

# The Effectiveness of Nature-Based Edutainment Learning Models to Improve Language Capabilities in Early Childhood in Kudus

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**Abstract:** This research aims to produce valuable and practical edutainment learning model guidelines. This research method refers to the theory of Borg and Gall. The research steps are as follows: information gathering, research planning, developing initial products, field testing, revisions, product testing, and revision of field product test results. Data collection techniques used are interviews, observations, and questionnaires. The analysis used in this research is quantitative and qualitative. The data sources in this study were the teachers and students of Raudhatul Athfal group B in Kudus. The results of this study are described in a needs analysis, model design, feasibility test, and effectiveness test. Needs analysis shows a need for an appropriate learning model to improve early childhood language skills. This research uses research and development (R&D) methods. The data analysis techniques used are model feasibility analysis and effectiveness. The edutainment learning model is a learning model that is carried out in the process to create a pleasant learning quality for students. So the nature-based edutainment learning model is used. The model design uses its products' ten research steps: learning models and nature-based edutainment learning guides. Feasibility test with N Gain test, which shows an average experimental class of 0.71 and 0.72 with a high Gain Classification with an "effective" level of effectiveness ( $g > 0.70$ ). In addition, the feasibility test is also carried out with the Expert Judgment Test consisting of language and material experts. The language and content experts' assessments obtained an average validity score of 80% and 88% ("very good" category). Test the effectiveness with homogeneity, normality, and t-tests. In the homogeneity test, it is known that the significance value of children's language skills is  $0.151 > \alpha = 0.05$ , then  $H_0$  is accepted. The normality test obtained a significance value for children's language skills, which is more than 0.05, so it is normally distributed. The t-test, the language skills of children in group B using the t-test obtained a significance value (2 tailed) of  $0.000 < 0.005$ .

**Keywords:** Edutainment, Nature-Based, And Language Skills

## 1. Introduction

School is an education that is expected to realize the creation of an educated society. Therefore, as a part of the education tri-center, schools play a significant role in the education process. Education has developed along with the times (Shaturaev, 2020). The quantity of education is increasing. This can be seen according to the increasing number of schools. The fault in education lies mostly in practice. The learning process must be far from trying to cram knowledge into the child's brain. Excessive knowledge will interfere with understanding and tire the child's brain (Suh, 2017). So far, the learning process in the classroom is often seen by students as an empty place that must be filled with various knowledge, or any information desired by the teacher. Not all educators pay attention to aspects of students' feelings or emotions, as well as their readiness to learn, both physically and psychologically (Cicekci & Sadik, 2019). Many students are intellectually intelligent but cannot control their emotional side, so they miss the opportunity to live a happier and more enjoyable life (Cithambaram, Dufyn & Courtney, 2021). Therefore, the element of happiness in the learning process is important (Fraser, 2013).

Departing from the above, the concept of fun-based learning arises, called edutainment-based learning. This concept is expected to be a solution to problems in the learning process that often occur. Jarvin (2015) explained that in edutainment, learning activities do not appear in a scary face but in a humane form and open and fun educative interactions. This kind of educational interaction will produce practical learning activities and become the primary key to the success of learning—the basic concept of edutainment (Holbrey, 2020).

Nature-based learning also allows children to connect and feel closer to God for self-motivation to preserve nature

as a form of respect for God's creation (Kunchambo, Lee, & Brace-Govan, 2017). Children's language development includes four aspects, namely aspects of listening/listening, speaking, reading and writing (Angelino & Matronillo, 2020). These four aspects develop continuously with the understanding that parts of reading and writing are formed from the ability to listen and talk first or in oral language (Jalongo, 2007). Based on the problems found, it is necessary to have exciting learning that can please students and can foster students' interest in education. Therefore, developing a nature-based edutainment learning model is hoped that early childhood can improve language skills.

