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The Effect of Thinking Actively in a Social Context and Creative Problem-Solving Learning Models on Divergent-Thinking Skills Viewed from Adversity Quotient

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Abstract: This research aims to find out: (1) the more effective learning model on students' divergent-thinking skills; (2) the better adversity quotient on students' divergent-thinking skills; (3) the better adversity quotient to improve students' divergent-thinking skills in each learning model; and (4) the better learning model to improve students' divergent-thinking skills in each adversity quotient. This research uses a quantitative approach with a quasi-experimental type. The fifth-grade students were selected as the research subjects. This research was carried out at the public elementary schools in Laweyan District, Surakarta, Indonesia. Test and questionnaire techniques were used to collect data. The data analysis was performed with the analysis prerequisite, hypothesis, and multiple-comparison tests. The results showed that the learning model and adversity quotient have an influence on divergent-thinking skills; for each adversity quotient, the thinking actively in a social context learning model is better than the creative problem solving and direct instruction learning model; the creative problem solving learning model is better than the direct instruction learning model; and adversity quotient of the climbers is better than that of the campers and the adversity quotient of the campers is better than that of the quitters in each learning model.

Keywords: *Thinking actively in a social context, creative problem solving, divergent thinking, adversity quotient.*

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Introduction

21st century education has become a hot topic of discussion among intellectuals. The discussion is about the pattern of education of the Indonesian people oriented to the development of human resources (Mahanal et al., 2016). Divergent-thinking skills are one of the competencies that can be developed. Divergent thinking is the ability to find varied answers or solutions to a problem (Wronska et al., 2018). The skills are recognized as part of creativity in the formation and renewal of unique, original, and unreasonable ideas (Alfonso & Romo, 2016; Antink & Lederman, 2015). These skills can also affect one's responses, attitudes, and actions to think broadly (Alrfooh, 2014). These skills should be habituated since elementary school age, so the students can compete to face various problems (Nair & Sanai, 2018). Everyone's creativity or divergent-thinking skill is closely related to their future in being able to give different ideas, innovate, easily develop, and adapt to the environment (Akcanca & Ozsevgec, 2019).

This expectation is in line with the Minister of Education and Culture Regulation Number 20 of 2016 concerning the competency standards of primary and secondary education graduates and Number 21 of 2016 concerning Content Standards of Primary and Secondary Education. In these regulations, knowledge, attitudes, and skills are the dimensions to be mastered by students. This is for the purpose of preparing for the Indonesia's Golden Generation in 2024 and strengthening Indonesia's contribution to the development of world civilization.

There are some distinctive features of divergent-thinking skills, namely the abilities of generating ideas (fluency), using ideas in any condition (flexibility), creating novelty ideas (originality), and developing ideas in detail (elaboration) (Acar & Runco, 2014; Addis et al., 2014). With these abilities, students can easily experience possibilities that have

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never been experienced before, which affects their emotional condition (Chermahini & Hommel, 2011). Education can improve each student's quality of thinking skills. This is in line with the statement of Svidzinskaya et al. (2019) that the quality of students depends on the education they get and the teacher factor (competence), as well as the students. Thus, students need full guidance from the teacher.

However, the results of the research show that the divergent-thinking behavior has not been fully emphasized by teachers because of the difficulties faced to condition the students (Zabelina & Ganis, 2018). Another research also produces data that students have not been able to optimize divergent-thinking skills because the teachers still emphasize the importance of convergent thinking and ignore divergent thinking (Webb et al., 2017). In addition, there are many comments about the elementary school graduates who have not yet reached the development of creative-thinking skills (Sitorus & Masrayati, 2016). The creativity program has not yet been as expected because the school still adheres to the previous curriculum and has not emphasized divergent-thinking skills. This is experienced by some schools in India (Sharma & Dhingra, 2018). Guignard and Lubart (2016) revealed another finding that the development of divergent thinking in fifth- and seventh-grade students is still low. Meanwhile, Adnan et al. (2019) argue that young age (primary school) is a difficult age to develop divergent-thinking skills because of the limited activities to do.

This problem cannot be ignored. Teachers must plan a strategy; otherwise, this problem will widen to a further domain, especially regarding the development of student creativity. The low achievement of divergent-thinking skills can prevent students from imagining and thinking about verbal analogies (Subali & Mariyam, 2016). This should be a serious concern of all educational elements.

