

Effect of Ability Grouping in Collaborative Learning and Locus of Control on Individual Achievements

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Abstract: *This research focus on effect of ability grouping and locus of control in collaborative learning on individual achievements. Investigated important forms of grouping are used in collaborative learning. Expected to be obtained form the appropriate grouping for collaborative learning. The results research showed that (1) there are differences in individual achievement significantly between high homogeneous group, low homogeneous group, and heterogeneous group in collaborative learning, (2) there are differences in individual achievement significantly between with an internal locus of control and external locus of control, (3) there is no interaction effect between ability grouping in collaborative learning and locus of control on individual achievement. Based on the results of descriptive statistical analysis showed that the individual achievement of high homogeneous group turned out to mean the highest, followed then a heterogeneous group, and the lowest low homogeneous group; the individual achievement who have an internal locus of control is higher than the individual achievement who have an external locus of control.*

Keywords: Ability grouping in collaborative learning, Locus of control, Individual achievements

1. Introduction

Efforts to determine the type of grouping would need a variety of considerations, including grouping in learning, so that these efforts can improve the effectiveness and efficiency. In connection with the arrangement of grouping applied in collaborative learning strategies, the group may set up one of them in a small group consisting of three members for each group based on ability.

Collaborative learning as one of strategy is basically intended restructurization or at least compensate for the shortcomings in the classroom learning traditionally centered on the learner, by dividing the class into groups or smaller teams to get interaction among learners in certain fields intensively and extensively [1]. Through continuous interaction and thorough study of the activities of the group are expected to bond formation, experience, and learn actively. Thus, collaborative learning environment emerged as a method of teaching a student-centered, focused on sustainability and development activities and performance meaningful. Collaborative learning environment to make improvements in teaching methods, the involvement of the learners become more active, as well as the improvement of knowledge and skills. Friedman [5] argued that collaborative learning in an effort to reduce the negative effects of using educational activities that are competitive, isolatif, apatif, and mass customization.

Reforming the collaborative learning environment is basically a way to form and manage groups that are expected to occur optimal interaction. The formation of groups based on personality attributes and capability of learners is the purpose of managing collaborative learning environment. Emphasis the importance of personality attributes the basis for the formation of the composition of the group members. The experts argue that the level of ability, attributes such as gender, ethnic background, motivations, attitudes, interests, and personality

(argumentative, extrovert, introvert, etc.) should be of concern in the process of group formation [10]. The learning conditions with appropriate member composition would allow increased optimization of the learning process. It is worth noting because a group can be formed in a state with the composition of the assortment. There is a group that if the terms of factor of capacity, then the composition of its members homogeneous conditions and some members of the group conditions of heterogeneous composition. The composition of a homogeneous group in a situation may be more optimal than the composition of a heterogeneous group. Otherwise, the composition of the heterogeneous group into a situation may be more optimal than the composition homogeneous group. The way to do is to set the initial conditions of a group, namely with the process of identification of learners properly. Differences in composition (homogeneous and heterogeneous) members of the group that is the focus of this study. Webb, Baxter, & Thompson [14] have raised the issue of equity in learning and social behavior in heterogeneous groups and the opportunity to learn from others, which suggested that all children must participate and learn regardless of race, gender, preferences, or level of learning achievement. Macintyre & Ireson [9], distinguishes grading based on merit or ability of learners, which is placed in a group of heterogeneous (mixed ability) or homogeneous (the same ability). Heterogeneous group by Kelly [7] called with mixed ability groups. Heterogeneous grouping allows the contribution of upper ability individual to lower ability. Thus the lower ability groups compelled come slightly upward. Although, in another way it could happen upper group weighed down or even interrupted its development by having to help or wait for the progress lower group. Likewise can occur if the group did not get help from the bottom of the group, so that it becomes increasingly lagging behind the progress, which in turn can cause stress or frustration.

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group, middle homogeneous group, and low homogeneous group. In the low group and middle group of homogeneous psychologically occur stability for the group conditions of the competition is low, so the mental pressure is low. However, the negative side is no less happening or push or pull to a higher level slightly above the group's ability, because in the group there are not members who have the high ability. While in high homogeneous group, in common equity capabilities. However, psychologically could happen the competition is high and occurs impetus to a higher level due to the ownership of upper abilities.