## 2. Methodology

This research method is R&D or research development. First, for preliminary research using qualitative research methods, then quantitative research methods. Sugiyono (2017) explains that research and development methods are methods used to produce new product designs, test the effectiveness of existing products, develop and create new products and test the effectiveness of these products. The subjects in this study were all early childhood children in group B in Kudus Regency. The selection of research subjects was based on several factors by considering subject equality, teacher quality, school quality, and the existence of an analysis of identified needs so that the selection of research subjects was defined as an object representing the population. The samples in this study were Raudhatul Athfal NU Banat, Raudhatul Athfal Matholiul Hija and Raudhatul Athfal Suryawiyah. The development steps consist of 10 steps: identification of potential problems, data collection, product design, design validation, usage trials, product revisions, product revisions, product revisions, and dissemination.

### 2.1 Data Collection

Data collection techniques used are interviews, observations, and questionnaires. Collecting data by interviewing students and teachers aims to explore information related to the needs of nature-based edutainment learning models. In addition, the data collection technique used is observation guidelines aiming to collect edutainment learning data. Data obtained from observations are used to analyze the needs of the learning model, with the data sources being teachers and students. The data collection technique used is a questionnaire guide which aims to collect edutainment learning data. Data obtained from questionnaires were used to analyze media needs with teacher data sources. The type of questionnaire used is a Likert scale with research categories using a scale of strongly agree, agree, hesitate and disagree.

### 2.2 Design Research and Development

In this study, a research and development design was used with ten implementation steps referring to the theory of Borg and Gall. Borg and Gall (Sugiyono, 2015) state that research and development (R&D) is a method used to develop or validate products used in learning.

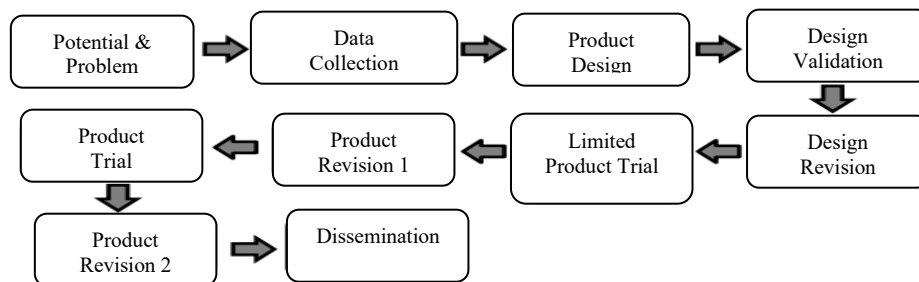


Fig. 1: Research and development steps

In the design of the model, there are four stages, namely 1) Preliminary Study, 2) Model Development and Validation, 3) Field Test, and 4) Dissemination. The following is a picture of the model design according to the stages.

