Managing School to Develop Students' Creative Thinking Skills in the Context of Their Learning Styles

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Abstract
This paper reports the research findings, which look offering a model to improve students' creative thinking skills through students' learning styles at elementary schools in West Jakarta in Indonesia. This model suggested that students' creative thinking skills could be encouraged by fluency, flexibility, elaboration, and originality. Students' learning styles are influenced by students' visual, auditory, and kinesthetic learning styles. The study sample included 276 students at grades 4-6 from 12 elementary schools in West Jakarta in Indonesia. The data consists of two sections, i) students' creative thinking skills: fluency, flexibility, elaboration, and originality; and ii) students' learning styles: students' visual, auditory, and kinesthetic learning styles. Analysis data applied the Structural Equation Modeling (SEM). The conclusion reached was that this study was able to illuminate on the existing relationship between students' learning styles and students' creative thinking skills. Evidence has revealed that there is a kind of relationship between students' creative thinking and its four dimensions, namely, fluency, flexibility, elaboration, and originality. Result of SEM analysis indicated that students' visual, auditory, and kinesthetic learning styles significantly predicted students' learning styles. Model of developing students' creative thinking skills should be broadly researched not only with students' learning styles, but also with other factors.
Keywords: students' creative thinking skills, students' learning styles, fluency, flexibility, originality

Gestionar la escuela para desarrollar las habilidades de pensamiento creativo de los estudiantes en el contexto de sus estilos de aprendizaje

Resumen

Este artículo informa sobre los resultados de la investigación, que parecen ofrecer un modelo para mejorar las habilidades de pensamiento creativo de los estudiantes a través de los estilos de aprendizaje de los estudiantes en las escuelas primarias en West Jakarta en Indonesia. Este modelo sugirió que las habilidades de pensamiento creativo de los estudiantes podrían fomentarse con fluidez, flexibilidad, elaboración y originalidad. Los estilos de aprendizaje de los estudiantes están influenciados por los estilos de aprendizaje visual, auditivo y kinestésico de los estudiantes. La muestra del estudio incluyó a 276 estudiantes en los grados 4-6 de 12 escuelas primarias en el oeste de Yakarta en Indonesia. Los datos constan de dos secciones, i) habilidades de pensamiento creativo de los estudiantes: fluidez, flexibilidad, elaboración y originalidad; y ii) estilos de aprendizaje de los estudiantes: estilos de aprendizaje visual, auditivo y cinestésico de los estudiantes. Los datos de análisis aplicaron el modelado de ecuaciones estructurales (SEM). Se llegó a la conclusión de que este estudio fue capaz de iluminar la relación existente entre los estilos de aprendizaje de los estudiantes y las habilidades de pensamiento creativo de los estudiantes. La evidencia ha revelado que existe un tipo de relación entre el pensamiento creativo de los estudiantes y sus cuatro dimensiones, a saber, fluidez, flexibilidad, elaboración y originalidad. El resultado del análisis SEM indicó que los estilos de aprendizaje visual, auditivo y cinestésico de los estudiantes predijeron significativamente los estilos de aprendizaje de los estudiantes. El modelo de desarrollo de las habilidades de pensamiento creativo de los estudiantes debe investigarse ampliamente no solo con los estilos de aprendizaje de los estudiantes, sino también con otros factores.

Palabras clave: habilidades de pensamiento creativo de los estudiantes, estilos de aprendizaje de los estudiantes, fluidez, flexibilidad, originalidad.

Introduction

Awamleh, Farah, & Zraigat (2012) identified that the level of dimensions of students creative thinking skills involved fluency, flexibility, elaboration, and originality. The study of Alkathiri, Alshreef, Alajmi, Alsowayan,

& Alahmad (2018) revealed that there is significant association between learning styles and creative thinking skills. Ucus (2017) suggested that students' creative thinking skills should be developed in the classrooms. On the other hand, Nami, Marsooli, & Ashouri (2014) stated that students' creative thinking skills were negatively connected with student achievement. Further research through the work of Eishani, Saaʹd, Nami (2014) suggested that student creative thinking skills had significant correlation with students learning styles. However, indicators of students' creative thinking skills were not explored much in these previous researches.

