

THE EFFECT OF ARIAS LEARNING MODEL ON THE LEARNING OUTCOMES ABOUT CONTINENTAL FOOD PROCESSING IN BOGOR 3 STATE VOCATIONAL SCHOOLS FROM CREATIVITY OF STUDENTS

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Abstract

This study aims to obtain information about: (1) differences in learning outcomes between students who study using the ARIAS learning model and students who learn using direct learning (DL); (2) differences in learning outcomes between students who have high creativity and students who have low creativity; and (3) whether the relationship between the use of learning models and learning outcomes in continental food processing is influenced by students' creativity. This experimental study was conducted using a 2 x 2 factorial design, with the moderator variable being students' creativity. In the experiment, the separation of the level of student creativity was not carried out significantly. Students are called to have high creativity, if they have a score higher or equal to the median group (ian median), while students are called to have low creativity, if they have a score less than or below the median (<median) group. The study was conducted in class XI Hospitality 1 by applying the ARIAS learning model, and class XI Hospitality 2 by applying DL. The study found that: (1) students who studied using the ARIAS learning model obtained significantly higher cognitive, affective and psychomotor learning outcomes than students who studied using DL; (2) students who have high creativity, obtain significantly higher cognitive, affective and psychomotor learning outcomes than students who have low creativity; and (3) the relationship between the use of learning models and learning outcomes in continental food processing is influenced by student creativity.

Keywords: ARIAS learning model, creativity, learning outcomes

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INTRODUCTION

Schools as executors of formal education are responsible for learning activities, both intracurricular and extracurricular. The teacher as the implementing authority of learning in the class is obliged to create an active, innovative, creative, and enjoyable learning environment. To support the teaching and learning process, teachers need to apply certain learning models, so students can learn effectively, to achieve optimum learning outcomes. Based on the results of the survey conducted, during this time the learning process for the subjects of processing and serving continental food at SMK Negeri 3 Bogor, was presented conventionally, so that student activities in learning were not optimal, which resulted in their low learning outcomes. To overcome these problems, an appropriate learning model is needed, so that students can learn intensively, so that their learning outcomes reach the expected optimum point. Thus the question arises: what learning model is appropriate for teaching subjects in processing and serving continental food? Is the learning model Assurance, Relevance, Interest, Assessment, Satisfaction (ARIAS) or direct learning model?. ARIAS learning model is a learning model that provides more learning opportunities for students, through various activities, both in class and outside the classroom (real world). The intensity of such learning activities will provide more experience and learning outcomes to students.

Based on several reasons as outlined above, it is very necessary to conduct research on: "The influence of ARIAS learning models and creativity on the learning outcomes of students of SMK Negeri 3 Bogor on subjects of processing and serving continental food".

Based on the background of the research described above, the formulation of the problem in this study are as follows: (1) whether there are differences in learning outcomes between students who learn using the ARIAS learning model and students who learn using direct learning models on processing subjects and serving continental food at SMK Negeri 3 Bogor ?; (2) are there differences in learning outcomes between students who have high creativity and students who have low creativity in the subjects of processing and serving continental food at SMK Negeri 3 Bogor?; and (3) is the relationship between the use of learning

models and learning outcomes in continental food processing influenced by student creativity?

The main characteristics of the ARIAS learning model are: (1) learning models that spur students to have confidence and attitude of confidence to succeed in learning (Assurance); (2) learning must relate to the real life of students, whether in the form of present or future experience (Relevance); (3) success in learning because of an interest in things that need to be learned (Interest); (4) in learning there needs to be an evaluation process, both during the learning process takes place and at the end of learning (assessment); (5) students must study seriously, in order to achieve pride in the success of their learning (Satisfaction).

Based on the explanation above, it is expected that ARIAS learning can improve critical thinking skills and creativity for students. Creativity is a talent that is potentially owned by everyone (including students), which can be identified and developed through appropriate learning. Each student is required to become an expert in a particular field, so students' creativity needs to be developed in learning, and it is necessary to know about the influence of creativity on the learning outcomes of the students concerned. Creativity is a condition, attitude, ability, and process of changing one's behavior to produce products or ideas, looking for more efficient and unique problem-solving in the learning process.

Creativity gained through the process of creative thinking is a manifestation of higher-order thinking processes, therefore, the ability to think is the highest cognitive competence that needs to be mastered by students. According to Siswono (2008, p. 18), creative thinking is a mental activity that is used by someone to develop new ideas or ideas fluently and flexible, which according to Silver (1997, p. 76) the level of creativity can be measured using "The Torrance Test of Creative Thinking (TTCT).