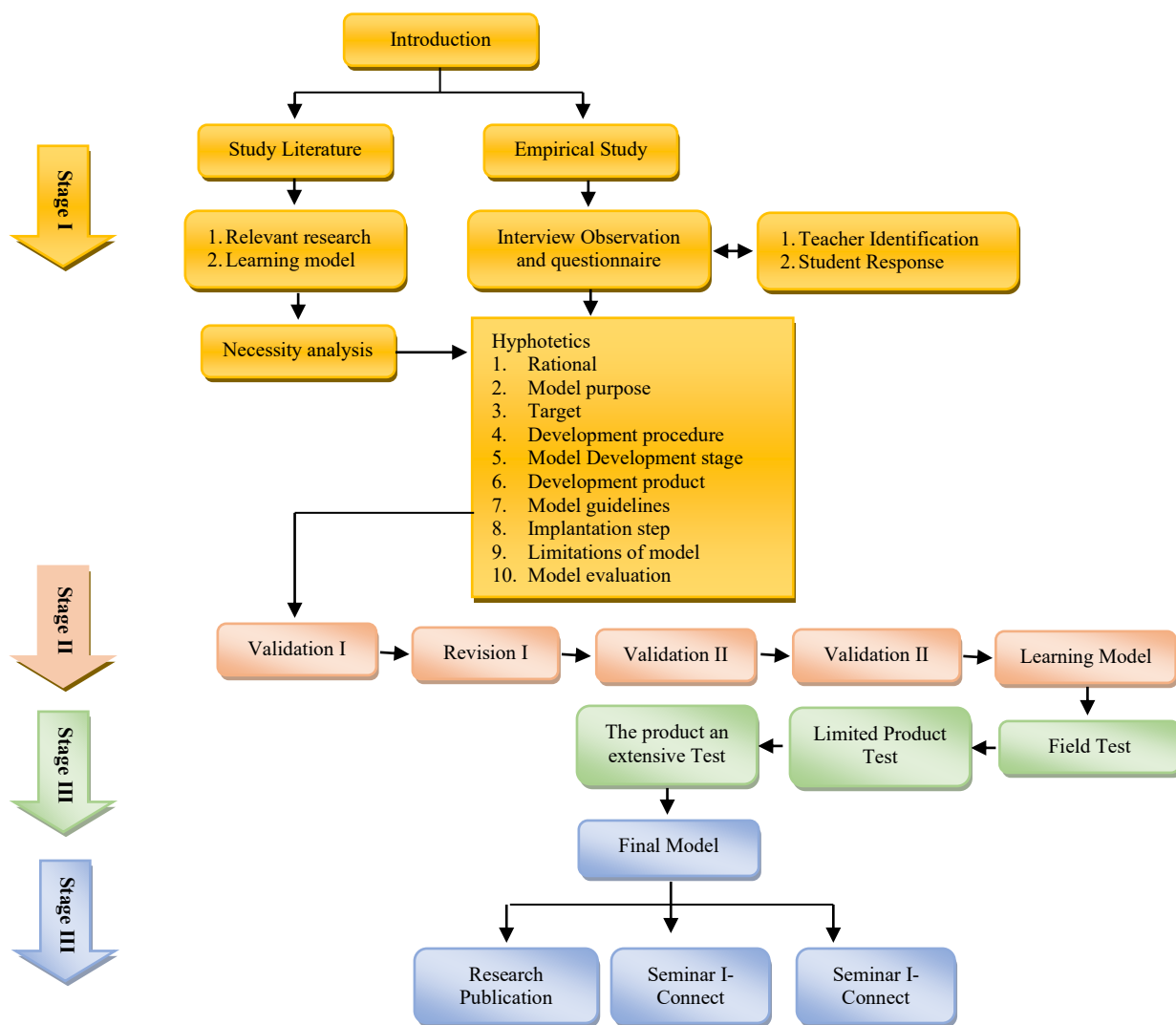


Fig. 2: Research procedure

### 2.3 Data Validity Test

Test the validity of the data through validity and reliability tests. A measurement scale is said to be valid if it does what it is supposed to do and measures what it should measure. The validity criteria can be determined by looking at the Pearson Correlation value compared to the significance level. If the value of Sig.  $< 0.05$ , then the statement in the questionnaire is declared valid (Augustine & Kristaung, 2013). The instrument is said to be reliable if the instrument used to measure the same object will produce the same data, even though in different people, times and places. Sugiyono (2015) explains that reliability testing with consistency intervals is done by trying the instrument once and then the results obtained are analyzed with specific techniques. Instrument reliability testing can be done with several methods, including KR<sub>20</sub> (Kuder Richardson).

### 2.4 Data Analysis

The data analysis technique is the activity of compiling and presenting research data obtained through research results. Data analysis is needed to test the truth of the research hypothesis. The study's primary purpose is to test the product's data needs, feasibility and effectiveness. The data analysis techniques used are needs analysis, model feasibility analysis, and effectiveness.

The needs analysis is obtained from the needs of edutainment learning and the analysis of the needs of language skills. Meanwhile, the feasibility is calculated by calculating the pretest and posttest values through N Gain calculations and expert judgment tests. As for the effectiveness of the prerequisite test through the homogeneity test, normality test, and t-test.

Calculation of N-Gain is obtained from the pretest and posttest scores. Expert assessment tests were obtained from material experts and linguists. Homogeneity testing aims to determine whether the object under study has the same variance. The homogeneity test used in this study used SPSS version 26 software with Leven's. A normality test is used to determine whether the data population is normally distributed; if the data is known to be normally distributed,

parametric statistical tests are used, provided that the data for each variable is normal. Meanwhile, if the data is not normally distributed, a non-parametric statistical test is carried out (Sugiyono, 2015).