Based on the analysis of this condition, we need a learning model that can support students to be good thinkers. The Thinking Actively in a Social Context (TASC) model is a series of learning that provides analytical teaching in solving contextual problems. According to Wallace et al. (2012), TASC model stages include (1) gathering and organizing knowledge based on problems, (2) identifying problem-solving ideas, (3) generating problem-solving ideas, (4) deciding and determining the best ideas for solving problems, (5) implementing the ideas in the problem-solving process, (6) evaluating the results of problem solving related to student knowledge, (7) communicating the results of problem solving in the classroom to get advice and input, and (8) learning from experience (reflecting the learning outcomes obtained during the problem-solving process). The stages can be seen in Figure 1 below.

Figure 1. Chart of TASC Model Stages (Wallace et al., 2012)

The result of structured observations conducted by Davies (2008) shows that TASC helps students to stay focused, create interaction with other students, be motivated by mutual assistance and support one another, give opportunities for new criticism to be received, and opportunities for students to think laterally and ask questions.

The use of Creative Problem Solving (CPS) learning model is also an alternative for implementing the problem-based learning. Samson (2015) said that CPS is a learning model that can support and develop students' abilities, both learning activities and motivation. Students' learning activities are so well patterned through this model that they are more motivated to learn. Most CPS models have a role to develop divergent and convergent thinking, but the most important aspect is the ability to generate a number of innovative ideas (divergent) (Chen & Chen, 2019). CPS is a learning model that directs students to be more creative with the following steps: (1) clarification of the problem, (2) expression of opinions, (3) evaluation and selection, and (4) implementation (Sari et al., 2018). CPS promotes the acquisition of various types of skills so that the students can analyze their ideas to the fullest, overcome learning difficulties, facilitate their abilities, be more creative, active, and enjoy participating (Kanchanachaya & Shinasharkey, 2015; Wang, 2019).

The selection of an attractive model can certainly affect the resilience, control, and the power struggle of the students. This power struggle is often referred to as Adversity Quotient (AQ). AQ is one's ability to turn an obstacle into an

opportunity (Stolz, 2007). There are several types of AQ, namely quitters (students who give up easily when working on difficult questions), campers (students who have worked on partial problems and then give up), and climbers (students who try hard to work on the problem completely). AQ can give an idea of the power struggle of the students in working on the problems so that students are trained to have divergent-thinking skills.

Previous researches have discussed a lot about learning models, like the research conducted by Mutaqy et al. (2019). The results of their research show that TASC learning model has an effect on students' problem-solving skills in the natural resource material. There are still many researches about the learning model with learning motivation, critical- and creative-thinking skills (Sari et al., 2018). Some researches on TASC and CPS models have never been linked to divergent-thinking skills. This becomes interesting because divergent-thinking skills become uncommon. The ideas provided are not only rational and new, but also broad and open to a thing or phenomenon. Divergent thinking is not commonly owned by everyone. Teachers tend to optimize convergent-thinking skills rather than to balance both divergent- and convergent-thinking skills.

This research is relevant to the one conducted by Kusuma et al. (2019). The results of their research show that CPS produces good-quality learning. This model also increases the students' creativity and influences learning. This is as Wang said (2019) that there are differences in classes using the CPS model and the traditional model.

The previous research is still limited to the fields of science, mathematics, and social (Puccio et al., 2018), while the material to be examined in this research is integrated thematic. This research has a wide range of materials because the subject area studied covers the whole materials in elementary school or is integrated. Not only is thematic learning focused on one subject, but it also has a mapping of five subjects that are packaged into one major unit. The implementation of learning does not show the specificity of each subject, that is, each subject is integrated, intact and inseparable. Integration of these subjects is what makes this research interesting. The research does not rely on one but various subjects so that the implementation of the learning model can be generalized to each subject.

This research will discuss the divergent-thinking skills of elementary school students after learning with TASC, CPS, and Direct Instruction (DI) learning models viewed from their AQ. This research is still new because some previous researches have never combined the three independent variables (learning models) and discuss them statistically. This research is also still rarely done because many previous researchers only associate the three learning models with critical- and creative-thinking skills. Both of these models have typical equations. They are problem-based learning models that facilitate students to be active. The TASC model emphasizes contextual material, while the CPS Model is oriented on creative-thinking skills. Combining these two models will produce new information about students' response abilities. Students' responses will represent their knowledge that will lead to either divergent or convergent thinking.

