
Generative Learning on Student's Character Value

Moh Budi Susilo Eksan, Suranto, Widha Sunarno, Ashadi

Science Education Doctoral Program, Faculty of Teacher Training and Education, Sebelas Maret University, Indonesia,

Abstract. The purpose of this study was to investigate the effect of the student character value. This study uses Generative learning model and conventional learning model. The population of the research was the first grade students of Universitas Nusantara PGRI Kediri academic year 2017/2018. The sampling technique using cluster random sampling technique of 2 classes. Data collecting technique of cognitive achievement learning variable used test method and character value used questionnaire method. using anova 2 way with 2x2 factorial design. The first factor is the learning model of Generative learning and conventional learning model. The second factor is student character value. The data obtained from the results of this study is the value of learning achievement using Generative learning model and conventional learning model in terms of character values. From the data obtained value of P-Value model = 0,000 while P-Value character value = 0,000 and P-Value interaction model and character value = 0,033. Based on the research results can be concluded: 1) There is an effect of application of learning Generative learning model and conventional learning model of Science lesson on the subject matter of the Etnosains 2) There is influence of student's character value on learning achievement of Science lesson on the subject matter of Etnosains. 3) There is an interaction between Generative Learning model and conventional learning model on learning achievement with student's character value of Science lesson on the subject matter of the Etnosains..

Keywords: character value, Generative Learning, value analysis,

INTRODUCTION

Science learning in high education emphasizes science process skill, therefore teacher must have four competencies: pedagogic, personality, social and professional competence. Pedagogic competence is a teacher's skill in teaching, social competence including effective communication for educators, students, education staff, parents and society. The teacher's pedagogy competence includes mastering the characteristics of learners from the physical, moral, social, cultural, emotional, and intellectual, mastering the theories and principles of learning that educate in learning. Personality competencies include steady, stable, mature, wise and dignified personality to be role models for students and society. Professional competence includes broad and deep mastery learning materials. While the personal ability of a teacher include: a) Ability to develop personality; b) Ability to interact

and communicate; and c) Ability to conduct guidance and counseling (Mulyasa, 2011: 117).

The competencies to be developed for learners are oriented towards the development of superior and capable people living and living in the 21st century. In 21st century education is an education that focuses on four competencies. The competence of thinking, work competence, competence of living and competence master the tools to work. The learning of the 21st century must be critical in intellectual, creative in thought, ethical in association, and character in life, (Abidin Y. 2015: 223). The learning strategy used in generative learning is simple coding such as strategies summarizing and mapping. (Doctorow, Wittrock, & Marks, 1978; Wittrock, 1990; Wittrock & Carter, 1975). The implementation of mind mapping in learning activities can foster positive characters, such as independence, hard work, responsible, confident, honest, and critical and

creative thinking .(Tenriawaru E.P , 2014). In motivation, learners construct their own values (i.e., values have different meanings for different people). Thus an individual who has positive experiences may construct more positive beliefs in contrast, an individual who has unpleasant experiences may develop negative achievement beliefs about the value. (Wigfield & Eccles, 2002)

Based on Law No. 14 of 2005 concerning Teachers and Lecturers, a teacher must have four competencies namely pedagogic, personal, social and professional competence. Pedagogic competence is the skill of a teacher in teaching, social competence including effective communication for educators, students, education staff, parents and the community. Pedagogical competence of a teacher includes mastering the characteristics of students from physical, moral, social, cultural, emotional, and intellectual, mastering the theory and principles of learning that educate in learning (Lidyasari, 2014)

Personality competency is a competency that is related to the execution of tasks that are their responsibility. A teacher must have a good personality, stable and wise and can be a good role model. Personality will determine whether the educator or coach or become a destroyer or destroyer of the future. (Shah M, 2005: 225). Besides that, Pangky Irawan's (2010) research proves that teacher personality competencies are related to student achievement motivation. Teacher's personality competencies include attitudes (values), values (personality) as elements of behavior (behavior) in relation to ideal performance in accordance with the field of work. But the reality in learning values (values) personality (personality) is rarely noticed. learning model for preservice teacher student achievement

Character is a reflection of the human self related about the nature someone in the behavior that becomes a habit in everyday, the nature can be good or bad. That matter depending on the character formation in the environment. Like the opinion put forward by Aristotle in Gunawan H. (2012: 23) that "the character is closely related to habits that are often manifested in behavior " Character Count in America as quoted by Majid(2011: 43) identifies that characters that a pillar that should be implanted to students, covering 10 main characters, which include; (1) trustworthiness; (2) respect and concern; (3) responsibility resp; (4) fairness; (5) caring; (6)

citizenship; (7) honesty; (8) courage; (9) diligence; (10) integrity.

