

## IMPLEMENTATION OF FLOOD DISASTER MITIGATION ACTIVITY WORKSHEETS FOR TRAINING CREATIVE THINKING IN CHILDREN AGED 5-6 YEARS

**Lisa Setyaning Anggraeni**

Early Childhood Education Teacher Education, Faculty of Education, Surabaya State University  
e-mail : [lisa.19066@mhs.unesa.ac.id](mailto:lisa.19066@mhs.unesa.ac.id)

**Mallevi Agustin Ningrum**

Early Childhood Education Teacher Education, Faculty of Education, Surabaya State University  
e-mail : [malleviningrum@unesa.ac.id](mailto:malleviningrum@unesa.ac.id)

### Abstrak

Penelitian ini bertujuan untuk meningkatkan berpikir kreatif anak usia 5 – 6 tahun melalui pengembangan produk berupa activity worksheets dengan indikator berpikir kreatif dari Munandar. Pengembangan ini menggunakan model pengembangan ADDIE. Teknik pengumpulan data menggunakan observasi dan angket. Hasil uji coba produk menunjukkan bahwa: (1) Validitas activity worksheets termasuk dalam kategori sangat valid dengan nilai persentase validasi ahli materi 89.2%, validasi ahli media 81.2%. (2) Hasil keefektifan dengan hasil uji Wilcoxon sebesar 0.001, maka jika hasil dari signifikansi lebih kecil dari 0.05 maka  $H_0$  ditolak dan  $H_a$  diterima yang artinya ada perbedaan rata – rata antara pre – test dengan post – test. (3) Untuk mengukur hasil belajar antara tingkat pemahaman anak sebelum dan setelah treatment menggunakan uji N-Gain yang menunjukkan hasil nilai rata – rata N-Gain 0.66 jika diinterpretasikan ada pada kriteria peningkatan sedang. Penentuan persentase tingkat keefektifan diperoleh sebesar 66.20% termasuk dalam kategori cukup efektif. Sehingga activity worksheets topik mitigasi bencana banjir untuk anak usia 5 – 6 tahun ini layak dijadikan acuan sebagai salah satu cara untuk melatih kemampuan berpikir kreatif.

**Kata kunci :** Lembar Kerja Anak, Berpikir Kreatif, Anak Usia Dini

### Abstract

This research aims to improve the creative thinking of children aged 5 - 6 years through product development in the form of activity worksheets with creative thinking indicators from Munandar. This development uses the ADDIE development model. Data collection techniques use observation and questionnaires. The product trial results show that: (1) The validity of activity worksheets is included in the very valid category with a material expert validation percentage value of 89.2%, media expert validation 81.2%. (2) The effectiveness results with the Wilcoxon test result are 0.001, so if the results of significance are smaller than 0.05 then  $H_0$  is rejected and  $H_a$  is accepted, which means there is an average difference between the pre-test and post-test. (3) To measure learning outcomes between children's level of understanding before and after treatment using the N-Gain test which shows an average N-Gain value of 0.66 if interpreted as being in the criteria of moderate improvement. Determining the percentage level of effectiveness obtained was 66.20%, which is included in the quite effective category. So this activity worksheet on the topic of flood disaster mitigation for children aged 5 - 6 years is worthy of being used as a reference as a way to train creative thinking skills.

**Keywords :** Children's Worksheets, Creative Thinking, Early Childhood

## 1. PENDAHULUAN

Education cannot be separated from the existence of a curriculum as a support for the implementation of education. The independent curriculum requires children to have the abilities as described in the concept of independent learning, so the close connection with this concept which must be improved in children who are in accordance with the concept of independent learning is learning to think creatively because children who have the ability to think creatively will move creatively so that it will provide benefits. and satisfaction for himself to actualize (Supianti et al., 2023). The problems that arise cannot all be solved using the old method, but require new

methods. This is where creative thinking will become very important because someone who is creative will continue to try in various ways such as asking questions, collaborating with other people so as to realize a problem solution, especially in education, the aspect of creative thinking is very necessary for children.