Another research is still being conducted on high-school students (Santoso & Yuanita, 2017; Kim & Choi, 2017), while this research selects fifth-grade elementary school students as the subjects. Therefore, this research will be more interesting and relevant to the selection of learning models because the two learning models chosen have similar stages of the development of elementary school students. The selection of complex and intact material will stimulate students' response skills which will indirectly affect their divergent-thinking skills.

This research involves elementary school student participants. As matter of fact, these students are the golden generation who should be trained to have divergent-thinking skills. Elementary school students have high curiosity, like investigation, thinking concretely, and enjoying interaction with their peer friends. Looking at the characteristics of elementary school students, the learning model in this research is best applied to them. Thus, the results of this research reveal the relationship between learning models and students' divergent-thinking skills. Many previous researches chose secondary-level students to be the subject of research. In fact, divergent-thinking skills have been needed since primary education. Students need special guidance from the teacher. Their curiosity must be filled with logical answers. They must be trained from an early age to think broadly so that they are not fixated on just one way of resolving problems. This is in contrast to junior and senior high school students, who already have independence in learning so they are required to try hard during learning.

Methodology

Research Design

This research uses quantitative approach. Quasi experiment was used as the research design. Quasi-experimental design is chosen deliberately so that the variables can be controlled and manipulated according to the events they are interested in (Cohen et al., 2018). The research variables used are independent variable, dependent variable, and moderating variable. In this research, the independent variable is the learning model. The moderator variable is AQ.

Research Goal

The purposes of this research are: (1) to investigate the more effective learning model between TASC, CPS, and DI learning models on the students' divergent-thinking skills; (2) to investigate the better type of AQ between climbers,

campers, and quitters on the students' divergent-thinking skills; (3) to investigate the type of AQ that can better improve the students' divergent-thinking skills with the three learning models; and (4) to investigate the learning model that can better improve the students' divergent-thinking skills with the three types of AQ.

Sample

The population in this research included 271 fifth-grade students of public elementary schools in Laweyan District, Surakarta, Indonesia in the 2019/2020 academic year. There were nine classes chosen as the sample, which consist of three classes as experiment 1, three classes as experiment 2, and three others as control class. The first experimental class used TASC during the research, the second experimental class used CPS learning model, while the control class used DI. Each class applied the learning model for eight meetings. The difference between the first and the second experimental classes is in the use of the learning model and the specified sample. Both were applied in three schools (high, medium and low categories) according to the results of the sampling technique.

The sampling technique used was stratified cluster random sampling technique. Stratified cluster random sampling technique involves the division of population into homogeneous groups (Cohen et al., 2018). Each group has subjects with the same characteristics. The sample was taken randomly from each group. This technique was used because the researcher wants the division of each experimental class and control class to come from stratified or tiered samples. There are high, medium and low levels. The following are the steps of stratified cluster random sampling technique performed: (1) determining the research population (fifth-grade students of public elementary schools in Laweyan District, Surakarta, Indonesia); (2) collecting data on the average scores of the 2019 National Exam in all public elementary schools in the Laweyan District, Surakarta, Indonesia; (3) dividing the population based on the average scores into three categories (high, medium and low); (4) grouping ranking results in each category; (5) randomizing the population in each category three times; (6) grouping the randomization results of each elementary school that are categorized as high, medium, and low; and (7) repeating the randomization three times to determine the experimental class I, II, and the control class.

Data Collection

Data collection technique is the way to collect the data needed. The techniques used are test and non-test. The test as a measurement instrument is a tool that functions to reveal the data and information about the object to be measured and must meet some good test characteristics (Cohen et al., 2018). The data to be collected in this research are the scores of divergent-thinking skills. The divergent-thinking skill test data were obtained through the following steps:

1) Analyzing theories about divergent-thinking skills;
2) Determining indicators for assessing divergent-thinking skills. There are four indicators to measure divergent-thinking skills. the four indicators are fluency, flexibility, originality, and elaboration;
3) Making the blueprint and items of the test for divergent-thinking skills;
4) Making an assessment rubric and answer key. Assessment of divergent-thinking skills uses a scale of 0-4. Each indicator has a different rating descriptor on a scale of zero to four;
5) Testing the content validity with the experts. Expert judgment is carried out to test the content validity of each test item. The experts assess the suitability of the test items and the content of the material with the blueprint made. Five expert lecturers, consisting of one lecturer of guidance and counseling, one lecturer of learning evaluation, one language lecturer, and two elementary school teachers;
6) Testing the instrument;
7) Analyzing the instrument test results. The trial results are used to analyze the empirical validity of each test item. The product moment correlation formula is used for calculation. There are 20 test items tested. The validity results show 14 items are valid and six invalid. This is because the r_{xy} value is less than 0.30. Next, the 20 test items are calculated for the level of difficulty and discrimination power. The level of difficulty test results show that two items are of the difficult category, 17 items of the medium category, and 1 item of the easy category. The discrimination power test results show that eight test items are good and twelve are bad. The next calculation is the reliability of the test items. The reliability test results show a high reliability coefficient of 0.851; and
8) Determining the divergent-thinking skill test. Based on the results of validity, reliability, discrimination power, and level of difficulty tests, eight test items that meet the requirements (2, 5, 7, 9, 13, 16, 17, and 19) are determined. This criteria are based on the validity index value of ≥ 0.30, a medium level of difficulty of $0.30 < P \leq 0.70$, and a good discrimination power of $D \geq 0.30$.

The type of non-test technique used is a questionnaire. The instrument used to collect the AQ data is the questionnaire sheet that lists the questions students must fill out or respond to. Questionnaire measurements are carried out in the following steps:

1) Gathering theories about the AQ questionnaire;
2) Determining the type and form of the questionnaire. The questionnaire measurement uses a Likert scale with a score of 1 (Strongly Agree), 2 (Agree), 3 (Disagree), and 4 (Strongly Disagree);
3) Making the questionnaire blueprint according to the indicators. There are five indicators for assessing adversity quotient. The four indicators are control, origin, ownership, reach, and endurance. Control is the attitudes of students organize themselves when facing problems. Origin is the knowledge of students regarding the emergence of difficulties. Ownership is the attitude of students' responsibility towards a problem. Reach is the reach of students in solving problems. Endurance is the endurance of students facing problems;
4) Making the questionnaire according to the indicators and blueprint. 60 questionnaire statement items are made;
5) Determining the questionnaire score for each answer choice;
6) Conducting the content validity test with experts. The study criteria are aspects of language, material, and content using the check list. The validators or expert evaluators consist of two lecturers of guidance and counseling, and one language lecturer. The results of content validation show that 60 items have valid content and then field trials can be conducted;
7) Testing the instrument; and
8) Analyzing the results of instrument trials and determining the questionnaire statement items used for research. The trial results are analyzed through calculation of the internal consistency and the reliability of the questionnaire. Internal consistency calculation uses the product moment correlation formula. Statement items used are items that have an internal consistency index of ≥ 0.30. The calculation results show there are 50 items with the score of 0.30, while the rest < 0.30. Furthermore, the reliability is calculated using Cronbach's alpha. The results show a reliability coefficient of 0.945. That is, 50 items of questionnaire can be used as research instruments.

Data Analysis

The data analysis technique used in this research is two-way Analysis of Variance (ANOVA) with unequal cells. Before the analysis, the prerequisite tests for ANOVA, the normality test (Liliefors test) and homogeneity test (Bartlett method), were performed. After conducting the prerequisite tests, the researcher conducted a hypothesis test using two-way ANOVA with unequal cells. The findings show that all components significantly influence divergent-thinking skills. Thus, the researcher conducted a double comparison test using the Scheffe method.

Findings / Results

Before giving the treatment to the nine classes, a balance test was first performed to ensure that all classes had the same or balanced initial abilities. The balance test was preceded by the spread of divergent-thinking skill tests of eight test items in the study sample. The test items tested are different from the original. Theme 1 becomes the material for testing students' initial abilities. The student's initial ability test scores can be seen in Table 1 below.

Table 1. The Description of Pre-Test Score for Divergent-Thinking Skill

Learning Model	Total	Minimum	Maximum	Mean	Deviation Standards
TASC	90	38	81	62.73	11.09
CPS	91	38	81	61.32	11.21
DI	89	38	81	60.40	11.39

From Table 1, it can be seen that the initial ability of students' divergent thinking in the experimental group I, II, and the control group has a minimum value of 38, a maximum value of 81, a mean of 60 to 63, and a standard deviation of 11.

Furthermore, the results of students' initial abilities are used to calculate the balance test using the formula for the one-way ANOVA. Based on the calculation, it was found that the result of statistics test is 0.96 and critical limit for the 5% significance level is 3.03. Thus, H_0 is accepted. It is concluded that the experimental class and the control class have the same initial ability before being given treatment.