The individual achievements of all descriptively an effect that can be an indicator of the value of learning method under different learning conditions. Classification of learning methods include organizing strategies of learning, learning delivery strategy, and learning management strategies. While the classification of learning conditions include learning objectives, karakteristik field of study, learning problems, and characteristics of learners [4]. Characteristics of learners of which include: talent, learning motivation, prior knowledge, locus of control, multiple intelligences, and learning styles.

Locus of control is based on social learning theory. Social learning theory states that an expectation is an reinforcer for events or behaviors that are expected to significantly occur in the future. In other words, if the expectation of something happening, then these expectations into the reinforcer, and if expectations of something does not happen, then the expectation becomes debilitating. Individuals who believe in the behavior or characteristics determine or cause an event [15], or who tend to assume that got the position is good, have friends who are good, to get a promotion, and things are good more likely as a result of effort and initiative [11], then it is a characteristic of the person who controls internally-oriented behavior is usually called an internal locus of control. Conversely, someone who tend to be oriented externally, commonly called external locus of control, tend to believe that the results obtained by individuals regardless of his efforts, good fortune because of a state, good luck or good decisions as a result of the power of others [11], or those who believe that the strengthening of the underlying action is not entirely dependent on their own actions rather than being seen as luck, fate, chance, or forces beyond his control [15].

Obtaining the learning achievement can not be separated from the process through which learners are included in the learning process. The learning achievement can be obtained if there is interaction. Level of frequency of interaction possible can make a significant contribution towards the acquisition of the learning achievement. There are several strategies that can be used to improve the learning achievement. However, to determine the learning strategies need to be adjusted to the characteristics of learners. Grouping in collaborative learning is one of the learning strategies that can contribute to obtaining the learning achievement.

2. Material and Methods

This research was designed to use a quasi-experimental [2];

[3]. The design was chosen for the determination of research subjects in the treatment group or the control group can not be selected at random [13]. The independent variable in this study is ability grouping in of collaborative learning with three kinds of group composition, ie high homogeneous group, low homogeneous group, and heterogeneous group. Technique of collaborative learning used the reciprocal teaching. The students ability used in grouping be found from the academic potential test. Moderator variables considered in this study is the locus of control students were categorized into two: internal locus of control and external locus of control. The dependent variable is observed as a result of the independent variable and moderator variable is the individual achievements.

Data collection instruments such as questionnaires locus of control and learning achievement test. Instruments Locus of control was developed by adapting the instruments developed by Terry Pettijohn from Darden Business Publishing University of Virginia (A professor in the Psychology Department at Mercyhurst College in Erie, Pennsylvania, Terry Pettijohn developed this variation to Rotter's original Locus of Control survey). While learning achievement test instrument was developed by the researchers themselves. Both of these instruments have been through a validation test, has been qualified as a research instrument.

The research was conducted on students of Primary School Teacher Education Department, Teacher Training and Education Faculty, University of PGRI Ronggolawe, in Tuban, East Java, Indonesia. The state of research subjects is determined by two classes. Classes are used as research subjects were selected randomly from the students enter 2014 year. The treatment of experiment had was academic year 2015/2016 with social science subject matter. While students are grouped on high homogeneous, low homogeneous, and heterogeneous selected cluster random sampling.

The data analysis in this research include descriptive analysis and inferential analysis of data for the purposes of testing the hypothesis. Descriptive analysis is done to provide a description or illustration of the data collected without intent to generalize. Inferential analysis is used in order to test the hypothesis the researchers. To test the difference test was used Analysis of Variance (ANOVA). Statistical hypothesis testing performed at a significance level of 5% or $\alpha = 0.05$. All statistical analysis using SPSS 20.0 for Windows.