Children basically do creative thinking from the time they are able to say sentences, explore and ask various things they want to know, but as time goes by, children who often ask questions are ignored by other people because they are not considered very important. Creative children satisfy their curiosity in various ways, such as

exploring, experimenting, and asking lots of questions to other people. Creative children are not formed by themselves but need to be given activities that can develop children's creativity. In agreement with the statement of Mardhiyana et al, (2016) without the ability to think creatively, a person will not find a solution to his problem and thus his life will never progress, so creative thinking can be improved by providing appropriate learning activities to improve creative thinking.

In the independent curriculum used by schools, the ability to think creatively is one of the learning objectives in the independent curriculum program, this is emphasized by the opinion of Retnaningsih & Khairiyah (2022), that through independent learning, students will be sharpened to have communication, creativity, collaboration competencies, and critical thinking. With core competencies, children will not only memorize lessons, but will be able to create and innovate in various fields, having good character. So creative thinking is an important ability for children to have. With this competency, children will be able to solve problems in their own way, can create new things, learn to express opinions fluently.

Based on the importance of creative thinking in children, the researcher carried out observations at the Dharma Wanita Association Wilayut Kindergarten with twelve children in one group B class and conducted interviews with the class B homeroom teacher and the school principal to determine the level of children's creative thinking abilities. There are facts in the field that not all children have improvements in creative thinking. In the ongoing learning, it was shown that in class some children often did not pay attention to the teacher when explaining the teaching material so that of the seven children, they did not explore their knowledge enough by expressing ideas quickly and responsively during the question and answer process, four children were able to answer fluently but were not yet able to make combinations or give details. The picture is novel in this case, children often copy each other. Some children have not yet developed the ability to think creatively because teachers have not provided maximum stimulation to children to improve their creative thinking.

The problems above really require the role of teachers in providing stimulating activities in an effort to optimally improve the creative thinking abilities of young children. Stimulation development activities that can be used by utilizing existing teaching materials at school. The use of teaching materials in classroom learning is an integral part that can help teachers in carrying out teaching and learning activities. This accountability will be a challenge in itself for PAUD teachers to be able to help young children have thinking skills that not only apply what they understand, but are also able to carry out analysis and evaluation in order to find the best solution (Adhe et al., 2022). One of the teaching materials that can be used as a solution to improve creative thinking skills is activity worksheets or LKA (Children's Worksheets).

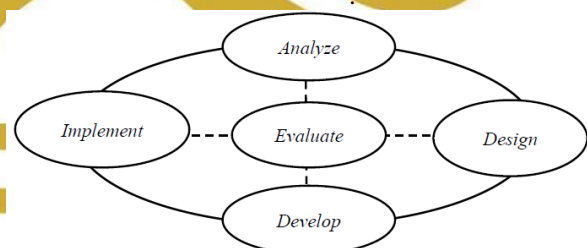
*Activity worksheets* are one of the teaching materials that are very useful for teachers, making it easier to provide assignments in the form of activities and

assessments for children, especially as a guide in teaching and learning activities (Mongkek et al., 2019). According to Nafsia & Ngura (2022), through the use of activity worksheets as a learning tool in the classroom, providing activities and children's creativity in teaching and learning can develop, the delivery of learning material can be made easier. Having activity worksheets can be used as a way to improve children's creative thinking in accordance with creative thinking indicators.

According to Pujiawati et al. (2020), that understanding of learning with *activity worksheets* will be more easily absorbed and not easily lost because children are guided not only through writing but also through a series of pictorial questions and practical activities. The facts in the field are that there are no *activity worksheets* on the topic of flood disaster mitigation to measure the level of creative thinking in children. So researchers are trying to develop *activity worksheets* on the topic of flood disaster mitigation by providing practical activities that will guide children to explore what they want to know so that it will stimulate children to actively think creatively in learning. So updates can be included in *activity worksheets* with activities that are not only writing and drawing but can be practice-based, able to explore knowledge and understand a lot of the material that will be given in accordance with the principles of creative thinking. Based on the problem description above, there is a need for development research with the title "Implementation of Flood Disaster Mitigation Activity Worksheets to Train Creative Thinking for Children Aged 5-6 Years". It is hoped that this product will later be used to support classroom learning for teachers and children.