The research was conducted eight times. At the end of the fourth meeting, the students were given an evaluation test of the divergent-thinking skills of theme 2. This test was used as an instrument to obtain the required data. Data on students' divergent-thinking skills test results were obtained after researchers experimented with the TASC, CPS, and DI learning models. Data description of students' divergent-thinking skills can be seen in Table 2.

Table 2. The Description of Post-Test Score for Divergent Thinking Skill

Learning Model	Total	Minimum	Maximum	Mean	Deviation Standards
TASC	90	47	97	77.56	11.72
CPS	91	44	97	69.54	12.35
DI	89	44	84	63.42	9.36

Based on Table 2, the TASC learning model has a higher average value than the CPS and DI learning models, and the CPS learning model has a higher average than the DI learning model. In contrast, the CPS learning model has a higher standard deviation than the TASC and DI, and the TASC learning model has a higher standard deviation than the DI model. The score percentage of students' divergent-thinking skills for each indicator in the experimental class and the control class in detail is presented in Figure 2.

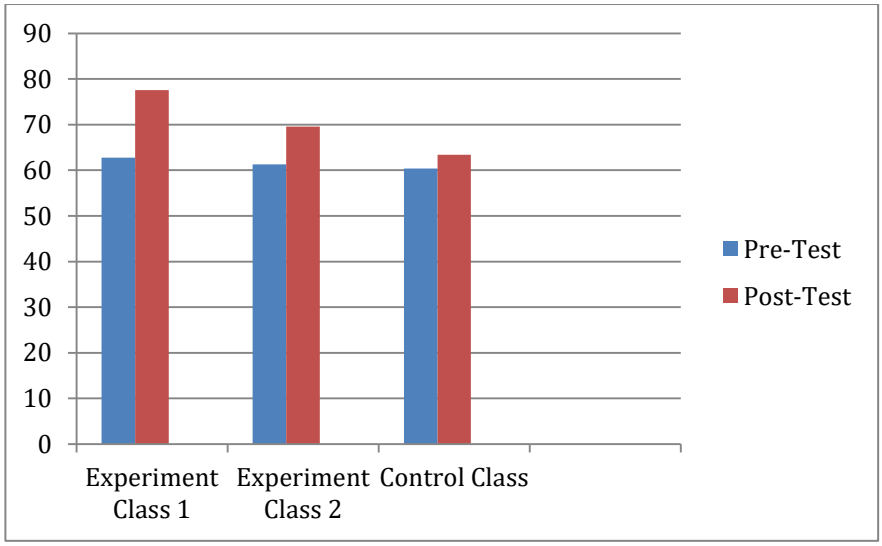

Figure 2. Percentage of Increased Divergent Thinking Skill

Based on the results of the analysis of divergent-thinking skill scores in Figure 2, it can be seen that there is an increase in each class after treatment. The best improvement model is TASC, followed by CPS, and DI.

After the data were obtained, the normality and homogeneity tests were calculated first as a prerequisite requirement for testing the hypothesis using two-way ANOVA with unequal cells. After doing the calculations, the result indicates that H_0 is accepted. It means that the sample comes from the normally-distributed population. Then, the homogeneity test was performed for each independent variable. In the learning model group, it was obtained that the result of statistics tests is bigger than critical limit. The same result was obtained in the adversity quotient group. These results indicate that H_0 is accepted or the analyzed data have the same data variance or homogeneous population.

After the data had been normally distributed and homogeneous, the hypothesis testing was performed using the two-way ANOVA test with unequal cells. The results of the calculation can be summarized in the following Table 3.

Table 3. The Result of Two-Way Analysis of Variance with Unequal Cells

Source	Number of Squares	Degrees of Freedom	Average Square	The Result of Statistics Test	Critical Limit	Decision
Learning Model (A)	8.937.67	2	4.468.84	62.21	3.03	Rejected
Adversity Quotient (B)	14.546.20	2	7.273.10	101.24	3.03	Rejected
Interaction (AB)	694.77	4	173.69	2.42	2.40	Rejected
Error (E)	18.749.50	261	71.84			
Total	42.928.15	269				

Based on Table 3, it can be interpreted that the results of the two-way ANOVA with unequal cells are as follows: (1) the calculation result shows the result of statistics test (A) is bigger than critical limit (A), so H_0 is rejected. It means that the learning model influences students' divergent-thinking skills; (2) the calculation result shows the result of statistics test (B) is bigger than critical limit (B), so H_0 is rejected. It means that the AQ influences students' divergent-thinking skills; and (3) the calculation result shows the result of statistics test (AB) is bigger than critical limit (AB), so H_0 is rejected. It means that the learning model and adversity quotient influence students' divergent-thinking skills.