According to Torrance (1965, p. 9), that creativity is: (1) as a process of feeling and facing a problem; (2) guess about the answer to a problem; (3) identify any difficulties in finding answers to a problem; (4) finding solutions and making guesses, or formulating hypotheses as answers to a problem; (5) assess and test the allegations or hypotheses; and (6) changing hypotheses and testing them again, so that they find answers or results. The definition of cre-

ativity explains as a natural process and human needs involved at each stage of problem-solving. In this regard, Silver (1997, p. 182) states that people who are creative in high-level thinking, seem to have a creative character and orientation towards their activities.

Whereas according to Marrapodi (2003, p. 28), creativity is often defined as an idea that is parallel to intelligence, but different from intelligence. Creativity is not limited to cognitive, intellectual, and behavioral functions, but creativity is related to a mixture of complex motivations, personality factors, environmental conditions, accidental factors, and the products produced. Furthermore, according to Sternberg (2006, p. 43), creativity is a meeting of six different components, but interrelated, including intellectual ability, knowledge, thinking style, personality, motivation, and environment.

The ability to think creatively as described above, is important for vocational students, especially in facing the 21st century, where they must have four competencies which include: (1) critical thinking; (2) creative and innovation; (3) collaborative; and (4) communicative. These four competencies will be obtained through active learning, through deductive and inductive approaches. Active learning, through deductive and inductive approaches, is learning that makes learning inherent, through actively searching and combining information from classrooms, workplaces, communities, then using it will embed that information in the memories of students. Such active learning is in line with recommendations from Unesco which include: (1) learning to know; (2) learning to do; (3) learning to live together, and (4) learning to be.

The UNESCO recommendation, in line with the opinion of Hadlock et al. (2008, p. 1), that teaching does not merely convey what is written in the book, but students must practice soft skills in learning, learning and working in teams, and practicing interpersonal communication skills, so that students gain hands-on experience and practice work to enter the workforce.

To help vocational students develop intellectual potential as mentioned above, according to Johnson (2014, p. 182), Contextual Teaching and Learning (CTL) teaches steps that can be used in critical and creative thinking and provides opportunities to use these think-

ing skills at a higher level in the real world environment, the real reason is that the food of the human brain is the real world. Therefore learning that emphasizes action, will give students the opportunity to experience the real world in countless ways (Johnson, 2014, p. 155).

Based on the explanation above, it can be seen that the ARIAS learning model is a learning model that gives more learning opportunities to students, through various activities, both in the classroom and outside the classroom (real world). The intensity of such learning activities will provide more experience and learning outcomes to students.

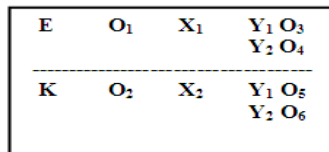
While in the direct learning model, what is done with syntax: (1) clarification of goals and motivating students; (2) presenting knowledge and demonstrating skills; (3) provide guided training; (4) checking understanding and feedback; and (5) provide advanced training and transfer. Based on the syntax, it can be seen that in the direct learning model, learning activities in the classroom are mostly carried out by the teacher, so that the learning time and opportunity for students is relatively lacking, which will affect the learning outcomes.

Thus it can be assumed: (1) there are differences in learning outcomes between students who learn by using the ARIAS learning model and students who learn using the direct learning model, on subjects of processing and serving continental food at SMK Negeri 3 Bogor; (2) there are differences in learning outcomes between students who have high creativity and students who have low creativity in the subjects of processing and serving continental food at SMK Negeri 3 Bogor.

Based on the study of theory and the results of relevant research hypotheses are proposed as follows: (1) there are differences in learning outcomes between students who learn using the ARIAS learning model and students who learn using direct learning models, on subjects of processing and serving continental; (2) there are differences in learning outcomes between students who have high creativity and students who have low creativity in the subjects of processing and serving continental food.

METHOD OF RESEARCH

The research design used in this study is a 2x2 factorial design with creativity moderator variables, as shown in Figure 1.



(Adaptation of Tuckman (1999)).