Gantasala & Gantasala (2009) found that visual, auditory, and kinesthetic learning styles are dimensions of learning styles of the students. The findings of Alkathiri, Alshreef, Alajmi, Alsowayan, & Alahmad (2018); Polat, Peker, Ozpeynirci, & Duman (2015); Niculescu, & Usaci (2015); Magdalena (2015); Rezaeinejad, Azizifar, & Gowhary (2015); Yee, Yunos, Othman, Hassan, Tee, Mohamad (2015); Omar, Mohamad, Paimin, (2015); Gogus, & Ertek (2016) indicated that there was the presence of a statistically significant association between students' learning styles and student achievement. Pasina, Bayram, Labib, Abdelhadi, & Nurunnabi (2019) confirmed that assessing the students' learning style and then integrating their preferred styles into course design could facilitate student grouping in class. Yazicilar, & Guven (2009); and Maric, Penger, Todorovic, Djurica, & Pintar (2015) stated that generally the students learned effectively with teaching pedagogy matching their learning style preferences. However, the previous researches did not explain about the model of students' learning styles conducted at elementary schools.

Alkathiri, Alshreef, Alajmi, Alsowayan, & Alahmad (2018); Kassim (2013); and Eishani, Saaʹd, & Nami (2014) investigated that the students' creative thinking skills had any statistical significant association with the students' learning styles. However, the connection between students' learning style dimensions with students' creative thinking skills was not explored.

The data of the Indonesian Ministry of Education and Culture on 10 May 2018 display that 148,856 elementary schools, 1,480,710 teachers, 25,395,436 students, 117,314 educational staff, and 1,114,408 learning groups exist in Indonesia. There are 1,537 state and 914 private elementary schools, 10,747 male and 27,903 female teachers, 420,539 male and 392,327 female students, 2,130 male and 1,536 female educational staff, and 29,116 learning groups in Jakarta. There are 176 state and 197 private elementary schools in the north Jakarta region, 352 state and 179 private elementary schools in the south Jakarta region, 445 state and 197 private elementary

schools in the east Jakarta region, 360 state and 241 private elementary schools in the west Jakarta region, and 190 state and 100 private elementary schools in the central Jakarta region.

On the basis of the constitution in Indonesia Number 20 in 2003, one of the national education goals is to improve the student potencies involving students' creativity thinking skills. As a matter of fact, the students' creativity thinking skills has not been developed maximally at elementary schools in Jakarta. This study was carried out for 276 students at grades 4-6 from 12 elementary schools in West Jakarta in Indonesia.

Literature review

The study carried out by Awamleh, Farah, & Zraigat (2012) suggested that fluency, flexibility, elaboration, and originality are dimensions of students' creative thinking skills. This study pointed out that the creative thinking skills were most influenced by fluency, flexibility, and elaboration and less predicted by originality. Further research brought about the existing relationship between learning styles and creative thinking skills through the work of Alkathiri, Alshreef, Alajmi, Alsowayan, & Alahmad (2018). A study carried out by Ucus (2017) presented that the teachers were highly motivated to nurture the students' creative thinking skills in the classrooms. According to Nami, Marsooli, & Ashouri (2014), students' creative thinking skills have significantly positive correlation with student achievement. Eishani, Saa'd, Nami (2014) has posited that students' creative thinking skills were significantly associated with students learning styles concerning subjective experience, abstract concepts, active experimental, and reflective observation. However, there is still less detail explanation about indicators of students' creative thinking skills in these previous researches. Gantasala & Gantasala (2009) discovered that visual, auditory, and kinesthetic learning styles, as the three sensory receivers are dimensions of students' learning styles. Alkathiri, Alshreef, Alajmi, Alsowayan, & Alahmad (2018); Polat, Peker, Ozpeynirci, & Duman (2015); Niculescu, & Usaci (2015); Magdalena (2015); Rezaeinejad, Azizifar, & Gowhary (2015); Yee, Yunos, Othman, Hassan, Tee, Mohamad (2015); Omar, Mohamad, Paimin, (2015); and Gogus, & Ertek (2016) presented that students' learning styles were connected with student achievement. In the view of Pasina, Bayram, Labib, Abdelhadi, & Nurunnabi (2019), the students' learning style preferences can be a basis for grouping the students in class to do assignments. Yazicilar, & Guven (2009); Maric, Penger, Todorovic, Djurica, & Pintar (2015) emphasized that the teaching learning process in class was more