RQ 1: Which is more effective between TASC, CPS, and DI learning models on the students' divergent-thinking skills?

Based on the results of the two-way ANOVA with unequal cells, all of them are rejected. Therefore, a post-hoc test must be performed. This research uses the post-hoc test with Scheffe method. The results of the double comparative test analysis on the average between rows are as follows:

Table 4. The Result of Double Comparison of the Average between Rows

Between Rows Comparison (A)	The Result of Statistics Test	Critical Limit	Remark	Decision
TASC v CPS	40.499	6.06	TASC > CPS	H_0 is rejected
CPS v DI	23.452	6.06	CPS > DI	H_0 is rejected
TASC v DI	124.506	6.06	TASC > DI	H_0 is rejected

Table 2 shows that each learning model has a significant effect on students' divergent-thinking skills because H_0 is rejected.

RQ 2: Which is better between AQ types of climbers, campers, and quitters on the students' divergent-thinking skills?

Table 5. The Result of Double Comparison of the Average between Columns

Between Columns Comparison (B)	The Result of Statistics Test	Critical Limit	Remark	Decision
Climbers v Campers	91.827	6.06	Climbers > Campers	H_0 is rejected
Campers v Quitters	20,680	6.06	Campers > Quitters	H_0 is rejected
Climbers v Quitters	113.85	6.06	Climbers > Quitters	H_0 is rejected

Table 5 shows that adversity quotient has a significant effect on students' divergent-thinking skills because H_0 is rejected.

RQ 3: In each learning model, which can improve divergent-thinking skills better in each student's AQ?

Table 6. The Result of Double Comparison of the Average between Cells in the Same Column

	Between Cells Comparison in the Same Column	The Result of Statistics Test	Critical Limit	Remark	Decision
Climbers	TASC v CPS	12.028	15.76	TASC < CPS	H_0 is accepted
	CPS v DI	18.013	15.76	CPS > DI	H_0 is rejected
	TASC v DI	57.981	15.76	TASC > DI	H_0 is rejected
Campers	TASC v CPS	16.839	15.76	TASC > CPS	H_0 is rejected
	CPS v DI	11.909	15.76	CPS < DI	H_0 is accepted
	TASC v DI	57.761	15.76	TASC > DI	H_0 is rejected
Quitters	TASC v CPS	11.632	15.76	TASC < CPS	H_0 is accepted
	CPS v DI	0.413	15.76	CPS < DI	H_0 is accepted
	TASC v DI	16.519	15.76	TASC > DI	H_0 is rejected

Table 6 can be described as follows:

The data obtained from the students with the climber-type AQ show that TASC and CPS learning models do not significantly influence their divergent-thinking skills. However, both CPS-DI and TASC-DI learning models significantly influence the students' divergent-thinking skills. The data obtained from the students with the camper- and quitter-type AQ show that both TASC-CPS and TASC-DI learning models significantly influence the students' divergent-thinking skills. However, CPS and DI learning models do not significantly influence the students' divergent-thinking skills.

RQ 4: In each AQ, which can improve the students' divergent-thinking skills in each learning model?

Table 7. The Result of Double Comparison of the Average between Cells in the Same Row

	Between Rows Comparison in the Same Row	The Result of Statistics Test	Critical Limit	Remark	Decision
TASC	Climbers v Campers	31.664	15.76	Climbers > Campers	H_0 is rejected
	Campers v Quitters	13.943	15.76	Campers < Quitters	H_0 is accepted
	Climbers v Quitters	74.027	15.76	Climbers > Quitters	H_0 is rejected
CPS	Climbers v Campers	30.660	15.76	Climbers > Campers	H_0 is rejected
	Campers v Quitters	12.273	15.76	Campers < Quitters	H_0 is accepted
	Climbers v Quitters	88.721	15.76	Climbers > Quitters	H_0 is rejected
DI	Climbers v Campers	25.375	15.76	Climbers > Campers	H_0 is rejected
	Campers v Quitters	0.340	15.76	Campers < Quitters	H_0 is accepted
	Climbers v Quitters	34.321	15.76	Climbers > Quitters	H_0 is rejected

From Table 7, the data obtained from the students who learn using TASC, CPS, and DI show that the climber-camper and climber-quitter types of AQ have a significant influence on the students' divergent-thinking skills. Meanwhile, the camper-quitter type of AQ does not have significant influence on the students' divergent-thinking skills.