Figure 1. Factorial Design of 2x2

Description:

- E : experimental class taught by ARIAS learning model.
- K : control class taught by direct learning model.
- X₁, X₂ : treatment in the experimental/control class.
- Y₁ : high level of creativity in the experimental/control class.
- Y₂ : low level of creativity in the experimental/control class.
- O₁, O₂ : pre-test in the experimental/control class.
- O₃, O₄, O₅, O₆ : post-test in the experimental/control class.

Furthermore, the research analysis design was carried out as shown in Table 1.

Table 1. Design of Research Analysis

Level Creative of Thinking (A)		
Model of Teaching (B)	High Level of Creative Thinking (Y ₁)	Low Level of Creative Thinking (Y ₂)
ARIAS Learning Model (B ₁)	Learning Outcomes (B ₁) (Y ₁)	Learning Outcomes (B ₁) (Y ₂)
Direct Learning Model (B ₂)	Learning Outcomes (B ₂) (Y ₁)	Learning Outcomes (B ₂) (Y ₂)

Description:

- B₁ Y₁ : Learning Outcomes of student that has a high level of creative thinking who learned by using ARIAS Learning Model
- B₁ Y₂ : Learning Outcomes of student that has a low level of creative thinking who learned by using ARIAS Learning Model.
- B₂ Y₁ : Learning Outcomes of student that has a high level of creative thinking who learned by using Direct Learning Model.

B₂ Y₂ : Learning Outcomes of student that has a low level of creative thinking who learned by using Direct Learning Model.

The study was conducted at SMK Negeri 3 Bogor in Class XI Catering, odd semester of the academic year 2016 - 2017, for subjects of processing and serving continental food. As the subject of the study, students of class XI Catering 1 and Catering 2. In conducting research, the separation of the level of creativity of students is pseudo, meaning that in the experimental activities, students are not significantly separated, between students who have high levels of creativity and students who have low creativity. Before the experiment is conducted, a test is held to determine the level of creativity of students. Students are called to have high creativity, if they have a score higher or equal to the median group (>median), while students are called to have low creativity, if they have a score less than or below the median (<median) group.

This study took the subject of two classes, namely: (1) class XI Catering 1 taught by using the ARIAS learning model; and (2) class XI Catering Services 2 which are taught using the direct learning model. The data analysis technique used is the 2-way ANOVA test, after the prerequisite test, the normality test and homogeneity test.

RESEARCH RESULTS AND DISCUSSION

Testing the first hypothesis: there are differences in learning outcomes (cognitive, affective and psychomotor domains) between students who learn using the ARIAS learning model and students who learn by using a direct learning model on subjects of processing and serving continental food at SMK jty.

In Table 2 it appears that F_{count} for cognitive learning outcomes on the influence of the learning model is 5,831 with a significance level of 0.019. Because the significance level is 0.019 < 0.05, then H₀ is rejected and H_a is accepted.

Thus, it can be concluded that there is a significant difference in the use of ARIAS learning models and direct learning models on the cognitive learning outcomes of students in the subjects of processing and serving continental food.

Table 2. Two-way ANOVA Test Results to Learning Outcomes of the Cognitive Domain on the influence of the ARIAS learning model

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2260.169 ^a	3	753.390	13.719	.000
Intercept	386140.898	1	386140.898	7.032E3	.000
Class	320.208	1	320.208	5.831	.019
Creativity	1444.898	1	1444.898	26.312	.000
Class * Creativity	444.708	1	444.708	8.098	.006
Error	3294.831	60	54.914		
Total	396180.000	64			
Corrected Total	5555.000	63			

a. R Squared = .407 (Adjusted R Squared = .377)

Furthermore, as shown in Table 2, that F_{count} for affective domain learning outcomes for the influence of the learning model is 11.889 with a significance level of 0.001. Because the significance level is $0.001 < 0.05$, then H_0 is rejected and H_a is accepted. Thus it can be concluded that there is a significant influence on the use of ARIAS learning models and direct learning models on the affective learning outcomes of students in the subjects of processing and serving continental food.

Table 3. Two-way ANOVA Test Results to Learning Outcomes of the Affective Domain on the influence of the ARIAS learning model

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	599.828 ^a	3	199.943	23.901	.000
Intercept	409721.813	1	409721.813	4.898E4	.000
Class	99.453	1	99.453	11.889	.001
Creativity	337.813	1	337.813	40.382	.000
Class *Creativity	146.453	1	146.453	17.507	.000
Error	501.922	60	8.365		
Corrected Total	1101.750	63			

a. R Squared = .544 (Adjusted R Squared = .522)

In Table 3, it can be seen that the calculation for the psychomotor domain of learning outcomes on the influence of the learning model is 6.497 with a significance level of 0.013. Because the significance level is $0.013 < 0.05$, then H_0 is rejected and H_a is accepted. Thus it can be concluded that there

is a significant influence on the use of ARIAS learning models and direct learning models on psychomotor domain learning outcomes of students in the subjects of processing and serving continental food.