effective by taking into account the students' learning styles. Knowledge, skills, and competences required to be delivered with teaching methods and strategies closely parallel students' learning styles. Educators had to be aware of the students' learning styles and implementation of pedagogy to ensure the transfer of learning effectively. However, there are still less researches discussing about the students' learning styles model implemented at elementary school.

The study carried out by Alkathiri, Alshreef, Alajmi, Alsowayan, & Alahmad (2018); Kassim (2013); and Eishani, Saa'd, & Nami (2014) found that students' learning styles estimate students' creative thinking skills. This study stated that accommodating learning material design to the students' learning styles could improve students' understanding. By paying attention to the students' learning styles specifically for information processing, the students can deal with information representation in the learning materials leading to improvement of their creative thinking skills. However, it needs more confirmation about the connection between students' learning style dimensions with students' creative thinking skills.

Theoretical framework

This research argues that students' learning styles is predictive variable for students' creative thinking skills. Fluency, flexibility, elaboration, and originality influence students' creative thinking skills (Awamleh, Farah, & Zraigat, 2012). Students' learning styles may be affected by students' visual, auditory, and kinesthetic learning styles (Gantasala & Gantasala, 2009). The hypothesized relationship is described in the model, which can be seen in Figure 1.

Research design

Data collection in this survey research used the questionnaires from 276 students at grades 4-6 from 12 elementary schools in West Jakarta in Indonesia. Data accumulated were connected with students' learning styles as the exogenous variable and students' creative thinking skills as the endogenous variable in this study.

The researcher carried out the literature content analysis for students' creative thinking skills on the basis of Awamleh, Farah, & Zraigat (2012) consisting of four dimensions: fluency, flexibility, elaboration, and originality, and students' learning styles based on Gantasala & Gantasala (2009) having three dimensions: students' visual, auditory, and kinesthetic learning styles. These ideals were converted into the questionnaire provided to 276 participants.

The questions related to students' creative thinking skills involved four dimensions: fluency, flexibility, elaboration, and originality. Fluency consists of three indicators (students responding questions with various answers, expressing the ideas easily, and identifying the weaknesses of the objects with no delay). Flexibility involves three indicators (Students roughly calculating a variety of picture, story, or problem, giving a variety of problem solutions, and easily solving the problems suitable with appropriate situation). Elaboration includes three indicators (students discovering very intense solution completed with describing item by item, elaborating a thought, and carrying out a test on details to find out the direction to be taken). Originality includes three indicators (students finding the new solutions after paying attention to one's ideas, giving unusual solution to a question, and giving the problem solution with original ideas).

The questions connected with students' learning styles are composed of the following three dimensions: students' visual, auditory, and kinesthetic learning styles. Students' visual learning styles involve three indicators (students tending to choose remembering what they see to what they hear, getting involved in symbol, picture, and colors, and showing curiosity about reading). Students' auditory learning styles include three indicators (students learning by giving attention to a sound, reading loudly, and judging people by the sound of their voices). Students' kinesthetic learning styles consist of three indicators (students expressing emotion physically, taking pleasure to use body language, and remembering well what they have performed).