## METHOD

The type of research used in this research is R&D (*Research and Development*) research. This type of method is longitudinal, because in producing certain products research must be used that is needs analysis and tests of the effectiveness of certain products. Using the development procedure developed by Branch (2009), namely the ADDIE model, which consists of five stages of development procedures, namely:



**Figure 1. Stages of the ADDIE Model**

Source: (Batubara, 2020)

### 1. Analyze (Analysis Stage)

The initial stage in the ADDIE concept is the analysis stage, where teachers must collect information about the causes of children's learning problems and determine the most appropriate type of learning media to help children's learning process.



## 2. Design (Design Stage)

The aim of this stage is to design the tools that will be developed and the design of the learning tools that will be developed. 3. *Development* (Development Stage)

In the media or learning teaching material development stage, there are two stages, namely learning media production and learning media development based on suggestions from the validation team.

## 4. Implementation (Implementation stage)

The implementation stage in developing learning media is the stage of testing the media on target users after the media has received an assessment from the validator.

## 5. Evaluation (evaluation)

At this stage, the aim is to assess the quality of *activity worksheets* related to learning processes and outcomes both before and after implementation.

Product development data collection techniques are carried out by determining feasibility and effectiveness, along with an explanation in analyzing the quality assessment criteria for the product being developed:

### 1. Feasibility Analysis

This technique is carried out by providing a questionnaire sheet containing questions, suggestions and comments columns for product development assessment. The formula used to analyze feasibility data from (Sugiyono, 2013), is shown in Figure 2.

$$K = \frac{Tse}{Tsh} \times 100$$

**Figure 2. Formula for calculating product feasibility**

Source: (Sugiyono, 2013)

Next, integrating the feasibility values, the classification of feasibility analysis criteria that can be used is shown in table 1.

**Table 1 Product Feasibility Level**

Percentage score (%)	Criteria	Information
81-100%	Very good	Very Worth It
61-80%	Good	Worthy
41-60%	Pretty good	Decent Enough
21-40%	Not good	Not Worth It
0%-20%	Not good	Not feasible

Source: (Riduwan, 2013)

Before the observation data collection instrument is carried out to assess data in the field, a reliability test is carried out with an *internal consistency reliability test* . The instrument test results were analyzed using the

*Cronbach's Alpha formula* with the SPSS 22 application. A variable can be said to be reliable if the Cronbach's Alpha coefficient value is  $\geq 0.60$  (Aini et al., 2022) .

## 2. Effectiveness Analysis

Next, trials were used in field trials with 15 children aged 5 - 6 years at the Dharma Wanita Association Wilayat Kindergarten. Effectiveness analysis was carried out using *pre-test – post-test sheets* with the same sample of experimental subjects.

The data obtained will be processed using the N-Gain test and the Wilcoxon test. Researchers tested each child's learning outcomes with the N-Gain test. The N-Gain test is a method commonly used to measure the effectiveness of learning or intervention in improving student learning outcomes (Sukarelawa et al., 2024) . The N-Gain formula can be seen in Figure 3.

$$NGain = \frac{Skor Posttest - Skor Pretest}{Skor Ideal - Skor Pretest}$$

**Figure 3. N-Gain Score Formula**

Source: (Sukarelawa et al., 2024)

The data obtained will be processed using SPSS 22, to make it easier to see the category of increase in N-Gain score, you can refer to the normalized Gain criteria in Table 2.