Discussion

These results indicate that the learning model influences divergent-thinking skills. In this case, the TASC learning model outperforms the other two models because TASC learning emphasizes students to be active thinkers. Some steps of the TASC model make a special impression for students. Research activities or direct practice help students to understand the material well due to the direct experience with the environment around them. Integration with the students' previous experience also helps them to improve their memory. During the implementation of learning, students feel happy and actively ask questions. According to Ichsan et al. (2019), environment-based learning is a guide for 21st-century learning and makes learning different.

This is unlike the CPS model. This is in line with the research results of Wallace et al. (2012), in TASC learning, the students are free to express, discuss, and collaborate. They have better skills than before, both students' knowledge and personal experience. The CPS learning model does not involve experimental activities as in TASC. This model is still limited to the collection of opinions carried out through small- and large-group discussions. Nazzal (2015) argues that discussion cannot guarantee students' success in receiving material because it can be dominated by active students only, whereas passive students prefer to follow the orders of their friends. Then, the DI learning model does not really emphasize the student-centered learning. Students experience limitations for moving and expressing. The teacher has a strong control to organize learning so students often feel bored with this learning scheme. The teacher explains more in front of the class, so the students do not have the power to develop their creativity (Ayaz & Sekerci, 2015). Another case of research conducted by Zainudin and Istiyono (2019) resulted that direct learning had an influence on students' fluency in answering.

Some explanations above are not the only reason that TASC is better than CPS and DI. There are several research results that have proven it. The research conducted by Lakey and Einstein (2009) provides the result that the application of TASC has better results on the students' thinking skills. They further explain that the students have more opportunities to collaborate, experiment, and reflect themselves for the better.

In addition, it has also been proven that AQ also affects divergent-thinking skills. The most influential type is the climber. This is certainly reasonable because the climber students have an open attitude towards many things. Climber students are very enthusiastic about learning. They often ask questions, give advice and input. They also positively influence their friends. They also have high motivation to learn (Stolz, 2007). Siphai (2015) said that climber students show intelligence better than the two others (camper and quitter students) and can manage their emotions and morals. Campers and quitters have lower motivation and thinking skills than climbers do. Camper students choose the safe way when solving problems. They are satisfied with the achievements obtained even though they have not reached the final stage. During the research, they were quite cooperative in learning. On the contrary, quitter students gave up easily before solving problems. They did not have confidence and became passive during learning.

This research has many similarities with the results of previous researches. The research conducted by Hidayat et al. (2019) shows that there is an influence of adversity quotient on students' mathematical understanding skills. Students certainly need divergent and convergent thinking in understanding something. Suryadi and Santoso (2017) also express the same thing. They explain that there is a significant influence of the students' adversity quotient on their academic achievements. The climber type of AQ proves to provide better learning achievement than other types. AQ has proven to have a positive influence on the development of mathematical argumentation skills (Hidayat et al., 2018).

At each AQ type, it is evident that the TASC learning model is superior to the other two models although there are results that show a balanced influence with the CPS model. However, this model is superior overall. TASC has several important phases, such as generating, implementing, and evaluating. These phases direct students to experiment, practice, think directly, consider alternative answers from several students in the group, determine problem-solving criteria, prepare alternative actions, assess the problem-solving process and the effectiveness of the ability possessed by each student, and check the quality of group interaction.

The three models (TASC, CPS, and DI) have different concepts. At each AQ, it can be assumed that the TASC model is superior to others. Several reasons for the strength of the TASC model have been explained in detail. It is strongly supported by the research process in the field. During the research, students who learn using the TASC model show positive attitudes and accept the model well. The teacher's ability to understand each step of the model also supports the success of this model. The teacher looks very maximal in applying this model. This has an effect on students' learning outcomes.

In general, the CPS learning model presents a learning concept that leads students to think openly (Chen & Chen, 2019). Every step encourages them to argue. In practice, there are teachers who experience obstacles in understanding the syntax of the model. Therefore, the implementation of the research is less optimal. Not all models and media are used by the teacher so the results are not optimal. Then, the DI learning model displays the teacher-oriented learning conditions (Buchori et al., 2017). When viewed from the syntaxes of the two models, they are quite different (student-centered versus teacher-centered) and should have a different effect. The teacher should be able to master a variety of innovative learning models as said by Tican and Deniz (2019) that 21st-century teachers must be able to make changes in themselves, especially those related to teaching. The teacher must be able to do structured practical teaching. They must have good cognitive, autonomous, collaboration, flexibility and innovation skills. In the research, it was discovered the fact that teachers do not have the skills needed as 21st-century teachers.