Figure 1. Theoretical framework of the study
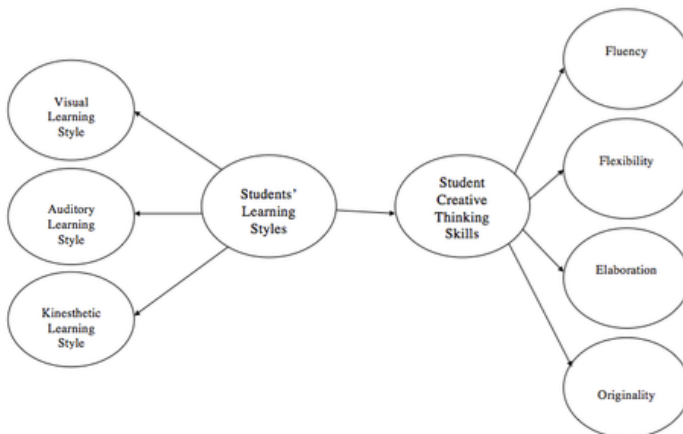
In this research, data analysis used the Structural Equation Modeling (SEM) with IBM SPSS Statistics 24 and SPSS AMOS 24 in 2017 Edition. It was applied to examine the set of associations between students' learning styles as the exogenous variable and students' creative thinking skills as the endogenous variable. The input of data was done using Excel by entering the scores of each item from 276 participant responses with strongly agree, agree, neutral, disagree, and strongly disagree (scored 5, 4, 3, 2, and 1, respectively, for positive questions and 1, 2, 3, 4, and 5, respectively, for negative questions).

Findings

The results of goodness-of-fit statistical analysis can be shown in Table 1. Table 1 displays that Normed Fit Index (NFI) value got 0.773 showing the model offered is good fit. The Comparative Fit Index (CFI) value arrived at 0.839 meaning that the model recommended is good fit. Incremental Fit Index (IFI) value reached 0.841 indicating that the model is good fit. Relative Fit Index (RFI) value reached 0.737 pointing out that the model suggested is good fit. Goodness of Fit Index (GFI) value attained 0.843 showing that the model considered is good fit. Adjusted Goodness of Fit Index (AGFI) value gained 0.800 indicating that the model hypothesized in this research is good fit. Based on SEM measurement, it can be concluded that the model proposed in this research is a fit model.

Table I. Model Fit Summary

Fit measurement	Fit Value		
	Cut-Off Limitation	*Value*	*Decision*
NFI	0 < NFI < 1; NFI ≥ 0.90= good fit	0.773	Good Fit
CFI	0 < CFI < 1; CFI ≥ 0.90= good fit	0.839	Good Fit
IFI	0 < IFI < 1; IFI ≥ 0.90= good fit	0.841	Good Fit
RFI	0 < RFI < 1; RFI ≥ 0.90= good fit	0.737	Good Fit
GFI	0 < GFI < 1; GFI ≥ 0.90= good fit	0.843	Good Fit
AGFI	0 < AGFI < 1; AGFI ≥ 0.90= good fit	0.800	Good Fit

Table II presented a measurement model test of the observed variables that fluency, flexibility, elaboration, and originality, as observed variables were statistically significantly associated with students' creative thinking skills of 1.041, 0.831, 0.697, and 0.877, respectively. Students responding questions with various answers, expressing the ideas easily, and identifying the weaknesses of the objects with no delay as observed variables were significantly

connected with fluency of 0.623, 0.659, and 0.677, respectively. Students roughly calculating a variety of picture, story, or problem, giving a variety of problem solutions, and easily solving the problems suitable with appropriate situation as observed variables were significantly correlated with flexibility of 0.563, 0.655, and 0.668, respectively. Students discovering very intense solution completed with describing item by item, elaborating a thought, and carrying out a test on details to find out the direction to be taken as observed variables were significantly related to elaboration of 0.331, 0.603, and 0.633, respectively. Students finding the new solutions after paying attention to one's ideas, giving unusual solution to a question, and giving the problem solution with original ideas as observed variables were significantly correlated with originality of 0.652, 0.742, and 0.472, respectively.