**Table 2. N-Gain Criteria**

N-Gain Value	Interpretation
$0.70 \leq g \leq 1.00$	Tall
$0.30 \leq g < 0.70$	Medium Low
$0.00 < g < 0.30$	There was no increase. There was a decrease
$g = 0.00$	Tall
$-1.00 \leq g < 0.00$	Medium Low

Source: (Sukarelawa et al., 2024)

Then the data obtained will be analyzed using the *Wilcoxon Sign Rank Test* . The Wilcoxon test is a non-parametric test to measure the significance of differences between 2 groups and is on an ordinal or interval scale but has a non-normal distribution. The data will be processed using the SPSS 22 application.

## RESULTS AND DISCUSSION

This development produces a product in the form of an *activity worksheet book* with material that can improve creative thinking and be sustainable with children's learning environment, especially kindergarten group B. This *activity worksheet* is useful for helping teachers and children improve learning with the desired learning objectives such as improving creative thinking.

The research began by analyzing what was lacking in learning activities using worksheets in schools,

as from the results of the analysis of classroom observations that researchers obtained, namely that worksheets were still not perfect in terms of use and development, making children less interested in participating in learning activities and lacking direct activities. . With existing problems, it becomes a reference for researchers to develop products, namely *Activity Worksheets* . with specifications for the type of print media because the product is a book printed in F4 size. The book cover uses *art paper* and the contents of the book use 80gsm HVS paper . The following are the results of the *Activity Worksheet book design* .



Figure 1 Design Cover and Back Page

In Figure 1 , the front cover design contains the title of the *activity worksheets book* , while on the back page there is a description of the advantages of the *activity worksheets* .

Figure 2 Table of Contents and Materials

In Figure 2 there is a table of contents to find out the activities on each page in the book, while the material is about understanding flood disaster mitigation.

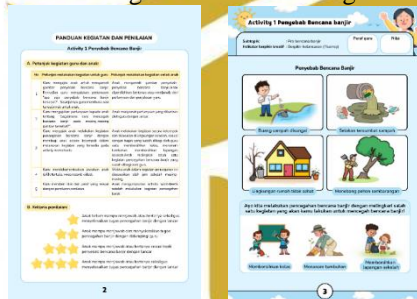


Figure 3 Activity Worksheets Guide and Activities

In figure 3 is a guide and assessment of teacher and child activities, as well as activities on flood disaster mitigation topics that must be carried out by children. There are 12 active activities to improve the creative thinking of children aged 5-6 years.

After the design was carried out, the researcher prepared a product feasibility instrument for material

experts and media experts, after obtaining validity values from media experts and material experts to obtain product feasibility. Following are the validation results of material experts and media experts in table 1

Table 1 Results of Expert Validation Percentage

Validator	Percentage	Information
Material expert	89.2%	Very valid
Media expert	81.2%	Very valid

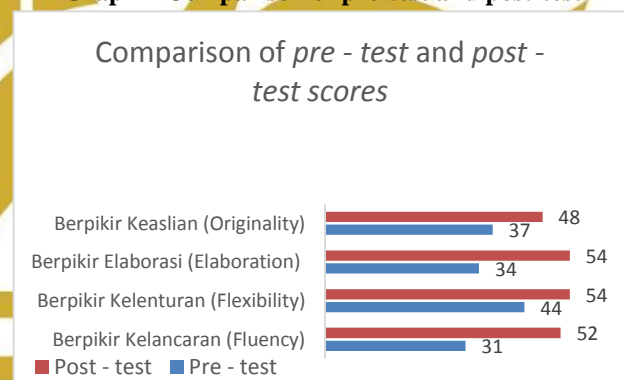
So the overall results from the table above are:

$$\frac{\text{Rata rata hasil presentase}}{\text{Jumlah indikator}} = \frac{89,28\% + 81,25\%}{2} = 85,2$$

Based on the results of the overall expert validation scores described above, the score obtained is 85.2 and these results are in the percentage interval of 81% - 100% which is in accordance with the percentage range of assessment level categories (Riduwan, 2013), the results of the validator assessment the activity worksheets for training creative thinking for children aged 5 - 6 years are categorized as very valid, very feasible.

