students need creative teachers who provide order and adventure and willing to do the unexpected and take risks.

Every child is born with creative potential, but this potential can be restrained if not maintained or maintained; it should stimulate creativity. Children are, of course, curious about it, wondering about people and the world. Even before entering elementary school, it already has various learning skills gained through asking, searching, manipulating, experimenting, and playing. Children need a chance to take a closer look; it takes time for creative things. Creative learning is a natural human process that occurs when people become curious and excited. Children would instead learn in a creative way than memorize the information provided by the teacher or parents. Learn better and sometimes faster.

McMahon et al. said the results of his research, the creative partnership that developed 'in the classroom' between art specialists/instructors, assistant teachers applying for learning programs, and the various students who attended and attended the learning sessions were critical elements in the achievement of several stated goals in the beginning. From the beginning, teachers were passionate about making art and were fully engaged in art-making activities (McMahon, Klopper, and Power, 2015). Teachers should benefit from natural creative tendencies and give with their own experiences. Such as the mixing of art consisting of the following factors:

facilities, concepts, media, innovation, time, opportunity, and materials. Especially for art development lessons itself is still in need of innovative new ideas or concepts. To support learning in art, it is expected a concept or model in the form of craft or games that can stimulate children's creativity. This is very interesting to study how to create a learning model that is easy, fun, yet creative.

Creativity is one of the fundamental aspects to stimulate early on. Creativity can give a positive contribution to the individual in carrying out his life. Treffinger states no one lacks creativity(Treffinjer, 2018). The statement provides the meaning that everyone has creative potential in him so that education services are expected to offer opportunities to each individual to hone his creativity as much as possible from an early age.Stavridi, pointing out, as programming art educators and librarian activities for children's libraries, has noticed that the presentation of visual elements of art, especially colors and shapes in abstract art, changes and affects a child's ability to see, think, and feel(Stavridi, 2015).

The phenomenon of the development of science and technology, the demands of the Times, or the influence of the present.The community environment, regional conditions have a diversity of potential. The utilization of the environment as a medium of learning with active learning, innovation, creativity, practical and fun, and traditions and local cultural issues is considered in developing teaching materials for early childhood education. Seeing the reality in the field, one of the problems of low development of children's creativity is caused by the current situation and conditions. Information technology is increasingly sophisticated and varied, dominating children's attention and the surrounding environment. Children spend more time playing communication tools such as gaged, smartphones, Games, and so on, causing children to be more interested in choosing games in the form of audiovisuals rather than playing with traditional games (Nugraheni, 2018).

Previous research relevant to this study, such as Twigg research on Developing Creativity in Early Childhood Studies Students. This study aims to identify student perceptions (Yates and Twigg, 2017). Lai Research with the title learning through the intuitive interface: A case study on preschool learning. For a child, playing is a pleasure and a way of learning(Baldinger and Lai, 2019; Lai, 2019). Read (2019) with the research title Designing with Color in the Early Childhood Education Classroom: A Theoretical Perspective. Early childhood education and care centers provide children with the opportunity to explore, create, reflect, experiment, and learn in environmental classrooms(Read, 2019). According to Smaldino et al., today's students are the first generation to grow up in digital, portable DVDs, computer games, instant messaging, and iPods are everyday devices. Such students are known as digital natives (Smaldino *et al.*, 2018).

Indeed this is very troubling for all of us. Therefore, through this study, researchers will deeply examine the development of instructional models to recognize colors based on natural materials at the kindergarten school Tisa Islamic School. The findings are expected to encourage students' thinking creativity, provide skills to students, and create a fun student learning atmosphere. In this study, the formulation of the question is how to develop aninstructional model to recognize color-based natural materials? Is the instructional model of identifying colors based on raw materials effective in increasing early childhood creativity? The novelty of this study is the learning model of recognizing colors based on natural materials. Based on the mapping of previous research, no one has researched learning models to identify color-based raw materials.

Method

Sample

The research was conducted in four places, namely Kindergarten Group B Tisa Islamic School. It involves 30 students range in age from 5 to 6 years. The characteristics of participants can be seen in table 1.

Table 1. Characteristics of Respondents

No.	Gender	Age	Number	Presentation
1.	Women	5	7	23.33%
2.	Men	5	9	30%
3.	Women	6	8	26,67%
4.	Men	6	6	20%
	Total		30	100%

Data collection techniques

In this study, data collection was conducted by observation or observation through a checklist assessment instrument. Checklist instruments are made as a measure of children's performance in kindergarten Tisa Islamic School in learning activities with the implementation of color recognition learning models developed and the implementation of trials of learning models. Checklists are usually used to evaluate steps or procedures systematically. Observers need to check the column mark "Yes" or "No" Before the checklist instrument (checklist) is used, first conducted testing. Before the checklist instrument is used in data retrieval, the construct validity test is undertaken with the opinion of expert review(Sugioyo, 2016). After the questionnaire is constructed about the aspects measured based on a certain theory, consulted with experts. Experts were asked his opinion on the instrument checklist that has been compiled.