It can ben shown in Table II that students' visual, auditory, and kinesthetic learning styles were statistically significantly associated with students' learning styles were 0.976, 0.930, and 0.932, respectively. Students tending to choose remembering what they see to what they hear, getting involved in symbol, picture, and colors, and showing curiosity about reading were significantly correlated with students' visual learning styles of 0.699, 0.544, and 0.818, respectively. Students learning by giving attention to a sound, reading loudly, and judging people by the sound of their voices were significantly connected with students' auditory learning styles of 0.666, 0.684, and 0.542, respectively. Students expressing emotion physically, taking pleasure to use body language, and remembering well what they have performed had significant correlation coefficients with students' kinesthetic learning styles of 0.477, 0.692, and 0.580, respectively. Table II displays a direct effect of students' learning styles on students' creative thinking skills with a coefficient of 0.925, which is significant at the 0.05 levels. The structural model can be seen in Figure 2.

Table II. Measurement model test

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
SCTS	<---	STLS	0.643	0.071	9.015	***	
FLUE	<---	SCTS	1.094	0.132	8.271	***	
FLEX	<---	SCTS	0.794	0.117	6.777	***	
ELAB	<---	SCTS	0.360	0.089	4.032	***	
ORIG	<---	SCTS	1.000				
VISU	<---	STLS	1.000				
AUDI	<---	STLS	0.494	0.059	8.312	***	
KINE	<---	STLS	0.586	0.066	8.893	***	
STLS3	<---	VISU	1.000				
STLS2	<---	VISU	0.591	0.066	9.014	***	
STLS1	<---	VISU	0.928	0.077	12.086	***	
STLS6	<---	AUDI	1.000				
STLS5	<---	AUDI	1.533	0.195	7.867	***	
STLS4	<---	AUDI	1.306	0.168	7.755	***	
STLS9	<---	KINE	1.000				
STLS8	<---	KINE	1.418	0.170	8.356	***	
STLS7	<---	KINE	0.884	0.138	6.420	***	
SCTS1	<---	FLUE	1.000				
SCTS2	<---	FLUE	1.021	0.109	9.323	***	
SCTS3	<---	FLUE	1.249	0.131	9.519	***	
SCTS4	<---	FLEX	1.000				
SCTS5	<---	FLEX	1.265	0.170	7.457	***	
SCTS6	<---	FLEX	1.322	0.175	7.534	***	
SCTS7	<---	ELAB	1.000				
SCTS8	<---	ELAB	1.818	0.438	4.152	***	
SCTS9	<---	ELAB	1.781	0.426	4.180	***	
SCTS10	<---	ORIG	1.000				
SCTS11	<---	ORIG	1.181	0.125	9.434	***	
SCTS12	<---	ORIG	0.794	0.120	6.634	***	

Standardized Regression Weights:
(Group number 1 - Default model)

			Estimate
SCTS	<---	STLS	0.925
FLUE	<---	SCTS	1.041
FLEX	<---	SCTS	0.831
ELAB	<---	SCTS	0.697
ORIG	<---	SCTS	0.877
VISU	<---	STLS	0.976
AUDI	<---	STLS	0.930
KINE	<---	STLS	0.932
STLS3	<---	VISU	0.818
STLS2	<---	VISU	0.544
STLS1	<---	VISU	0.699
STLS6	<---	AUDI	0.542
STLS5	<---	AUDI	0.684
STLS4	<---	AUDI	0.666
STLS9	<---	KINE	0.580
STLS8	<---	KINE	0.692
STLS7	<---	KINE	0.477
SCTS1	<---	FLUE	0.623
SCTS2	<---	FLUE	0.659
SCTS3	<---	FLUE	0.677
SCTS4	<---	FLEX	0.563
SCTS5	<---	FLEX	0.655
SCTS6	<---	FLEX	0.668
SCTS7	<---	ELAB	0.331
SCTS8	<---	ELAB	0.603
SCTS9	<---	ELAB	0.633
SCTS10	<---	ORIG	0.652
SCTS11	<---	ORIG	0.742
SCTS12	<---	ORIG	0.472