The effectiveness of product development is done by comparing the average value in the experimental and control classes using the independent sample t-test. The test indicator for the independent sample t-test is If the value of sig (2 tailed)  $> 0.05$ , then  $H_0$  is accepted. So, there is no difference in the experimental and control classes' average values. If the sig. (2-tailed) value  $< 0.05$ , then  $H_0$  is rejected. Then there is a difference in the average value in the experimental class and the control class.

### 3. Results and Discussion

#### 3.1 Edutainment Learning Model Needs Analysis

The study was initiated by conducting a needs analysis on developing an early childhood edutainment learning model for group B in Kudus, in the Kota sub-district, Dawe, Mejobo. The needs analysis of the development of the edutainment learning model was carried out by interviewing and observing ten teachers and 45 children, six teachers at Raudhatul Athfal NU Banat Kudus, two teachers at Raudhatul Athfal Matholiul Hija Dawe Kudus and two teachers at Raudhatul Athfal Suryawiyah Mejobo Kudus with 15 children each for Raudhatul Athfal. The research results on the needs of teaching materials are described as follows.

##### a) Results of Observations and Interviews on the needs of learning models for teachers

Observations on the development of learning models for teachers were carried out to describe the ability of teachers in learning in group B. The average value of the results of observing the needs of all indicators obtained a percentage value of 58% in the less category. This shows that the teacher in carrying out learning at Raudhatul Athfal is still in the classroom so that there is a need for a nature-based edutainment learning model.

The results of these observations were strengthened by interviews with teachers in Raudhatul Athfal 3 sub-districts in Kudus, namely Kota, Dawe and Mejobo sub-districts. The interviews included indicators of the needs of early childhood learning materials and language models. In the indicators of the need for learning models, learning is still carried out in the classroom so teachers need to do learning outside the classroom, namely the nature-based edutainment learning model so that learning can be fun which is adapted to the existing theme, the materials used with loose part media or natural materials that are around environment. Lack of learning areas outside of school and still using game tools that are purchased directly so that children feel bored and bored when doing learning activities.

##### b) Results of Observations and Interviews with Students

The results of observing the needs of students on the development of learning models obtained different values in each aspect. Based on the average data of 41%, it can be concluded that the school scored less than 50% in the sufficient category. Overall, from the results of observations at the time of learning, they have not been able to actively participate because learning is still carried out in the classroom so that children lack interest and are bored when doing activities.

The results of these observations are reinforced by the results of interviews with students. Interviews were conducted covering the activity of children in participating in learning. From the aspect of interest in participating in learning, students feel very bored following learning in class. This is because the space or place for learning outside the classroom is not sufficient.

##### 3.1.1 Analysis of Early Childhood Language Skills Needs

The development of nature-based edutainment learning models needs to be done to improve early childhood language skills. Based on the results of interviews and observations made to teachers and children, it can be seen that children's language skills are still lacking, so there is a need for a nature-based edutainment learning model to improve early childhood language skills.

##### a) Results of Observation and Interview of early childhood language skills to teachers

Observations of early childhood language skills on teachers were carried out to describe the teacher's ability in learning in group B.

The average value of the results of observing the needs of all indicators obtained a percentage value of 60% with a sufficient category. This shows that the teacher in carrying out learning at Raudhatul Athfal is still in the classroom so that there is a need for a nature-based edutainment learning model.

The results of these observations were strengthened by interviews with teachers in Raudhatul Athfal 3 sub-districts in Kudus, namely Kota, Dawe and Mejobo sub-districts. The interviews included indicators of the needs of early childhood learning materials and language models. On indicators of early childhood language skills, learning is still carried out in the classroom so teachers need to do learning outside the classroom, namely a nature-based edutainment learning model so that learning can be fun that is adapted to the existing theme, the materials used with loose part media or natural materials that around the environment. Lack of learning areas outside of school and still using game tools that are purchased directly so that children feel bored and bored when doing learning activities.

### b) Results of Observations and Interviews with Students

The results of observing the needs of students on the development of learning models obtained different values in each aspect.