Data Analysis

The data analysis technique used is qualitative descriptive statistics. Qualitative descriptive statistics are used to analyze data by describing or describing the collected data as it is without intending to make conclusions that apply to the public or generalization (Sugioyo, 2016). Questionnaire data obtained from the results of field trials, then processed using modifications. Likert scale is a scoreof 4 = very capably, 3 = capable, 2 = capable with help, 1 = less capable.

Results and Discussion

Based on observation data with children aged 5-6 years and interviews with teachers, giving facts about the importance of this learning model developed, to produce a product in the form of e-modules that can be used to improve the creativity of early childhood in understanding color recognition based on natural materials. The component in the e-module is a discussion of essential color recognition, secondary color, and tertiary color. Through various forms of gadgets, e-modules can be downloaded and stored in them. Children who like different forms of devices can learn about color recognition based on natural materials in a fun way.

Color recognition based on natural materials needs to be instilled early because color recognition includes the scope of cognitive development aimed at developing thinking and creative abilities(Meylinie, 2017). In processing the acquisition of learning and finding alternative problem-solving. Children can develop logic skills, sort, group, and prepare the ability to think carefully. Therefore, it is necessary to understand natural-based color recognition early on to build a good character to use natural dyes.

The conclusion of the data collection results in the preliminary study is that 46% of children have a common understanding of essential color recognition based on natural materials. 74% of children have a sharedsense of secondary color recognition based on raw materials, and 88% of children have a common understanding of natural material-based tertiary color recognition. Interviews with teachers show no proper and fun learning model for early childhood to understand color recognition based on raw materials. Based on the preliminary study results above, a model of color recognition learning based on natural materials is needed to increase early childhood creativity.

Development Instructional Model Results

Based on the problems found in the research, it is necessary to design and develop aninstructional model based on natural materials to improve the quality of achievement of goals to be achieved, both goals in the process and results. Learning model development is an e-module to increase children's creativity in understanding color recognition based on natural materials. This design was obtained by studying the theoretical principles needed in developing an instructional model to improve children's creativity after early.

The design of the development of the learning model is carried out starting from the preparation of materials on color recognition from various sources that establish the introduction of nature-based colors for children aged 5-6 years—compiling e-module materials by referring to indicators of understanding color recognition based on natural materials derived from the study of theory and concept of nature-based color recognition. The physical form of e-module is a digital media that can be used in various gadgets, such as laptops, tablets, or smartphones.

E-modules are prepared through the following stages: 1) Creating competency maps, designed based on the needs found in the field regarding the understanding of color recognition based on natural materials. The competency map in the initial draft consists of three subjects, namely primary, secondary and tertiary colors. 2) Develop specific learning objectives tailored to the expected competency map. 3) Creating a Storyboard is a sketch of images arranged sequentially according to the purpose of special defense, with storyboard material

that can be delivered efficiently. 4) Create images for understanding the introduction of colors with natural materials in early childhood.The creation of this image follows a sketch that has been created in the storyboard. Images are made as attractive as possible with bright colors. The image creation process is created with photos, and the ibis paint app is dedicated to creating images or using image hyperlinks. 5) Arrange e-modules with pdf flip. The images that have been created are arranged and merged with the original photos to add a vivid impression to the e-module. The images are arranged according to the specific learning objectives that have been created. 6) Export the overall result into Flip PDF form. The e-module preparation results are ready to be used from word moved to Flip PDF for easy use. The appearance of the cover can be seen in figure 1.

Figure 1. E-module Developer Results

Effectiveness Test Results

The field trial was conducted with 30 students, adjusted to the number of students in kindergarten Tisa Islamic School Bekasi City. Students are given an e-module and an intervention with learning for eight meetings through the Zoom Meeting Cloud application. This is done to identify the shortcomings or weaknesses in e-modules, be it material, and the purpose of instruction that is expected to increase early childhood creativity in understanding color-based natural materials. The primary purpose of developing a learning model is to recognize the color of raw materials to increase the creativity of early childhood aged 5-6 years.

The criteria of field trials before intervention are pre-tested to see students' initial understanding of color recognition based on natural materials. At the end of the learning process, we are given a post-test to measure creativity towards understanding the color-based nature materials. The pre-test and post-test results are as in table 2.

Table 2: Pre and Post-test Results

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test	30	13	32	22.50	4.273
Post-Test	30	22	36	32.00	4.060
Valid N (listwise)	30				

Based on table 2 data, different tests are conducted to see the effectiveness of the developed products. The results of the T Paired test can be seen in table 3.