Next is the implementation stage, products that have been developed and tested for validity will be printed and field tested at the Dharma Wanita Association Wilayat Kindergarten in group B with a total of 15 children . The research trial used a *pre-experimental design method* , one group *pre-test post-test design* to determine the effectiveness of *activity worksheets* . The results of the *post-test activities* showed a change in scores, which means there was an increase after the *treatment was carried out* using the *activity worksheet product* . The results of the comparison of *pre-test* and *post-test* are shown in graph 1 .

Graph 1 Comparison of pre-test and post-test



Based on the comparative data above, it will be used to determine the effectiveness of *activity worksheet products* to improve creative thinking in children aged 5 - 6 years. The effectiveness test will be analyzed using the N-Gain test with SPSS 22.

Researchers conducted an N-Gain test on the learning outcomes of each child when applying *activity worksheets* to train creative thinking. The score data for



each child on *the pre-test* and *post-test* will be processed using SPSS 22 which will be displayed in table 2.

**Table 2 N-Gain value results**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
N_Gain	15	.50	1.00	.6621	.16180
N_Gain_Persen	15	50.00	100.00	66.2085	16.17976
Valid N (listwise)	15				

To measure learning outcomes between children's level of understanding before and after *treatment* using the N-Gain test which shows the average value obtained is 0.66 if interpreted as being in the criteria of moderate improvement. Determining the percentage level of effectiveness obtained was 66.20%, which is included in the quite effective category.

Wilcoxon test results are shown in table 3.

**Table 3 Wilcoxon Test Results**

	post test - pre test
Z	-3.425 <sup>b</sup>
Asymp. Sig. (2-tailed)	.001

Based on the data in this study, it shows that the *asymptotic* Sig (2-tailed) is 0.001 so that  $p < 0.05$  or  $0.001 < 0.05$ , so it can be concluded that if the result of significance is less than 0.05 then  $H_0$  is rejected and  $H_a$  is accepted, which means There is a difference in the average between *the pre-test* and *post-test*, supported by Wilcoxon's decision from Maghfira & Mada (2019) that if the significance value is  $< \alpha$  then there is a difference between the value before and after the learning process or *treatment*, so that *activity worksheets* are used. The topic of flood disaster mitigation is effective in training creative thinking for children aged 5 - 6 years.

## CONCLUSION

Activity worksheets were tested on children and had to undergo a series of validity tests and assessments to test their suitability, with the results of the material validity test getting a score of 89.2% which was categorized as very suitable for use, the results of the media validity test got a score of 81.2% which was categorized as very suitable for use. So it can be concluded that the activity worksheet product is very suitable for use to improve creative thinking in children aged 5 - 6 years.

Next is the N-Gain test to determine the increase in children's learning outcomes with activity worksheets developed through pre-test and post-test data, with the results obtained an average N-Gain value of 0.66 if interpreted as being in the medium improvement criteria. . Determining the level of effectiveness of developing

activity worksheets to improve creative thinking in children aged 5-6 years can be seen from the N-Gain percentage. The N-Gain percentage obtained was 66.20%, and was included in the quite effective category. So there are children's learning outcomes with flood disaster mitigation activity worksheets to increase creative thinking at moderate levels and the product is effective enough to be used in school learning to train creative thinking for children aged 5 - 6 years.

After that, test the effectiveness of the product on children which produces Wilcoxon test calculation data using SPSS 22 with *asymptotic* Sig (2-Tailed) results of 0.001 so that  $p < 0.05$  or  $0.001 < 0.05$ , then if the results of significance are smaller than 0.05, then  $H_0$  is rejected and  $H_a$  is accepted, which means there is an average difference between the pre-test and post-test so that using flood disaster mitigation activity worksheets is effective in training creative thinking for children aged 5-6 years.

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