IMPLEMENTATION OF DISCOVERY LEARNING USING WEBBED AND SHARED TYPES IN IMPROVING STUDENT LEARNING OUTCOMES

Yanti Fitria[1], Diren Agasi[2], Bima Prakarsa Arzfi[3]

[1,2,3]Elementary Education, Universitas Negeri Padang

E-mail: [1)]yanti_fitria@fip.unp.ac.id [2)]direnagasi2895@gmail.com, [3)]bima.arzf17@gmail.com

Abstract

This study aims to determine how effective the learning process in elementary schools using discovery learning models using learning with webbed and shared types on 3rd grade 4th theme to improve student learning outcomes. This research method uses a quasi-experimental method, where the sample data used are not selected at pure randomness, but are selected by random class. In this research apply The Matching – only Pretest-Postest Control Group Design. This research was conducted at one of SDN which is located in Kapur IX District, Lima Puluh Kota Regency. The results showed that the disco very learning learning model accompanied by the webbed and shared integration types was able to improve student learning outcomes, so that in practice the two types of integration did not experience significant differences, as evidenced by the results of the t-test which showed the two types of integration did not show any significant difference. significant difference when applied in the learning process in two different class groups.

Keywords**: *Discovery Learning, Webbed, Shared, Learning Outcomes.***

1. INTRODUCTION

Education is a form of embodiment of human culture and a condition for the development of progress (Muliaman & Wahdi Ginting, 2022). The development of science that is happening is very massive at this time has a significant impact on students, where they are required to learn the concepts of science which are increasing day by day. However, in the implementation of the curriculum, especially the 2013 curriculum, which is currently being implemented throughout Indonesia, this concept learning cannot be realized optimally because of the limitations that exist in the curriculum itself. In the 2013 curriculum for elementary schools, integrated thematic learning is carried out where in the process all subjects will be combined according to their respective principles. The implementation of the 2013 curriculum, in addition to providing these limits, has a positive impact on students because in its implementation students are not only focused on aspects of knowledge but also on aspects of character and skills (Andini & Fitria, 2021).

The implementation and application of the 2013 curriculum certainly requires learning models that are used so that the goal is to make students become human beings who are able to get their innovative potential and are able to actively participate in the surrounding environment, be it society, nation and state (Bahri, 2017)One of the models that can be used is the discovery learning model. According to the rules that have been drafted by the Ministry of Education and Culture in No. 65 of 2013 it is stated that to strengthen the scientific, thematic (in one subject) or integrated thematic (inter-subject thematic) learning approach, educators or parties who have full authority in the classroom must implement and choosing a research-based learning process, where one of the models is *discovery learning* (Mendikbud, 2013) . The *discovery learning* model is a model that is applied in the learning process that allows students to understand what the concept, meaning (meaning), and relationships are, by going through the stages of rational and intellectual reasoning so that in the end they find a conclusion (Hasnan et al. , 2020) . The *discovery* learning model has one goal, namely to make students able to organize themselves without being given a final form of

IMPLEMENTATION OF DISCOVERY LEARNING USING WEBBED AND SHARED TYPES IN IMPROVING STUDENT LEARNING OUTCOMES

learning from the teacher, in the process students are given the opportunity to explore, find, or solve the problems (answers) they encounter in the process. that learning (Nelvianti et al., 2020) . Integrated thematic learning that applies the *discovery learning model is* able to provide an increase in student learn.And where learners construct their own knowledge by experi- D ISCOVERY learning is a constructivist approach to learning that takes place in problem learning situations menting with a domain and inferring rules from the results of their interactions with the domain (Ibanez et al., 2015).

ing outcomes, especially those related to science or science (Pratiwi, 2014) , which in essence the science learning process in elementary schools will feel very meaningful if the students themselves are able to discover concepts, or solutions to the questions they encounter in the learning process. The learning process that makes students actively involved in conducting investigations will be able to improve academic achievement, learning outcomes, and student learning skills (Prasasti et al., 2019) . So from the explanation above, it can be stated that the discovery learning model is considered in accordance with the aspects needed to make student learning outcomes better. Learning outcomes are related to students' abilities in understanding lecture material (Maryanti, 2021).