Table 3: T Paired Test Results

		Mean	Std. Dev.	$T\text{-}_{statistic}$	$T\text{-}_{table}$	df	Sig. (2-tailed)
Pair 1	Pre-Post-Test	-9.500	2.064	25.214	1.699	29	0.000

Table 3 obtained T-statistics = 25.214 when compared to the T-table on DF 29. T-statistics 25.214 > t table 1.699 can be interpreted significantly, meaning that the pre-test result is different from the post-test result. It can also be by looking at the Sig value. (2-tailed)/p-value=0.000. This means that there is a difference between before and after treatment because of the p-value of 0.000 < 0.05 (at a confidence level of 95%). Mean value of -9,500, marked negative, means that there is a tendency to increase the value of post-test results after treatment. The average increase is 9.5. It can be concluded that the learning model of color recognition based on natural materials effectively increases the creativity of early childhood.

Planning and developing learning models using PDF flip applications makes the resulting product easy to use, making the learning process feasible and practical. This opinion is supported by previous researchers, namely Orey et al., who stated that the media makes learning effective and learning to be progressive (Orey, McClendon, and Branch, 2013). According to Lewis-Pierre and Aziza, learning media facilitates learning as a material of distance learning, practical learning, and interactive learning resources(Pierra and Aziza, 2017). According to Rusmonoet al.,digital media facilitates independent and practical knowledge to improve learning outcomes (Rusmono, Jarudin, and Khuzaimah, 2020).

According to Mayer (2018), learning is something that teachers do to achieve learning goals by facilitating students in improving learning(Fiorella and Mayer, 2017). The learning is further explained, including teachers, methods, strategies, educational games, books, research, and technology projects. The learning process is an effort to make students learn so that a situation is an event of learning, which is an effort to change the behavior of learners (Göksu *et al.*, 2017). Behavior changes can occur due to interactions between students and their environment.While Vogel-Walcutt (2013) said that learning is an effort in giving excitatory (stimulus), guidance, direction, and encouragement to students to occur the learning process (Vogel-Walcutt, Fiorella and Malone, 2013).
Furthermore, Tang et al. (2019) revealed thatlearning is the process of behavior change (in the broad sense) caused or changed through practice or practice (Tang and Zhang, 2019). Learning is a series of physical activities to obtain a change in behavior due to an individual's experience in interaction with his environment, which concerns cognitive, affective, and psychomotor(Antine*et al.*, 2020). Learning plays an essential role in learning because, in learning, there are learning events and teaching events. Learning is a psychophysical activity caused by learning activities.

Joyce, Weil, and Calhoun reveal that instructional models describe the learning environment, including our behavior as educators when models are used. The model has many uses starting from learning planning, curriculum, designing teaching materials, including developing multimedia programs for learning (Joyce, Well and Calhoun, 2009). Dubovi research suggests instructional theory suggests that well-designed learning processes activate learners, internal cognitive structure and improve the similarity of successful learning. Learning paths can be operationalized in various forms, resulting in qualitatively different learning approaches (Dubovi, 2018; Wood *et al.*, 2020).

The concept of learning while playing, doing, through stimulation, is the essence of understanding by observing, imitating and experimenting (Apriani, 2017). In knowing the colors of natural materials, children can experiment, allowing the child to find something interesting, in developing his creativity and imagination. Coloring activities serve to train the ability of coordination between children. In coloring, it is necessary to coordinate between the eyes and hands and complexion toprepare the child's concentration to stay focused on the work they do.

Coloring activities require successfully coloring all available drawing areas; this is where the child's sense of responsibility will be fostered by completing the work while encouraging the child's confidence that he can complete the task he is working on (Irfan, 2018). The research results of Mona Sakr and Natalia Kucirkova suggest that closeness in the creation of parent-child collaborative art with different technologies can increase children's creativity(Sakr and Kucirkova, 2017).

Conclusion

Based on the results of research and discussion on the development of learning models to recognize colors based on natural materials to improve the cognition of early childhood din TK B Tisa Islamic School Bekasi City can be drawn some conclusions that the product results of this development are a learning model to recognize colors based on natural materials to increase the creativity of early childhood 5-6 years. The field trials result found that learning models to identify colors based on raw materials to increase the creativity of early childhood can create decent and effective learning and motivate children in learning.

While time constraints and study rooms do not rely solely on face-to-face hours with Zoom Meeting Cloud in delivering materials, other learning developments are needed to support innovative, effective, efficient, and trapping learning processes such as through social media. The limitation of this research is that the product developed has not been integrated with social media, so it is fixated on the flatform available in schools. Further research needs to be done with hyperlinks with other social media and QR codes, making it easier for students to learn anywhere and anytime.

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