



# Threaded Type Integrative Learning Model Develops Creative Thinking Skills of Elementary School Students

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## ABSTRAK

Pelaksanaan proses pembelajaran di beberapa sekolah dasar masih menekankan pada penguasaan materi pembelajaran atau pembelajaran berbasis teori. Penelitian ini bertujuan untuk menganalisis keefektifan model pembelajaran integratif tipe threaded dalam mengembangkan keterampilan berpikir kreatif siswa sekolah dasar sebagai salah satu keterampilan penting di abad ke-21. Penelitian ini menggunakan desain penelitian eksperimen dengan desain pretest-posttest control group design. Populasi penelitian ini adalah 313 siswa. Sampel penelitian ini berjumlah 173 siswa kelas V dipilih dengan menggunakan teknik cluster random sampling. Metode pengumpulan data menggunakan tes. Instrumen yang digunakan untuk mengumpulkan data yaitu soal tes. Teknik analisis data menggunakan analisis deskriptif kualitatif, kuantitatif, dan statistic inferensial. Hasil penelitian yaitu terdapat perbedaan antara kemampuan berpikir kreatif siswa kelompok eksperimen yang diajar dengan model pembelajaran integratif tipe threaded dan kelompok kontrol yang diajar dengan metode konvensional. Disimpulkan model pembelajaran integratif tipe threaded dapat mengembangkan kemampuan berpikir kreatif siswa sekolah dasar. Model pembelajaran integratif tipe threaded dapat memudahkan siswa belajar sehingga dapat mengembangkan kemampuan berpikir kreatif siswa sekolah dasar.

## ABSTRACT

Implementing the learning process in several elementary schools still emphasizes mastery of learning materials or theory-based learning. This study aims to analyze the effectiveness of the threaded integrative learning model in developing elementary school students' creative thinking skills as one of the essential skills in the 21st century. This study used an experimental research design with a pretest-posttest control group design. The population of this research is 313 students. The sample of this research was 173 students of class V selected using the cluster random sampling technique. Methods of data collection using tests. The instrument used to collect data is test questions. Data analysis techniques using descriptive qualitative analysis, quantitative, and inferential statistics. The study results showed a difference between the creative thinking skills of the experimental group students, who were taught by the threaded type of integrative learning model, and the control group, who were prepared by conventional methods. The threaded integrative learning model could develop the creative thinking skills of elementary school students. The threaded integrative learning model makes it easier for students to learn so that they can develop the creative thinking skills of elementary school students.

## 1. INTRODUCTION

Formal education in school is the right institutions in developing 21<sup>st</sup> century skills, specifically creative thinking skills (Ritter et al., 2020; Siburian et al., 2019; Sumarni & Kadarwati, 2020). Some believe that creative thinking skills is one of the important aspects in educational institutions, schools for example (Ndiung et al., 2019; Rahardjanto, 2019; Rahmawati et al., 2019). As its main duties and functions, the quality education can be the main source to strengthen the development of human resources (Marcos et al., 2020; Rahmawati et al., 2019; Yustina et al., 2020b). Thereby, the ability to think creatively, behave, and act is essential to overcoming the dynamic changes on every life aspect (Farhan et al., 2021; Henriksen et al., 2020). Creative human resources depends on input and process in the educational system (Chua et al., 2020; Nahar, 2022; Yaniawati et al., 2020). In this case, "creative" refers to the aspects of changing process (innovation and variation) (Kartika et al., 2019; Kwangmuang et al., 2021; Qodari et al., 2022). By following the appropriate process, students are able to practice developing their thinking skills in solving a problem and producing new original ideas (Alwi & Suherman, 2020; Ernst & Burcak, 2019; Yağcı, 2019; Yanuarto & Hapsari, 2022). Besides, experience and knowledge affect the way to find out ideas and produce ideas or better new products in decision making and problem solving (Jia et al., 2019; Mahanal et al., 2019; Pardede,

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2020). To produce creative human resources, education needs to producing creative problem solving, creating more creative ideas, and choosing the most creative ideas to be applied (Mashitoh et al., 2021; Tambunan, 2019; Yuan & Wu, 2020).