Integrated learning in concept combines several disciplines, integrated in one subject and integrated within and across subjects (Fogarty, 1991) . So that the learning process runs and is carried out effectively, the selection of the model studied must be in accordance with the material that has been taught. According to the analysis process of Core Competencies and Basic Competencies of Theme 3 Caring for living things in grade 4 elementary school conducted in this research, the learning process that uses *discovery learning models* can use integrated learning models of *webbed* and *shared types* . Webbed -type integrated learning is a learning process that shows a thematic approach in combining subjects, where the form of learning is in the form of themes and developed into sub-themes and described the developed themes such as spider webs in deriving topics, concepts, and ideas in accordance with various subject areas. . As for the model with the shared type itself, it is a blend of learning that has opposite properties, and has overlapping skills and concepts in integrating learning (Fitria, 2019) .

science subjects in the 2013 curriculum, is still found in the learning process that is still carried out separately so that the essence of thematic learning is not fulfilled properly. In this research, the aim is to find out how effective the learning process in elementary schools is using the discovery learning model using webbed and shared learning on the 3rd grade 4th theme to improve student learning outcomes.

2. IMPLEMENTATION METHOD

The selection of this research method uses a *quasi-experimental method,* where the sample data used are not selected at pure randomness, but are selected by *random class* . In this study applying *The Matching – only Pretest-Postest Control Group Design* (Fraenkel et al., 2012).

Table 1 Research Design

Class	Pretest	Treatment	Posttest
K₁	**O₁**	**T1** _	**O2** _
K2 _	**O₁**	**T2** _	**O2** _

Information:
K_1, K_2 = Class 1 and Class 2
O_1 = 1st class *pretest* and 2nd class *pretest*
O2 = *Posttest for class* $_1$ and *posttest* for class 2
T_1 = *Discovery learning webbed* type
T_2 = *Discovery learning* type *Shared*

This research was carried out at one of SDN which is located in Kapur IX District, Lima Puluh Kota Regency, where this elementary school has parallel classes for grade 4, each class has 27 students. Class IV-A was treated using a *discovery learning model* with the type of *webbed integration*, and class IV-B was treated using *a discovery learning model.* cohesive type *shared*. Furthermore, the research instrument used was made to be able to analyze *discovery learning* by applying the integration of webbed and shared teaching materials so *that they* have *an* influence on student learning outcomes. The instrument applied was a test in the form of multiple choice questions at the *pretest* and *posttest stages.*

Statistical testing in order to determine the significance level of the two classes receiving the treatment, will go through the following stages:

1) Performing N-Gain calculations, this is done to find out whether there is a difference between the scores on the pretest and posttest, or with other languages is to find out whether there is a change after and before learning. To calculate N-gain, the following equation is needed (Pertiwi & Abdurrahman, 2017) :

$$g = \frac{Nilai\ posttest - nilai\ pretest}{nilai\ maksimum - nilai\ pretest}$$

2) Testing for data normality, using the Shapiro-wilk . normality test
3) Meanwhile, for the data homogeneity test (F) using the *Levene . test*
4) And the last test using the *independent sample t-test* (Astuti et al., 2013).

3. RESULTS AND DISCUSSION

Below is a description of the research results that have been obtained

1. The result of the calculation of N-Gain

The results of the average pretest (initial test), then the average posttest score (final test), as well as the N-gain scores of students in class IV by applying the webbed and shared integrated learning types, are shown in the diagram below.
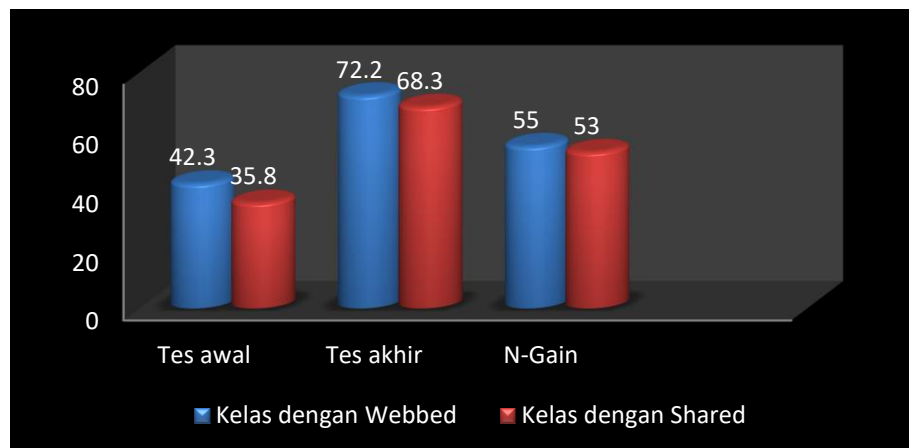