METHOD

Research Design

The design used research is factorial design. At the end of the research will be obtained experimental data, which will then be processed by using statistical analysis of three-way variants with 2x2 factorial design. The first factor is the Generative Learning model through summarizing strategy and conventional learning. The second factor is character value categorized in high and low. The design in this study can be described as follows Tabel 1.

Table 1. Factorial Design 2x2

		Generative Learning	Conventional Learning
		A ₁	A ₂
Character Value	B ₁	A ₁ B ₁	A ₂ B ₁
	B ₂	A ₁ B ₂	A ₂ B ₂

Explanation:

A1 = Student who applied the generative learning

A 2= Student who applied the conventional learning

B 1= Student with low character Value

B2 = Student with high character Value

A1 B1 = Student who applied the generative learning with low character Value

A1 B2 = Student who applied the generative learning with high character Value

A2 B1 = Student who applied the conventional learning with low character Value

A2 B2 = Student who applied the conventional learning with high character Value

This study applied two learning strategies: 1)the generative Learning model through value analysis approach in the control group and 2) Conventional learning in the experimental group.in each group participants divided into two sub-groups (High and low) thus totalling four groups of student.

Participant

The Participant in experiment research conducted at Universitas Nusantara

PGRI Kediri Indonesia. This research comprised 108 preservice student of the second grade studying ethnosains, of which 60 student were sub-divided into two classes: 30 student experiment class and 30 student the control group.

Data Collection

The data source of this research is arranged relevant with research variables and data collection methods. Research instrument for learning achievement in the form of test and for student character value in the form of questionnaire. Test method in this research is used to get score of student achievement. In the learning achievement test, multiple-choice objective test was used with four choices of answers to measure students' comprehension level (cognitive aspect) and the extent to which students' satisfaction on concepts in ethnosciences material to obtain learning achievement score. The questionnaire method is used to obtain data on character values. Questionnaire method of character value in the form of a list of questions or statements that must be answered by students. Questionnaire used is a closed questionnaire with a choice of answers that have been provided by researchers. The scores for the learning character value questionnaire as well as the affective aspect assessment used Likert scale 1 through 4. Instrument of appraisal of learning achievement of science on cognitive aspect in the form of matter material Environment sub ethnosains in the form of question list with four answer choice. Before used to retrieve research data, the instrument is tested first to know the quality of the question. Testing the problem is intended to determine the validity, reliability, distinguishing power, and difficulty level questions. Of the 35 ethnoscience, there are 30 valid questions and 7 drop questions. The researcher took 25 questions out of 30 questions that were declared valid for the use of a learning achievement test by considering the distribution of the material.

As explained, the purpose of this research is to know the significance of the learning effect of generative learning with student achievement. In addition to know the significance of the influence of students' characters on the learning achievement of science. In order to process the data in this research, it is used the Analysis of Two Way Variance, and ending with F test. To test the hypothesis with this F test, previously done prerequisite analysis test, that is normality test and homogeneity test. If from result of

hypothesis testing of research with analysis of varian three way there is a difference (Ho is rejected) forwarded by an advanced test of Anava with a double comparison test using Scheffe ' method.

RESULT AND DISSCUSSION

The data in this research are obtained from class A as experiment class with Generative Learning and B experiment class of conventional Learning. The data obtained include: questionnaire value of character tests, and the value of student learning achievement on ethnoscience. Description of the research data:

Table 2. Number of Student with High Character Value and low Character Value

		Class A		Class B	
		Freque ncy	Percent age	Freque ncy	Perce ntage
Character Value	High	16	53,3	13	43,3
	Low	14	46,6	17	56,6
Total		30	100	30	100

Character value data are grouped into two categories: high character value for students who have character value \geq average character value of whole class and low character value category for students who character value $<$ average character value of the whole class.. By using the criteria from 60 students consisting of 30 students of experimental class with Generative Learning and 30 students of experimental class with conventional Learning , 29 students have high character value and 31 students have low character value.

This study uses several test requirements analysis, among others: equality test average, normality test, and homogeneity test. The purpose of the normality test is to know the sample comes from a population that is normally distributed or not. The results of computation with minitab 16.

Tests conducted using two-way variance analysis with unequal cells. The summary of the two-way variance analysis is presented as follows (Table 4).