The results of these observations are reinforced by the results of interviews with students. Interviews were conducted covering aspects of early childhood language skills. From the aspect of children's language skills, children can improve language skills after children do activities, the atmosphere created must be able to attract children's interest to carry out activities, so children need learning areas not only in the classroom. For this reason, it is necessary to develop a nature-based edutainment learning model to improve children's language skills.

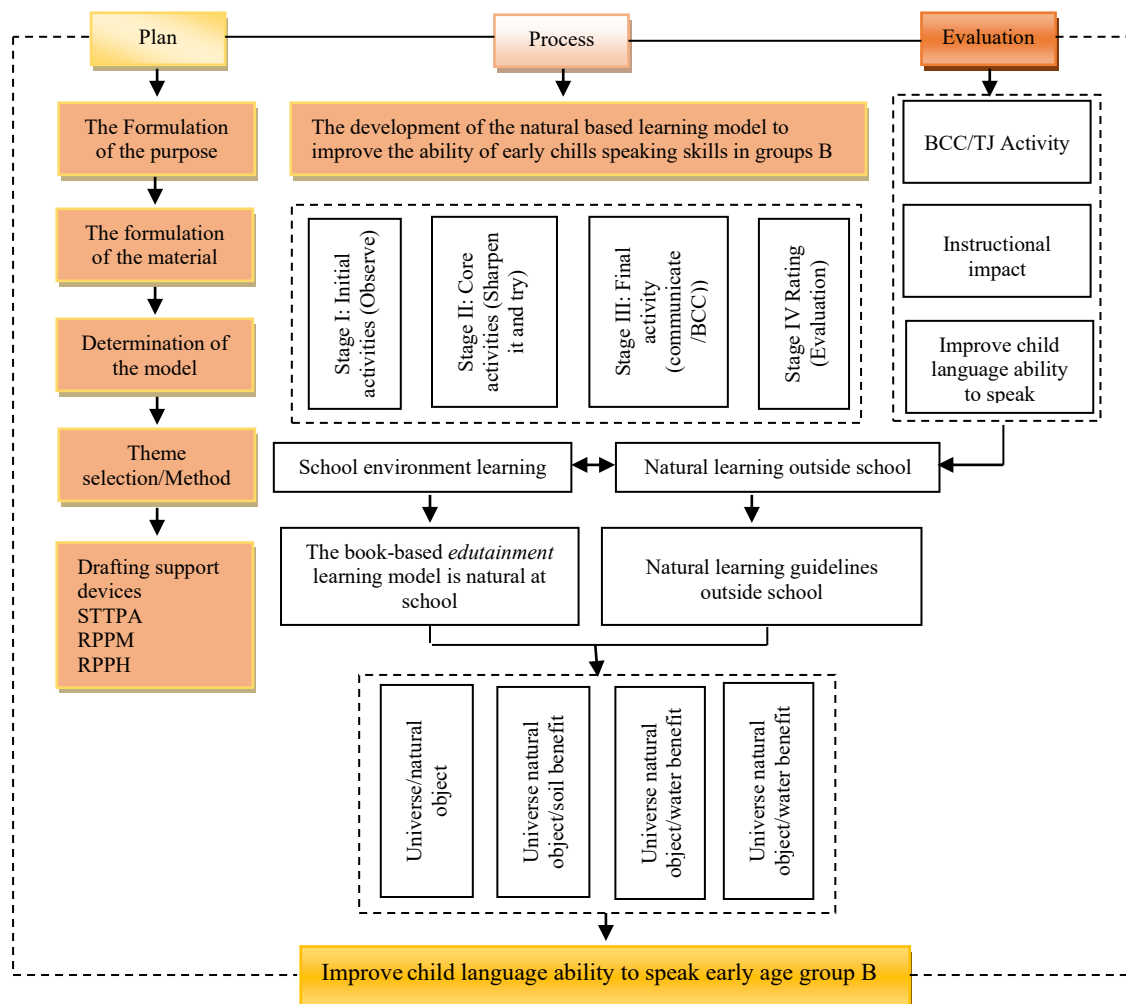


Fig. 3: Design of nature-based edutainment learning model development

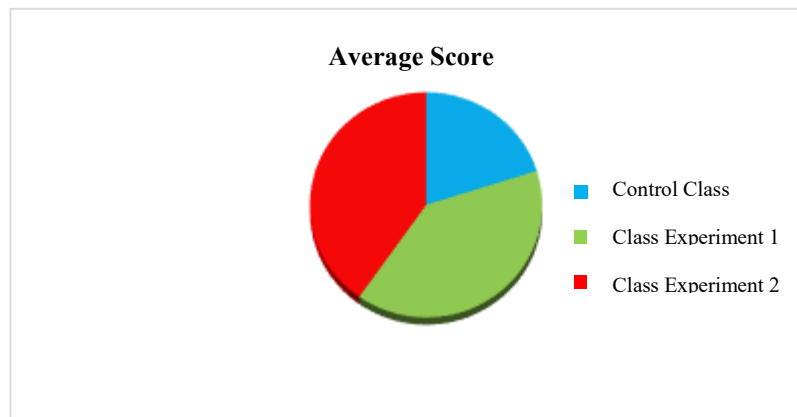
## 3.2 Design Validation

Design validation can be done through expert judgment at this stage the product is validated by 3 validators. The validators are material experts and linguists.

### 3.2.1 Design Revision

Design revisions or improvements are made after getting an assessment from experts, namely material experts and language experts. Suggestions from expert validators are then used as revision material. It aims to make the product that is made even better. The revised components in the development of the nature-based edutainment learning model include adding expert quotes, year, pages on the learning model book, the introduction is replaced with the preface and if this module book has never existed, it is better to submit the IPR through the Universitas Muria Kudus.

Based on the results of the N-Gain analysis, it can be seen that the average of the control class is 0.36 with a medium Gain Classification with an effectiveness level of "fairly effective" (0.30 g 0.7). While the average experimental class is 0.71 and 0.72 with a high Gain Classification with an "effective" level of effectiveness (g 0.70). This shows in the experimental class that using a nature-based learning model is feasible to use. To provide a clearer picture of the results of the N-Gain analysis, it can be seen in the bar chart in Figure 4.