Diagram 1 Comparison of the average scores of the initial test, post-test, and N-Gain

IMPLEMENTATION OF DISCOVERY LEARNING USING WEBBED AND SHARED TYPES IN IMPROVING STUDENT LEARNING OUTCOMES

Based on the results of the calculations that have been carried out above, it can be seen that the class that implements the learning process using webbed type teaching materials shows an increase in learning outcomes from the initial class average of 42.3 rising to 72.2, while for the average N- The gain is 55% so it is included in the medium category. Meanwhile for classes that apply integrated thematic teaching materials of the shared type also show an increase in their learning outcomes, namely the average initial exam obtained by 35.8 increases to 68.3, and the N-Gain is obtained by 53% in the medium or medium category.

2. Normality test

To perform the Normality test on the learning outcomes of fourth grade students, a statistical test technique was used, namely *Shapiro Wilk* with the help of the *Statistic Product and Service Solution (* SPSS) version 21.0 program for Windows applications.

Table 2 Results of Normality Testing of Student Learning Outcomes for Webbed and Shared Types

	Class with Webbed	Classes with Shared
N	27	27
Shapiro-Wilk	0.951	0.969
Asymp.Sig (2-tailed)	0.252	0.566

According to the data presented in the table above, it can be seen that the significance value (sig.) is 0.252 for the class that uses the webbed type, and 0.566 for the class that uses the shared type. Where the two significance values of the two classes above are greater than (0.05) so that a final statement can be drawn that the data for the two classes are normally distributed.

3. Homogeneity Test (F)

Shared teaching materials using the Levene test (*levene statistic*).

Table 3. Test of Homogeneity of Variance for Classes With Webbed and Shared Types

F	Sig.	Conclusion
0.035	0.865	Homogeneous

According to the results of the calculations from the table above, the *levene statistic* (F) was obtained at 0.035 with a significance value of 0.865, which is greater than the value of the significance level (0.05). So it can be drawn a final statement for the two data classes above have the same variance (homogeneous).

4. Hypothesis testing

Based on the consideration that the student learning outcomes data for the two classes have a normal and homogeneous data distribution, hypothesis testing can be carried out using paramtertik statistics, namely the -t test with a value of 0.05 (Hosnah et al., 2019) . This study provides a

hypothesis where there is a significant difference in student learning outcomes with the webbed and shared types of discovery learning models. Where the equation can be written as follows:

$H_a : 1 2 ._$

Tests were carried out using an independent sample t-test, showing the results that there was no significant difference in the use of the discovery learning model with the help of webbed-type teaching materials and shared-type teaching materials on student learning outcomes . With the value of t_{count} = -1.540 where this value is below the value of t_{table} = 2.017. Or based on other considerations, namely the significance value obtained is $0.134 > 0.05$.

So that learning in class IV uses a discovery learning model that uses two different types of integrated teaching materials that do not show significant differences, so to improve learning outcomes students can use webbed or shared types.

4. CONCLUSION

Based on the results of the research that has been done, it can be concluded that the application of discovery learning learning models accompanied by webbed and shared integration types can improve student learning outcomes, so that in practice the two types of integration do not experience significant differences, as evidenced by the test results. The t-test which shows the two types of cohesiveness does not show a significant difference when applied in the learning process in two different class groups.

REFERENCES

Andini, S. R., & Fitria, Y. (2021). Pengaruh Model RADEC pada Pembelajaran Tematik Terhadap Hasil Belajar Peserta Didik Sekolah Dasar. *Jurnal Basicedu*, *5*(3), 1435–1443.