Table 4. Two-way ANOVA Test Results to Learning Outcomes of the Psychomotor Domain on the influence of the ARIAS learning model

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	570.898 ^a	3	190.299	19.820	.000
Intercept	406311.7	1	406311.750	4.232E	.000
Class	62.382	1	62.382	6.47	.013
Creativity	367.500	1	367.500	38.276	.000
Class *Creativity	129.0	1	129.007	13.436	.001
Error	576.086	60	9.601		
Total	410587.000	64			
Corrected Total	1146.984	63			

a. R Squared = .498 (Adjusted R Squared=.473)

Second Hypothesis Testing: there are differences in learning outcomes (cognitive, affective and psychomotor domains) between students who have high creativity and students who have low creativity in the subjects of processing and serving continental food at SMK Negeri 3 Bogor. Statistical tests were carried out using 2-way ANOVA as shown in Table 5, Table 6, and Table 7.

In Table 5, it can be seen that F_{count} for cognitive learning outcomes in the influence of creativity is 26.312 with a significance level of 0.000, which means that H_0 is rejected and H_a is accepted. Thus it can be concluded, that there is a significant influence between high creativity and low creativity on cognitive learning outcomes in the subjects of processing and serving continental food. Furthermore, the ANOVA 2 path test results on affective learning outcomes for the influence of creativity as shown in Table 6.

In Table 6 it appears, that F_{count} for affective domain learning outcomes for the influence of creativity is 40,382 with a significance level of 0,000, which means H_0 is rejected and H_a is accepted. Thus, it can be concluded, that there is a significant influence between the level of high creativity and a low level of creativity on the learning outcomes of the affective domain on the subjects of proc-

essing and serving continental food. Furthermore, in Table 7, it can be seen that Fcount for psychomotor domain learning outcomes on the influence of creativity is 38,276 with a significance level of 0.000, which means that H_0 is rejected and H_a is accepted. It can be concluded, that there is a significant effect between the level of high creativity and low level of creativity, on the learning outcomes of the psychomotor domain, on the subjects of processing and serving continental food.

Table 5. Two-way ANOVA Test Results to Learning Outcomes of the Cognitive Domain for the influence of the Creativity

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2260.169 ^a	3	753.390	13.719	.000
Intercept	386140.898	1	386140.898	7.032E3	.000
Creativity	1444.898	1	1444.898	26.312	.000
Class	320.208	1	320.208	5.831	.019
Creativity * Class	444.708	1	444.708	8.098	.006
Error	3294.831	60	54.914		
Total	396180.000	64			
Corrected Total	5555.000	63			

a. R Squared = .407 (Adjusted R Squared = .377)

Table 6. Two-way ANOVA Test Results to Learning Outcomes of the Affective Domain for the influence of the Creativity

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	599.828 ^a	3	199.943	23.901	.000
Intercept	409721.813	1	409721.813	4.898E	.000
Creativity	337.813	1	337.813	40.382	.000
Class	99.453	1	99.453	11.889	.001
Creativity * Class	146.453	1	146.453	17.507	.000
Error	501.922	60	8.365		
Total	413908.000	64			
Corrected Total	1101.750	63			

a. R Squared = .544 (Adjusted R Squared = .522)

Table 7. Two-way ANOVA Test Results to Learning Outcomes of the Psychomotor Domain for the influence of the Creativity

Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	570.898 ^a	3	190.299	19.820	.000
Intercept	406311.750	1	406311.750	4.232E4	.000
Creativity	367.500	1	367.500	38.276	.000
Class	62.382	1	62.382	6.497	.013
Creativity * Class	129.007	1	129.007	13.436	.001
Error	576.086	60	9.601		
Total	410587.000	64			
Corrected Total	1146.984	63			

a. R Squared = .498 (Adjusted R Squared = .473)

In this section, there will be a discussion about the results of the study associated with the theories and the results of relevant research about the effect of ARIAS learning models and creativity on learning outcomes in the subjects of processing and serving continental food. The intended learning outcomes consist of three domains: (1) cognitive domain learning outcomes; (2) affective learning outcomes; and (3) psychomotor domain learning outcomes.