Generally, creativity index of Indonesia is below the expectation (Hershkovitz et al., 2019; Lin et al., 2020; Polat & Aydın, 2020). As it is empirically found that the production of inventions in the field of technology and social which should be global society attractiveness is minimum (Rodríguez et al., 2019; Vally et al., 2019). Another evidence from *Global Creativity Index* in 2015 studied by *The Martin Prosperity Institute* (MPI) from Kanada shows that the rank of Indonesia in term of creativity is in the 81st of 82 countries (Behnamnia et al., 2020; Yang et al., 2020; Yousef, 2021). In Bangkalan context, based on the result of observation, it is found that from six elementary schools in Bangkalan, 81% of students (140 students) had low creative thinking skills, 11% of students (19 students) had medium creative thinking skills, and 8% of students (14 students) had high creative thinking skills. Besides, other data from previous studies find that most Indonesian students can only master subjects up to the third level (Aulanda & Wahyuni, 2023; Suherman et al., 2020). On the other hand, compared to most students in developed countries, they can master subjects up to the level of 4<sup>th</sup>, 5<sup>th</sup>, and even 6<sup>th</sup> level (Saputri et al., 2019; Suherman et al., 2020; Wong et al., 2021). Then, it can be assumed that the level of creative thinking skills of Indonesian students is pretty low (Alsaleh, 2020; Astawan et al., 2021; Kim et al., 2019; Mudiono, 2022; Rosidin et al., 2019; Sahliawati & Nurlaelah, 2018).

In fact, the implementation of learning process in some elementary schools still emphasizes on learning material mastery or theory-based learning (Bedir, 2019; Mason et al., 2019). Some teachers mostly focus on practicing concepts in terms of memorizing definition, rules, and theory without elaborating it into analyzing, identifying, and applying concepts to solve any problems in students' daily life (Çiftci & Bildiren, 2019; Kaplan, 2019; Tsai et al., 2020). Moreover, the information delivery process is mostly teacher-centered which pays less attention to students' creative thinking skills development (Cheng, 2019; Tsai et al., 2020; Zohoorian et al., 2023). As a result, it is challenging for the students to master higher order thinking skills creatively.

The result of other studies is appalling, stating that children at the age of elementary school have the most declining level of creativity (Chevalier et al., 2020; Kim et al., 2019; Li, 2021; Majeed et al., 2021). Regarding the results of the previous studies, elementary school teachers should be aware that only transmitting knowledge directly to students is insufficient to stimulate and develop their creative thinking skills (de Bruin, 2019; Haerazi et al., 2019; Mitsea et al., 2021). Inevitably, teachers' intelligence and motivation become essential factors if they want to commit developing students' creativity because the level of teachers' perception towards creative teaching, concept of creative thinking, and the use of learning strategies which can develop students' creative thinking skills affect the learning process (Zakiah & Lestari, 2019). In addition, the level of teachers' creativity can be a factor affecting the learning process since they become the main actors who can activate or stimulate students' creative thinking (Hernández-Torrano & Ibrayeva, 2020). In other words, teachers take important roles in developing students' 21st century skills; one of which is creative thinking skills.

Despite the problems that exist during the learning process in schools, developing students' creative thinking skills becomes a concern to be overcome (Akhmetshin et al., 2019; Bereczki & Andrea, 2021). Being aware of the essential of creativity must also become one of the main concerns for teachers in teaching students (Aufa et al., 2021; Karwowski et al., 2020; Sándorová et al., 2020). Having good creative thinking skills, students will likely endure the world's dynamic changes in the future. In this case, special treatments and complicated preparation from teachers will be required to supporting students' creative thinking skill development (Alt & Raichel, 2020; Jurakulovna, 2022; Madesa, 2016; Mamahit, 2020; Pande & Bharathi, 2020; Saidovna, 2022; Wulandari et al., 2019). One of the treatments that can be applied in the class is implementing a particular learning strategy and model (D'Alessio et al., 2019; Gralewski, 2019; Shirazi & Heidari, 2019; van Laar et al., 2019).