**Fig. 4: Chart diagram of N-gain analysis results**

### 3.2.2 Material Expert Test

The results of the assessment from material experts obtained the average score of the Linguistics test, which was 88% in the "Very Good" category and was suitable for use. At this stage the material expert gave responses to the activities in group B contained in the nature-based edutainment learning model which would then be tested empirically in group B.

### 3.2.3 Linguist Test

The results of the assessment of the linguists obtained the average score of the material expert test, which was 80% in the "very good" category and was suitable for use. At this stage the material expert gave responses to the activities in group B contained in the nature-based edutainment learning model which would then be tested empirically in group B.

## 3.3 Effectiveness

Through prerequisite test with:

### 3.3.1 Homogeneity Test

Homogeneity testing aims to determine whether the object under study has the same variance (Conover, Guerrero-Serrano, & Tercero-Gómez, 2018). The homogeneity test used in this study used SPSS version 26 software with Levene's test. The Levene homogeneity test with SPSS is most commonly used to test the distribution of data from two or more variants. The steps are as follows Wang et al. (2017) is 1) input in the data view, 2) analyze, 3) compare means, 4) one-way ANOVA.

Homogeneity testing aims to show that two or more groups of sample data come from populations that have the same or homogeneous variance.

**Table 1: Homogeneity Test**

| Levene Statistic |                                      |       | df1 | df2    | Sig. |
|------------------|--------------------------------------|-------|-----|--------|------|
| Language skills  | Based on Mean                        | 4.035 | 1   | 45     | .151 |
|                  | Based on Median                      | 2.881 | 1   | 45     | .197 |
|                  | Based on Median and with adjusted df | 2.881 | 1   | 27.221 | .101 |
|                  | Based on trimmed mean                | 3.843 | 1   | 45     | .157 |

In the output table of homogeneity below, it is known that the significance value of language skills based on the mean is 0.151 > the value of = 0.05 then H0 is accepted, so that the variance of the data on learning outcomes in the experimental class and control class is homogeneous.