Learning outcomes for students who use the ARIAS learning model are significantly higher than students who learn by using the direct learning model on the subjects of processing and serving continental food at SMK Negeri 3 Bogor

The results of this study are in line with the results of the research by Sopah (2001) who found that the ARIAS learning model improved learning outcomes, both affective learning outcomes, cognitive domains, and psychomotor domains. The findings of this study, similar to the findings of Ningsih (2010), that the ARIAS learning model positively influences the mastery of students' concepts, on biology

The results of this study are also in accordance with the theory which states that the ARIAS learning model is a learning model that seeks to instill confidence in students, seeks to attract and maintain student interest and attention, which ultimately fosters pride in students, thus providing reinforcement in the process learn. Based on these conditions, it is only natural that cognitive domain learning

outcomes for students taught using the ARIAS learning model are significantly higher compared to cognitive domain learning outcomes for students taught using the direct learning model.

Furthermore, the results of this study are in line with the main characteristics of the ARIAS learning model which include: (1) being able to spur students to have confidence and attitude of confidence to succeed in learning (Assurance); and (2) learning related to real life (Relevance).

The second main feature is in line with the principle of "Contextual teaching and learning (CTL)", that CTL (Johnson, 2014, p. 88) helps students to: (1) find meaning in lessons by connecting academic material to the context of living their daily lives; (2) making important relationships that produce meaning by carrying out self-regulated learning, working together, thinking critically and creatively, respecting others, to achieve high standards.

Learning through working with other students is in line with the concept of cooperative learning (Sharan, 2012, p. 262), which states that learning in cooperative groups provides an opportunity to see the thinking processes of group members so that they are able to shape their own minds.

By collaborating according to Johnson (2014, p. 73), students will be helped in terms of: (1) finding problems, designing plans, and finding solutions to problems; (2) sowing tolerance and feeling of love; and (3) knowing that listening to each other between students will lead to success. Johnson (2014, p. 75) further states that the principle of interdependence will lead to the creation of relationships among fellow students so that teachers will adopt the practice of CTL in helping students to make connections in order to find meaning in their learning.

Training in the industry includes bringing students towards learning that adheres to the principles of CTL. Therefore the results of this study support the results of the study of Ambiyar, Yulastri, Putri, & Wulansari (2018) which concluded that Industrial training can improve student knowledge, work skills, and English language skills, and enhance the role of supervisors and instructors/industrial supervisors and provide solutions for students to overcome the problems they face. Furthermore, this training program is needed to improve the

quality of tourism facilities and infrastructure into the hospitality industry and improve the attitude of students in conducting industrial training courses.

In line with that, Joyce & Weil (2011) stated that cooperative learning is far more effective in enhancing personal, social, and academic development for students. More than that, learning in groups will improve the ability to think critically and creatively, and will increase the ability to respect others, which is in line with the challenges of living in the 21st century era (Hidayat & Patras, 2015) which includes: (1) critical thinking; (2) creative and innovation; (3) collaborative; and (4) communicative. It is therefore reasonable, that Unesco recommends four pillars of education which include: (1) learning to know; (2) learning to do; (3) learning to live together; and (4) learning to be.

The results of this study are also in line to the principle of learning "teaching factory", as stated by Rentzos, Doukas, Mavrikios, Mourtzis, & Chryssolouris (2014), that the purpose of the teaching factory is to: (1) integrate learning in the school environment with the industrial environment, through training in the use of work tools, and various instruments in the industrial environment; (2) provide opportunities for students to practice in order to develop soft skills as a whole in the work environment in a real way; and (3) provide opportunities for students to practice technopreneur completely, starting from planning, production processes, and marketing, so that students gain the ability to think critically and creatively.

Therefore learning that emphasizes action, will give students the opportunity to experience the real world in countless ways (Johnson, 2014, p. 155). Educational practices supported by brain research according to Schunk (2012, p. 89) are: (1) problem-based learning; (2) simulation and role-playing; (3) active discussion; (4) visual appearance; and (5) a positive learning climate. Such a learning process in order to achieve a sense of pride in the success of learning (Satisfaction).