In each learning model, the result shows that the climber type of AQ is more dominant than the camper and quitter. It is undeniable that students who have the climber type of AQ have better knowledge. Climbers know many benefits that can be taken after their struggle, so they will take advantage of every opportunity they find to achieve the maximum success or score (Stolz, 2007). This is in accordance with the research results of Ardiansyah et al. (2018) who identified that students who have the climber type of AQ have strong beliefs to achieve problem solving and get the best performance. From the results of the previous research, students with the climber type of AQ have better learning achievements than those with the camper and quitter types of AQ (Darmawan et al., 2019). The explanation implies that climber students will produce the same achievements despite their place of study. They can adjust well. They are very open to the environment and always learn from experience. These characteristics make them superior to others. Therefore, they remain the best even though they get a different learning model.

However, the results of this research contradict the research findings of Setiawan et al. (2017). They found that the DI learning model is more appropriate to be applied to students with the quitter type of AQ. This is in line with the research of Sagala et al. (2019) which proves that the conventional model does not have a major influence on students' understanding of scientific concepts. However, the results of this research indicate that DI can improve students' divergent-thinking skills viewed from their AQ although the result for each type of AQ has a quite high range of scores.

Conclusion

Based on the results of the analysis in the discussion section, the conclusions that can be drawn are as follows: (1) TASC learning model is more effective than CPS on students' divergent-thinking skills and CPS learning model is more effective than DI on students' divergent-thinking skills; (2) Students who have the climber type of AQ have better divergent-thinking skills than camper and quitter students. Students who have the camper type of AQ have better divergent-thinking skills than the quitters; (3) in each AQ, students who learn with TASC and CPS have improved their divergent-thinking skills better than those learning with DI. Students who learn with CPS have better divergent-thinking skills than those learning with DI; and (4) in each learning model, students who have the climber type of AQ have better divergent-thinking skills than the campers and quitters. Students who have the camper type of AQ have the same divergent-thinking skills as the quitters.

Suggestions

The results of this research can serve as an input for educators to choose the appropriate learning model in the learning process in class. In theory, this research can provide teacher with the knowledge about innovative learning models that can be applied in elementary schools. The teacher also knows theories about AQ characteristics and divergent-thinking skills. Then, students are expected to get optimal divergent-thinking skills by considering the AQ. TASC learning provides an opportunity for the students to learn to solve problems related to teaching material, so they can explore their skills.

This research suggestion is addressed to the principal in order to provide more adequate learning facilities because researchers are still experiencing difficulties in using learning facilities such as LCDs, computers, projectors, and sound

systems in the classroom. Schools can budget funds for the purchase of electronic learning tools and media. At present, the media is very important to be owned by every school. In addition, researchers also provide advice to other researchers to conduct the research with different materials and research subjects so that the scientific nature of this learning model can be generalized to all students (elementary school students, junior high schools, senior high schools, and tertiary institutions).

Several obstacles were encountered during the research such as the teacher not managing the class well, especially in the time management and conditioning of students. Therefore, teachers should practice to manage time independently so that learning is carried out optimally, provide physical and socio-emotional conditions well so that students feel comfortable to learn, pay attention to students' internal and external factors, and invite them to discuss if class conditions are not conducive. In addition, teachers can do open lessons with other teachers to share teaching experiences, to assess the weaknesses and strengths of the teaching process, and to interpret the learning models used. The implementation of the TASC and CPS models has an effect on not only students' divergent-thinking skills, but also their critical-thinking skills and learning motivation. Therefore, other researchers can conduct the experimental research to determine the effect of the TASC and CPS models on critical-thinking skills. In the research process, they students have done practicum or experiments a lot. Thus, other researchers can develop other innovative learning models, such as Project-Based Learning to improve students' divergent-thinking skills.

Limitations

Learning using the TASC learning model is new to teachers and students so that obstacles were still found during the implementation, such as the steps of the model that have not been fully implemented. In addition, learning support facilities in schools are still limited so that the research in some schools cannot be carried out in accordance with research interests.

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