Notes:

SCTS   =   Students' creative thinking skills

STLS   =   Students' learning styles
FLUE   =   Fluency
FLEX   =   Flexibility
ELAB   =   Elaboration
ORIG   = Originality
VISU   =   Students' visual learning styles
AUDI   = Students' auditory learning styles
KINE   =   Students' kinesthetic learning styles
STLS1   =   Tending to choose   remembering what they see to what they hear
STLS2   =   Getting involved in symbol, picture, and colors
STLS3   = Showing curiosity about reading
STLS4   = learning by giving attention to a sound
STLS5   = Reading loudly
STLS6   = Judging people by the sound of their voices
STLS7   = Expressing emotion physically
STLS8   = Taking pleasure to use body language
STLS9   = Remembering well what they have performed
SCTS1   =   Responding questions with various answers
SCTS2   =   Expressing the ideas easily
SCTS3   =   Identifying the weaknesses of the objects with no delay
SCTS4   =   Roughly calculating a variety of picture, story, or problem
SCTS5   =   Giving a variety of problem solutions
SCTS6   =   Easily solving the problems suitable with appropriate situation
SCTS7   =   Discovering very intense solution completed with describing item by item
SCTS8   =   Elaborating the a thought
SCTS9   =   Carrying out a test on details to find out the direction to be taken
SCTS10 =   Finding the new solutions after paying attention to one's ideas
SCTS11 =   Giving unusual solution to a question
SCTS12 =   Giving the problem solution with original ideas

Figure 2. The structural model

Discussions

Table I stated that the NFI value reached 0.773, which was more than 0 and less than 1 meaning that the model considered in this study was already fit. Table 1 exhibited that the CFI value arrived at 0.839, which was a value more than 0 and less than 1 determining that the model suggested was fit. The IFI value arrived at 0.841, which was more than 0 and less than 1 pointing out that the model offered was already fit. The RFI value came to 0.737, which was more than 0 and less than 1 displaying that the model provided was already fit. The GFI was 0.843, which was more than 0 and less than 1 pointing out that the proposed model was already fit. The AGFI was 0.800, which was more than 0 and less than 1 indicating that the hypothesized model was a good fit for the data.

Table II presented that fluency, flexibility, elaboration, and originality had a significant positive relationship with students' creative thinking skills as endogenous variables with correlation coefficients of 1.041, 0.831, 0.697, and 0.877, respectively. This result is similar to that of the study of Awamleh, Farah, & Zraigat (2012); Corakli, & Batibay (2012); Kadayifci, Atasoy, & Akkus (2012); Ersoy, & Baser (2014); and Gencer & Gonen (2015) claiming that dimensions of creative thinking skills involved fluency, flexibility, elaboration, and originality.

Table II exhibited those students responding questions with various answers, expressing the ideas easily, and identifying the weaknesses of the objects with no delay had a significant correlation with fluency of 0.623,

0.659, and 0.677, respectively. This is in line with the study of Kadayifci, Atasoy, & Akkus (2012) finding that fluency was observed that the students was able to produce numerous ideas

Students roughly calculating a variety of picture, story, or problem, giving a variety of problem solutions, and easily solving the problems suitable with appropriate situation as observed variables had significant association with flexibility of 0.563, 0.655, and 0.668, respectively. This result is similar to the study of Kadayifci, Atasoy, & Akkus (2012) presenting that flexibility was indicated that the students were to approach the numerous ideas from different perspectives.

Students discovering very intense solution completed with describing item by item, elaborating a thought, and carrying out a test on details to find out the direction to be taken had significant correlation coefficients with elaboration of 0.331, 0.603, and 0.633, respectively. This is in line with the study of Awamleh, Farah, & Zraigat (2012); Gencer & Gonen (2015) stating that elaboration was one dimension of creative thinking skilss.