Furthermore, this study found that affective domain learning outcomes for students taught with ARIAS learning models were significantly higher than affective learning outcomes for students who were taught with direct learning models on the subject of processing and serving of continental food at SMK Negeri

3 Bogor. It turns out that the results of this study are in line with the findings of Praptinasari (2012), that the ARIAS learning model significantly influences the learning outcomes of biology subjects for students of class XI IPA Al Islam 1 Surakarta High School, both in the cognitive, affective and psychomotor domains. Likewise, the results of this study are also in line with the results of research by White & Smerdon (2008), who found that collaborative attitudes can be developed through group discussion activities in the ARIAS learning model.

According to Muslim (2013), that such group discussions require the attitude of cooperation, sharing tasks and responsibilities in completing tasks. Collaboration can eliminate mental barriers due to limited experience and narrow perspectives (Johnson, 2014, p. 164). This study found that psychomotor domain learning outcomes for students taught with ARIAS learning models were significantly higher than psychomotor realm learning outcomes for students taught with direct learning models on the subject of processing and serving of continental food at SMK Negeri 3 Bogor.

The results of this study are in line with the results of the Hindayani (2013) study, which found that the ARIAS learning model supports students to be more active in learning so that their psychomotor abilities are better. Related to Yasa's research findings (2014), the results of this study are also in line that ARIAS learning has proven to be better, compared to the application of direct learning models.

Learning outcomes of students who have high creativity are significantly higher than students who have low creativity, on subjects of processing and serving continental food at SMK Negeri 3 Bogor

Creativity is a condition, attitude, ability, and process of changing one's behavior to produce products or ideas, looking for more efficient and unique problem-solving in the learning process (Craft, 2004). This study found that cognitive, affective, and psychomotor domains of learning outcomes for students who have high creativity were significantly higher than the learning outcomes for students who had low creativity in the subjects of processing and serving continental food at SMK Negeri 3 Bogor. The results of this study support Muslim, Gitama, Suprianto, Rahmadyanti, & Kusumawati (2018) findings, that for stu-

dents who have high level of creative thinking, who learn using adobe flash professional learning media, psychomotor domain learning outcomes are significantly higher than students who learn using learning media CourseLab. As is known, that the level of success is a reflection of the personality of students who have creativity, namely the initiative to foster curiosity, believe in themselves, and have a high imagination. The Personality like this, proved significantly in achieving success in the learning process.

The importance of knowing the influence of creativity on learning outcomes is how an applied learning model can improve student learning outcomes including those who have low creativity, also increase the level of learning success. Therefore creativity as a mirror of a successful person needs to be instilled early, both in the family environment and in the school environment. With the application of the right learning model, the teacher can easily increase creativity in each student.

Furthermore, the right learning model is not only about classroom learning, but also learning when and where students are learning in order to foster such student creativity is in line with the 21st century education format stated by Hernawan, Susilana, Julaha, & Sanjaya (2006), which includes: (1) cyber (e-learning), where learning is done by optimizing the use of ICTs; (2) open and distance learning, where learning can be done with a distance learning model, not limited to space and time, and carried out by utilizing ICT assistance; (3) quantum learning, which is applying learning methods that are adapted to the way they work; (4) cooperative learning, namely learning that uses groups as an effort to foster cooperation between students; (5) society technology science, which is an interdisciplinary concept that is applied to integrate problems in science, technology and society; and (6) accelerated learning, which is the development of students' ability to absorb and understand information quickly, so as to improve their learning abilities more effectively.

CONCLUSION

Based on the results of the study, it can be shown that the conclusion are follows:

First, Learning outcomes (cognitive, affective and psychomotor domains) for students

taught using the ARIAS learning model, are significantly higher than learning outcomes for students who learn with direct learning models on the subjects of processing and serving continental food at SMK Negeri 3 Bogor; and

Second, Learning outcomes (cognitive, affective and psychomotor domains) for students, who have high creativity, are significantly higher than the learning outcomes of students who have low creativity, on subjects of processing and serving continental food at SMK Negeri 3 Bogor.

Third, the relationship between learning models and learning outcomes (cognitive, affective and psychomotor domains) in the subjects of processing and serving continental food is influenced by students' creativity.

Based on these conclusions, the following suggestions were conveyed: (1) based on the findings in this study, the ARIAS learning model needs to be applied to subjects that have more or less the same characteristics as the subjects of processing and serving continental food; (2) creativity as a mirror of a successful personality needs to be instilled early, both in the family environment and in the school environment. By applying the right learning model, the teacher can easily increase the creativity of each student.

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