The integrative learning model is then proposed as an effective alternative learning model in solving the problems. In its implementation, it integrates some subjects aiming at providing meaningful experience for students. The focus is on the process of integrating learning materials with students' experience in their daily life with some skills to be developed. Different from the teacher-centered learning process dismissing students' direct experiences, the integrative learning model emphasizes the concept of learning by doing. In this study, the focus of the integrative learning implementation is to develop the aspects of creative thinking skills so that they are able to think and act productively and creatively in terms of abstract and concrete concepts, depending on the task they are assigned. Specifically, the integrative learning model can be applied using some types; one of which is threaded type. Threaded type is a learning model focusing on meta-curriculum that practices students' thinking skills. The advantage of this type is that the concept revolves around the meta-curriculum emphasizing on the metacognitive behavior. In short,

the integrative learning model with threaded type becomes an alternative learning model that can develop students' creative thinking skills. This study aims to analyze the effectiveness of the threaded integrative learning model in developing elementary school students' creative thinking skills as one of the essential skills in the 21st century.

## 2. METHOD

The aim of this study is to analyze the effectiveness of integrative learning model with threaded type. To know the effectiveness of the model, the researchers conducted an experimental research with pretest-posttest control group design. In this case, it is called true experimental design (Campbell & Stanley, 1963). It is a scientific study in which researchers manipulate and control one or more independent variables and observe dependent variables to find variations appealing at the same time as the manipulation on the independent variable by conducting one or more treatments on one or more experimental groups. Then, the results are compared to the control groups (Kerlinger & Lee, 2000). The population of this study was 313 students of some state elementary schools in Bangkalan. Then, 173 students of the fifth grade were selected using cluster random sampling technique. Those students were from 6 schools: SDN Bancaran 1 (30 students), SDN Bancaran 2 (27 students), SDN Bancaran 3 (29 students), SDN Kemayoran 1 (32 students), SDN Kemayoran 2 (26 students), and SDN Kemayoran 3 (29 students). Since this study conducted an experimental research, the 6 schools were grouped into experimental and control group. Then, schools belonged to the experimental group were SDN Bancaran 1, SDN Bancaran 2, SDN Bancaran 3. In this case, the schools belonged to the experimental group were taught using the integrative learning model with threaded type. On the other hand, schools in the control group were taught using conventional learning model. The schools belonged to the control group were SDN Kemayoran 1, SDN Kemayoran 2, and SDN Kemayoran 3.

To obtain the intended data, the instrument used were an essay test. The test were administered before and after the implementation of the integrative learning model with threaded type (pretest and posttest). The instrument was validated and tested with the reliability test called Percentage of Agreement (PA). Then, the data were analyzed using independent sample t-test which results show the effectiveness of the integrative learning model with threaded type in developing students' creative thinking skills.

## 3. RESULT AND DISCUSSION

### Result

Before conducting the research, the researchers conducted a pretest for experimental and control groups to measure students' creative thinking skills in each group. The result of the normality test of the pretest is in Table 1.

**Table 1.** The Result of Normality Test of Pretest

	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Result	Control	0.096	86	0.048	0.972	86	<b>0.055</b>
	Experimental	0.090	87	0.076	0.972	87	<b>0.057</b>

Based on the result of normality test of pretest score in Table 2, the significance value is > 0.05. It means that the result of pretest score on students' creative thinking skills in the experimental and control groups is normally distributed. Besides the normality test, the homogeneity test was conducted. The purpose is to know whether the level of students' creative thinking skills before the research was conducted meets the criteria of homogeneity. The result of the homogeneity test is in Table 2.