Table 3. Summary of ANAVA Two Paths of Cognitive Achievement

Cognitive Achievement	P	Decision Test
Method	0.000	H ₀ rejected
Caracter Value	0.000	H ₀ rejected

Methods * 0.033 H_0 rejected
Character Value

Conclusion:

1. P-Value method = $0.000 < 0.05$, then H_0 (method has no effect on cognitive achievement) is rejected, meaning the method has effect on cognitive achievement.
2. P-Value character = $0.000 < 0.05$, then H_0 (character does not affect the cognitive achievement) is rejected, meaning character has effect on cognitive achievement.
3. P-Value interaction method and character = $0,033 < 0,05$, H_0 (no interaction method and character to cognitive achievement) rejected, meaning there is interaction method and character for cognitive achievement.

Anova advanced test or multiple comparative test is needed to know the characteristics of independent variables and dependent variables. In this study a double comparative test for cognitive learning achievement was performed on the all hypothesis. In the first, second, third, hypotheses there is need for a double comparative test, since the decision of H_0 is rejected.

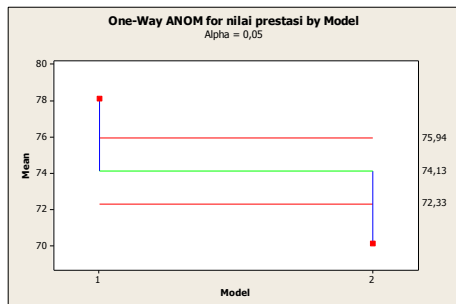


Figure 1. Further Test After ANOVA Effect of model on Achievement of Cognitive Learning

Based on the ANOM diagram, the influence of the Model on learning achievement shows that there is a blue line that crosses the red line. This shows that the model has a significant effect on learning achievement. The generative learning model as the first model has a greater effect on learning achievement compared to conventional models.

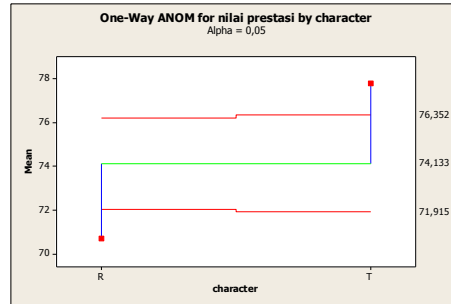


Figure 2. Further Test After ANOVA Effect of Character Value on Achievement of Cognitive Learning

Meanwhile, in ANOM diagrams the influence of character on learning achievement shows that there is a blue line that crosses the red line. This shows that the character has a significant effect on learning achievement. Students with low character scores obtain lower learning achievement compared to students with high character values.

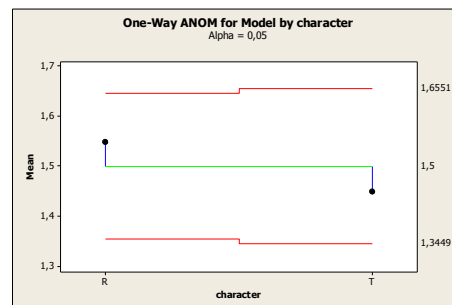


Figure 3. Further Test After ANOVA Effect of Model on Character Value

In the diagram above, there is no blue line that crosses the red line, this means that the influence of the model is not significant to the character value.

The purpose of this research is to know whether or not the difference of influence the use of Generative learning and conventional learning to student achievement, difference of influence of high and low learning character value to student achievement, interaction between model and character valua. The sample in this research is taken by cluster random sampling technique. The results of the draw was one class as the first experimental group (A class), subjected to Generative lerning and one class as the second experimental group (B class), subjected to conventional learning.

The results of the first hypothesis testing using anava two paths with unequal cells showed the P-Value value of 0.000, so H_0 (model has no effect on cognitive achievement) is rejected. This

shows that there is difference in the effect of using Generative learning and conventional learning in learning etnosains material on cognitive achievement.

In this study, the two learning methods used, namely Generative learning and conventional learning. The generative learning approach with analysis value method. Problem solving students are required to use a structured and systematic mindset through the appropriate stages of solving. In this research the steps of the solution are using Polya step guidance, that is understanding the problem, thinking plan, execution plan, and review. Learning using problem solving methods can develop and practice thinking skills as well as develop students' intellectual potential that includes problem-solving steps. Media in learning method of problem solving as a means to optimize information process and transformation between teacher and student and give stimulus to student to learn more meaningful and fun.