### 3.3.2 Normality Test

Normality test is used to determine whether the data population is normally distributed or not, if the data is known to be normally distributed, parametric statistical tests are used, provided that the data for each variable is normal. Meanwhile, if the data is not normally distributed, a non-parametric statistical test is carried out (Sugiyono, 2015). Normality test can use the formula Kolmogorov Smirnov or Shapiro Wilk. The use of Shapiro Wilk because the number of data for each sample is less than 50 students. Below is the formula for calculating the Shapiro Wilk test.

**Table 2: Normality Test**

| Class        | Tests of Normality              |    |       | Shapiro-Wilk |    |      |
|--------------|---------------------------------|----|-------|--------------|----|------|
|              | Kolmogorov-Smirnov <sup>a</sup> |    |       |              |    |      |
|              | Statistic                       | df | Sig.  | Statistic    | df | Sig. |
| Control      | .155                            | 15 | .200* | .948         | 15 | .496 |
| Experiment 1 | .181                            | 15 | .200* | .947         | 15 | .478 |
| Experiment 2 | .206                            | 15 | .087  | .923         | 15 | .211 |

Based on the normality test, it was found that the significance value of Kolmogorov-Smirnov for the language skills of both the experimental class and the control class was more than 0.05, so it was normally distributed. In the experimental class questionnaire, a significance value of  $0.087 > 0.05$  was obtained, which means that it is normally distributed. In the results of the experimental class questionnaire, a significance value of  $0.087 > 0.05$  was obtained, which means that it is normally distributed. Meanwhile, in the control class, the significance value of the questionnaire was  $0.200 > 0.05$ , which was normally distributed, and the significance value of the questionnaire was  $0.200 > 0.05$ , which was normally distributed. Thus, the test hypothesis is accepted, and the sample comes from a normally distributed population.

### 3.3.3 T-test

Group B Raudhatul Athfal Suryawiyah and Raudhatul Athfal Matholiul Hija were used as the experimental class and group B Raudhatul Athfal NU Banat was used as the control class. The average value of understanding the concept of the experimental class will be compared with the average value of the control class to determine the effectiveness of the nature-based edutainment learning model.

Based on the table above, it can be seen that the 2-tailed sig value =  $0.000 < 0.005$ , then  $H_0$  is rejected. Therefore, it can be concluded that the average language ability of the experimental class is better than the control class and the nature-based edutainment learning model has proven to be effective in improving the language skills of group B Raudhatul Athfal in Kudus.

**Table 3: Independent Samples Test**

|                           |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                 |                 |                       |                                           |          |
|---------------------------|-----------------------------|-----------------------------------------|------|------------------------------|--------|-----------------|-----------------|-----------------------|-------------------------------------------|----------|
|                           |                             | F                                       | Sig. | T                            | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |          |
|                           |                             |                                         |      |                              |        |                 |                 |                       | Lower                                     | Upper    |
| Post-test language skills | Equal variances assumed     | .089                                    | .767 | 5.206                        | 28     | .000            | -6.86667        | 1.31897               | -9.56845                                  | -4.16488 |
|                           | Equal variances not assumed |                                         |      | 5.206                        | 27.482 | .000            | -6.86667        | 1.31897               | -9.57075                                  | -4.16258 |

## 4. Conclusion

From the research that has been done, the conclusions that can be obtained are: 1) Edutainment learning requires nature-based learning model guidelines that can improve language skills in Kudus, so the researchers developed a nature-based learning model guide in Kudus, 2) The design of developing a nature-based edutainment learning model includes planning, process and evaluation. The planning stage includes the formulation of objectives and materials, determination of the model, selection of themes, and preparation of supporting devices. The process stage is carried out in accordance with the activities of developing a nature-based edutainment learning model. The evaluation stage is carried out with BCC/TJ activities. So that it can improve the language skills of early childhood, 3) The nature-based edutainment learning model is declared valid and feasible to use. Expert I, a linguist, gave a score of 80% with very good criteria and expert II, a material expert, gave a score of 88% with very good criteria, 4) The nature-based edutainment learning model is proven to be effective in improving the language skills of early childhood in Kudus. This can be seen from the results of the t-test which get a 2-tailed sig. value of  $0.000 < 0.005$ .

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## Conflict of Interest

The authors declare no conflicts of interest.

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