**Table 2.** The Result of Homogeneity Test of Pretest

		Levene Statistic	df1	df2	Sig.
Result	Based on Mean	0.000	1	171	0.990
	Based on Median	0.000	1	171	0.995
	Based on Median and with adjusted df	0.000	1	170.980	0.995
	Based on trimmed mean	0.000	1	171	0.991

Regarding the result in Table 2, it can be described that the score of pretest on students' creative thinking skills in both groups shows that the data are generally significant with the value of significance is  $>0.05$ . It can be assumed that the initial score of students' creative thinking skills in experimental and control groups has similar variance or is homogenous. In addition, the data analysis on the result of the pretest was conducted. The result of independent sample t-test conducted in pretest to know students' creative thinking skills in experimental and control groups is presented in Table 3.

**Table 3. The Result of Independent Sample T-Test on Pretest**

		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
Result	Equal variances assumed	0.000	0.990	0.003	171	0.998	0.003	1.200	-2.365	2.372
	Equal variances not assumed			0.003	170.957	0.998	0.003	1.200	-2.365	2.372

The result of the independent sample t-test on students' creative thinking skills in experimental and control groups is generally significant because it is  $> 0.05$ . It is concluded that  $H_0$  is accepted or "there is no difference on creative thinking skills between students' in the experimental group and in the control group". In other words,  $H_a$  is rejected. Before conducting independent sample t-test, normality and homogeneity test were conducted to know the distribution of data in research result.

**Table 4. The Result of Normality Data of Posttest**

	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
Score	Control	0.113	86	0.008	0.973	86	0.063
	Experimental	0.099	87	0.034	0.979	87	0.180

The data in Table 4 shows that the result of the normality test is significant as the value of significance is  $>0.05$ . It means that the result of the posttest on students' creative thinking skills in experimental and control groups is normally distributed. After that, a homogeneity test was conducted to know whether the level of students' creative thinking skills in both groups is homogenous. The result is in Table 5.

**Table 5. The Result of Homogeneity Test of Posttest**

SCORE		Levene Statistic	df1	df2	Sig.
		Based on Mean	2.102	1	171
	Based on Median	1.886	1	171	0.171
	Based on Median and with adjusted df	1.886	1	166.382	0.171
	Based on trimmed mean	2.040	1	171	0.155

According to the data in Table 5, the homogeneity test on posttest in both groups generally shows a significant score since it is  $> 0.05$ . The final result of the posttest on students' creative thinking skills in experimental and control groups is homogenous or having similar variance.

Regarding the result of the requirement tests, the result shows that the independent sample t-test can be conducted to know the effectiveness of the integrative learning model with threaded type. The final score of students' creative thinking skills was obtained from the posttest assigned after the learning process

implementing the integrative learning model with threaded type in experimental group as well as implementing usual learning model in conventional class in control group. The result of the independent sample t-test is presented in Table 6.

**Table 6.** The Result of Independent Sample T-Test of Students' Posttest

		<i>Levene's Test for Equality of Variances</i>		<i>t-test for Equality of Means</i>						
		<i>F</i>	<i>Sig.</i>	<i>T</i>	<i>Df</i>	<i>Sig. (2-tailed)</i>	<i>Mean Difference</i>	<i>Std. Error Difference</i>	<i>95% Confidence Interval of the Difference</i>	
								<i>Lower</i>	<i>Upper</i>	
Result	Equal variances assumed	2.102	0.149	14.857	171	0.000	18.270	1.230	15.843	20.697
	Equal variances not assumed			14.869	167.815	0.000	18.270	1.229	15.844	20.696

Based on the data, it shows that the score of *independent sample t-test* in experimental and control groups is generally significant since the score is  $< 0.05$ . The conclusion is that  $H_0$  is rejected or "there is no significant difference in creative thinking skills between students in experimental groups taught using the integrative learning model with threaded type and students in control groups taught using conventional learning model". It means that  $H_a$  is accepted or "there is significant difference in creative thinking skills between students in experimental groups taught using the integrative learning model with threaded type and students in control groups taught using the conventional learning model."