Astuti, A. D., Sugiyono, & Suwarjo. (2013). Model Layanan Bk Kelompok Teknik Permainan (Games) Untuk Meningkatkan Keterampilan Komunikasi Interpersonal Siswa. *Jurnal Bimbingan Konseling (Semarang)*, *2*(1), 50–56.

Bahri, S. (2017). Pengembangan Kurikulum Dasar Dan Tujuannya. *Jurnal Ilmiah Islam Futura*, *11*(1), 15. https://doi.org/10.22373/jiif.v11i1.61

Fitria, Y. (2019). *Landasan Pembelajaran sains Terintegrasi (Terpadu) Untuk Level Dasar* (Issue 29).

Fogarty, R. (1991). Ten Ways to Integrate Curriculum. *Educational Leadership*, *49*(2), 61–65.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How To Design and Evalauated Research In education, Eight Edition*.

Hasnan, S. M., Rusdinal, R., & Fitria, Y. (2020). Pengaruh Penggunaan Model Discovery Learning Dan Motivasi Terhadap Kemampuan Berpikir Kritis Peserta Didik Sekolah Dasar. *Jurnal Basicedu*, *4*(2), 239–249. https://doi.org/10.31004/basicedu.v4i2.318

Hosnah, W. M., Sudarti, & Subiki. (2019). Pengaruh Model Pembelajaran Inkuiri Terbimbing Dengan. *Chemistry Education Practice*, *2*(2), 190–195.

Ibanez, M. B., Di-Serio, A., Villaran-Molina, D., & Delgado-Kloos, C. (2015). Augmented Reality-Based Simulators as Discovery Learning Tools: An Empirical Study. *IEEE Transactions on Education*, *58*(3), 208–213. https://doi.org/10.1109/TE.2014.2379712

Maryanti, I. (2021). Application of Mathlab Applications in Improving Student Competence Umsu Mathematics Education Study Program Numerical Method Course 2019-2020 Academic Year. *International Journal of Educational Review, Law And Social Sciences (IJERLAS)*,

IMPLEMENTATION OF DISCOVERY LEARNING USING WEBBED AND SHARED TYPES IN IMPROVING STUDENT LEARNING OUTCOMES

1(2), 221–226. https://doi.org/10.54443/ijerlas.v1i2.91

Mendikbud. (2013). Permendikbud No. 22 Tahun 2016 Tentang Standar Proses Pendidikan Dasar dan Menengah. *Journal of Chemical Information and Modeling*, *2011*, 1–18.

Muliaman, A., & Wahdi Ginting, F. (2022). Analysis of the Effectiveness of Online Learning on Students During the Pandemic Period Covid-19 At University Malikussaleh. *International Journal of Educational Review, Law And Social Sciences (IJERLAS)*, *2*(1), 47–50. https://doi.org/10.54443/ijerlas.v2i1.142

Nelvianti, N., Indra, W., Anas, R., Fitria, Y., & Desyandri, D. (2020). Penerapan Model Discovery Learning Dalam Pembelajaran Ipa Tematik Di Sekolah Dasar. *School Education Journal Pgsd Fip Unimed*, *10*(2), 168. https://doi.org/10.24114/sejpgsd.v10i2.18797

Pertiwi, R. S., & , Abdurrahman, U. R. (2017). Efektivitas Lks Stem Untuk Melatih Keterampilan Berpikir Kreatif Siswa. *Jurnal Pembelajaran Fisika*, *5*(2), 11–19.

Prasasti, D. E., Koeswanti, H. D., & Giarti, S. (2019). Peningkatan Keterampilan Berpikir Kritis Dan Hasil Belajar Matematika Melalui Model Discovery Learning Di Kelas Iv Sd. *Jurnal Basicedu*, *3*(1), 174–179. https://doi.org/10.31004/basicedu.v3i1.98

Pratiwi, F. A. (2014). Pengaruh Penggunaan Model Discovery Learning Dengan Pendekatan Saintifik Terhadap Keterampilan Berpikir Kritis Siswa Sma. *Jurnal Tanjung Pura Pontianak*, *6*, 10.