The result of the second hypothesis testing using anova of two path with unequal cells shows the value of P-Value of 0.000, so H_0 (character value has no effect on cognitive achievement) is rejected. Science education helps students understand natural phenomena, natural laws and underlying theories. This is the aspect of knowledge from science education. Second, science education helps students to understand and undergo the process or skills and the way science works. Third, science education helps students have and develop science learning attitudes such as honesty, discipline, thoroughness, objectivity, loyalty to data, endurance in solving difficult problems, and openly collaborate with others. (Dinatha, 2017)

The result of the third hypothesis testing using anova of two path with unequal cells shows the P-Value value of 0.033, so H_0 (model has no interaction on character) is rejected. From the advanced test post anova note that the influence of creativity on cognitive achievement is not significant. In creating a learning environment that integrates character building into classroom subjects, it requires proper support of pedagogical ability, materials mastering, learning methods mastering, and the availability of learning facilities and the ability to integrate character building into subjects that are applied in the classroom (Sardjijo, 2017). Three psychological theories deal extensively with the development of human values. They are cognitive development theory, social learning theory and psychoanalytic theory (Ryan, 1985) Cognitive Development Theory - Jean Piaget pioneered cognitive developmental approach and further Lawrence Kohlberg developed it. According to this theory human learner is a stimulus seeking entity rather than a creature who learns entirely through conditioning. Social Learning Theory Approach - According to social learning theorists, Bandura and Walters (1963).

CONCLUSION

The purpose of this research is to know whether or not the difference of influence the use of Generative learning and conventional learning to student achievement, difference of influence of high and low learning character value to student achievement, interaction between model and character value. The sample in this research is taken by cluster random sampling technique. The results of the draw was one class as the first experimental group (A class), subjected to Generative learning and one class as the second experimental group (B class), subjected to conventional learning. Three psychological theories deal extensively with the development of human values. They are cognitive development theory, social learning theory and psychoanalytic theory. According to this theory human learner is a stimulus seeking entity rather than a creature who learns entirely through conditioning.

REFERENCES

- Abdul Majid, et.al., (2012) *Pendidikan Karakter Perspektif Islam*, (Bandung: Remaja Rosdakarya,
- Abidin Yunus. (2015). *Pembelajaran Multiliterasi ; Sebuah Jawaban atas Tantangan Pendidikan Abad Ke-21 dalam Konteks Keindonesiaan* PT. Refika Aditama. Bandung.
- Dinatha, N.M. (2017). *Kesulitan Belajar Siswa dalam Mata Pelajaran IPA Terpadu*. Jurnal Pendidikan Dasar Nusantara. 2 (2): 214-223.
- Doctorow, M., Wittrock, M. C., & Marks, C. (1978). *Generative processes in reading comprehension*. *Journal of Education and Psychology*, 70(2), 109–118. doi:10.1037/0022-0663.70.2.109
- Gunawan H., (2012). *Pendidikan Karakter Konsep dan Implementasi* Bandung: Alfabeta,
- Lidyasari, A.T. (2014). *Pola Asuh Otoritatif sebagai Sarana Pembentukan Karakter Anak dalam Setting Keluarga*. Artikel. Yogyakarta: Universitas Negeri Yogyakarta
- Mulyasa. (2011). *Manajemen Berbasis Sekolah, Konsep, strategi dan Implementasi*. Bandung : PT Remaja Rosdakarya.
- Sardjijo and Ali H. (2017). Integrating Character Building into Mathematics and Science Courses in Elementary School.

- International Journal Of
Environmental & Science
Education7, VOL. 12, no. 6, 1547-
1552
- Syah M. (2005). *Psikologi pendidikan dengan pendekatan baru*. Bandung, Remaja Rosdakarya
- Tenriawaru E. P. (2016). *Implementasi Mind Mapping dalam Kegiatan Pembelajaran dan Pengaruhnya terhadap Pendidikan Karakter*. Prosiding Seminar Nasional Volume 01, Nomor 1
- Wigfield, A., & Eccles, J. S. (2002). *The development of competence beliefs, expectancies for success, and achievement values from childhood through adolescence*. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation*. A volume in the educational psychology series (pp. 91–120). San Diego, CA: Academic Press.
- Wittrock, M. C. (1974). *Learning as a generative process*. *Educational Psychologist*, 11(2), 87–95. doi:10.1080/00461520903433554
- Wittrock, M. C., & Alesandrini, K. (1990). *Generation of summaries and analogies and analytic and holistic abilities*. *American Educational Research Journal*, 27(3), 489–502