Students finding the new solutions after paying attention to one's ideas, giving unusual solution to a question, and giving the problem solution with original ideas as observed variables had significant association with originality of 0.652, 0.742, and 0.472, respectively. This is in line with the study of Ersoy, & Baser (2014) suggesting that originality was estimated by the skills to give a chance for the students to acquire new information, the students think peculiarly, and they start to produce new information.

In Table II, it can be seen that students' visual, auditory, and kinesthetic learning styles as observed variables had significant association with students' learning styles were 0.976, 0.930, and 0.932, respectively. This is similar to the study of Gantasala & Gantasala (2009) finding that the learning style defined the best way a person learning and interpreting information is based on three sensory receivers, visual, auditory, and kinesthetic including the tactile ways of learning.

Students tending to choose remembering what they see to what they hear, getting involved in symbol, picture, and colors, and showing curiosity about reading as observed variables were significantly associated with students' visual learning styles of 0.699, 0.544, and 0.818, respectively. In line with the study of Gantasala & Gantasala (2009), the features of the students' visual learning styles are composed of mind moving away aimlessly during verbal condition, watching attentively rather than engaging in speech or taking action, preferring to read, and usually committed to memory creating mental images.

Students learning by giving attention to a sound, reading loudly, and judging people by the sound of their voices as observed variables were significantly associated with students' auditory learning styles of 0.666, 0.684, and 0.542, respectively. This finding is similar to the study of Gantasala & Gantasala (2009) stating that the quality belonging to students' auditory learning styles is consistent with singing while working, memorizing by steps in a sequence, remembering speech, and easily distracted by noises. Students expressing emotion physically, taking pleasure to use body language, and remembering well what they have performed as observed variables were significantly connected with students' kinesthetic learning styles of 0.477, 0.692, and 0.580, respectively. This is the same as the findings of the study of Gantasala & Gantasala (2009) presenting that the descriptions of students' kinesthetic learning styles involved expressing emotions by physical means, preferring to solve problems by physically working through them, having good timing and reflexes, enjoying handling objects, and enjoying doing activities.

Table II shows a direct effect of students' learning styles on students' creative thinking skills has coefficient of 0.925, which is significant at the 0.05 levels. This result was in line with the findings of the study of Alkathiri, Alshreef, Alajmi, Alsowayan, & Alahmad (2018); Kassim (2013); Eishani, Saa'd, & Nami (2014) presenting that a number of learning styles were found to have positive association with creative thinking skills.

Conclusion

An empirical evidence-based model to develop students' creative thinking skills is recommended by this study. Students' learning styles can predict students' creative thinking skills. Fluency, flexibility, elaboration, and originality estimate students' creative thinking skills. Students responding questions with various answers, expressing the ideas easily, and identifying the weaknesses of the objects with no delay stimulates fluency. Students roughly calculating a variety of picture, story, or problem, giving a variety of problem solutions, and easily solving the problems suitable with appropriate situation encourage flexibility. Students discovering very intense solution completed with describing item by item, elaborating a thought, and carrying out a test on details to find out the direction to be taken influence the elaboration. Students finding the new solutions after paying attention to one's ideas, giving unusual solution to a question, and giving the problem solution with original ideas affect originality. These research findings are similar to the results of study of Awamleh, Farah, & Zraigat

(2012).

Students' visual, auditory, and kinesthetic learning styles predict students' learning styles. Students tending to choose remembering what they see to what they hear, getting involved in symbol, picture, and colors, and showing curiosity about reading encourage students' visual learning styles. Students learning by giving attention to a sound, reading loudly, and judging people by the sound of their voices estimate students' auditory learning styles. Students expressing emotion physically, taking pleasure to use body language, and remembering well what they have performed influence students' kinesthetic learning styles. These results are in line with the work of (Gantasala & Gantasala, 2009).

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