The analysis result shows that there is different effectiveness between the integrative learning model with threaded type and the conventional learning model. Therefore, the integrative learning model with threaded type is more effective and more significant than the conventional learning model in developing creative thinking skills of elementary school students. The average score of the experimental groups before applying the treatment is 41 with 7.88 standard deviation. The maximum score is 56, and the minimum score is 25. After the treatment was implemented in the class (posttest), the average score is 71 with 8.71 standard deviation. The maximum score is 91, and the minimum score is 53. On the other hand, the average score of pretest in the control groups is 41 with 7.91 standard deviation. The maximum score is 56 and the minimum score is 25. After applying the conventional learning model in the control groups, the average score is 52 with 7.52 standard deviation. The maximum score is 69, and the minimum score is 38. After comparing data between the experimental and control groups, it can be concluded that the average score of the experimental groups using the integrative learning model with threaded type is better than the average score of the control groups using the conventional learning model.

## Discussion

Learning process in school must provide a wide opportunity for students to construct knowledge from basic to high level of skills using their creative thinking skills in order to endure the life challenges in the 21st century (Bedir, 2019; Beswick & Fraser, 2019; Nana, 2020). In its implementation, integrative learning with threaded type is assumed to be effective when it can help develop students' creative thinking skills as the main purpose of this study is to develop students' creative thinking skills (Minelli et al., 2021; Pasani & Amelia, 2021; Toma & Greca, 2018). Regarding the result of data analysis of this study, it is found that the students could develop their creative thinking skills in solving problems resulting various new ideas. The result in fact shows that the implementation of the integrative learning model with threaded type is effective in developing their creative thinking skills. Temuan penelitian sebelumnya juga mengungkapkan bahwa penerapan model pembelajaran integratif tipe threaded dapat meningkatkan hasil belajar siswa (Atambi et al., 2021; Madesa, 2016; Oktaviani & Halim, 2021).

An effective learning has some characteristics. First, it helps students learn fruitful thing, such as facts, skills, values, concepts, and/or intended learning outcome (Daumiller & Dresel, 2019; Yulastri et al., 2018). Second, it is approved by competent people, such as teachers, teacher trainers, supervisors, tutors, and subject mentors (Hockings et al., 2018; Yemi et al., 2018). In this case, the integrative learning model



with threaded type can be an effective learning model for students because it helps students construct knowledge by breaking down problems into new ideas. Since the integrative learning model with threaded type is constructive, questions indicating problems can be asked to students so that they can begin constructing knowledge by breaking down the problems they have (Atambi et al., 2021; Madesa, 2016; Oktaviani & Halim, 2021).

In this case, the students are allowed to explore using various methods in order to get appropriate information. During the knowledge construction, creative thinking skills are inevitably required by the students. Regarding the development of students' creative thinking skills, experts on the theory of creativity state that creative thinking skills can be socially constructed, physically established, and dynamically conducted (Fatmawati et al., 2019; Rohaeti et al., 2019; Wijayati et al., 2019). Besides, having creative thinking skills can be used to help students encounter the working life (Fitrianawati et al., 2020; Yustina et al., 2020a). Regarding the results of this study, the implementation of the integrative learning with threaded type can be a reference for the educational world as an attempt to develop students' creative thinking skills. Therefore, more opportunities to train students' creative thinking skills in class should be widely provided so that they can be accustomed to thinking creatively.

#### 4. CONCLUSION

The results showed a significant difference in the ability to think creatively between students in the experimental group taught using the threaded integrative learning model and students in the control group taught using the conventional learning model. It was concluded that the threaded integrative learning model could improve creative thinking skills. Creative thinking skills will help students overcome some of the challenges in their future, especially in the workplace.

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