3. Result and Discussion

3.1 Differences in Individual Achievement between High Homogeneous Group, Low Homogeneous Group, and Heterogeneous Group in Collaborative Learning

F test results shows the significant value of 0.00. While LSD test results show that among high homogeneous group with low homogeneous group significance value of 0.00, the high homogeneous group with heterogeneous group significance value of 0.002, and the low homogeneous group with heterogeneous group significance value of 0,016.

Based on test results obtained F and LSD test all minor significance value of 0.05. This shows that there are significant differences between the individual achievement high homogeneous group with low homogeneous group, high homogeneous group with heterogeneous group, and low homogeneous group with heterogeneous group. Calculation of individual achievement data obtained a mean improvement from pre-test to post-test for high homogeneous group of 19.5, the low homogeneous group of 11.75, and heterogeneous group of 15.0. This means that an increase individual achievement highest in high homogeneous group and lowest in low homogeneous group.

3.2 Differences in Individual Achievements between Internal Locus of Control and External Locus of Control

F-test and LSD-test obtained significance value of 0.00 less 0.05. This shows that there are significant differences between the individual achievement who have an internal locus of control and external locus of control. Calculation of the individual achievement data obtained a mean improvement from pre-test to post-test for students who have an internal locus of control amounted to 17.75, while those with an external locus of control of 13.08. The individual achievement of students who have an internal locus of control better than the students who have an external locus of control. This means that the locus of control factor turned out to have a significant impact on the individual achievement.

3.3 Interaction effect between ability grouping in collaborative learning and locus of control on individual achievements

F-test the interaction between the grouping in collaborative learning and locus of control on student achievement values obtained a significance value of 0.444. Therefore the value of a significant value of $0.444 > 0.05$, then the decision was made to accept H_0 . Meaning, there is no interaction between the grouping in collaborative learning and locus of control on student achievement. Thus that the grouping in collaborative learning and locus of control together no effect on student achievement.

The results are consistent with the results Setiawan, Saragih, & Siagian [17] showing no interaction between learning approach (open ended and conventional) and locus of control on mathematical reasoning abilities of learners. Based on this research can be said that the difference between the ability of mathematical reasoning learners who have internal locus of control on learning open ended and with conventional learning is not significantly different than the difference between the ability of mathematical reasoning learner who has locus of control eksternal on learning open-ended and with conventional learning. Likewise, research results Karlimah [18] showing (1) there is no significant interaction between learning and the level of prior knowledge of mathematical students to the achievement of communication skills and problem solving mathematical, (2) there is no significant interaction between learning and the level of prior knowledge of mathematical students' achievement in student learning disposition.

Grouping in collaborative learning if it is associated with personal characteristics such as locus of control, do not necessarily have an impact on learning outcomes. As the results of this study illustrate that there is no interaction between the grouping in collaborative learning and locus of control in affecting students' achievement. That is, the grouping of factors and factor locus of control in collaborative learning are not mutually influence on learning achievement. In collaborative learning, forming a group is not affected by the characteristics of locus of control. Likewise, consider the characteristics of locus of control learners in collaborative learning is not affected by their grouping. The lack of interaction between the grouping and the locus of control in collaborative learning can be caused by the process of association and dissociation of the weak so that interaction becomes insignificant.

4. Conclusion

Based on the discussion of the results of the study can be drawn conclusions as follows:

4.1 The learning achievements between high homogeneous group, low homogeneous group, and heterogeneous group in collaborative learning differ significantly.

Evidently, high homogeneous group shows the value of the learning achievement of the highest, while the low homogeneous group shows the value of the lowest learning achievement.

4.2 The students learning achievement between who have an internal locus of control and external locus of control are significantly different. The students learning achievement between who have an internal locus of control proved to be better than who have an external locus of control.

4.3 No interaction effect between grouping in collaborative learning and locus of control on the students achievement.

References

- [1] Bruffee, K. 2000. Collaborative Learning: Higher Education, interdependence, and the authority of knowledge. (2nd Edition). Baltimore: John Hopkins University Press.
- [2] Creswell, J.W. 2009. Research Design. Qualitative, Quantitative, and Mixed Methods Approaches. 4th Ed. Thousand Oaks, CA: SAGE Publications. Inc.
- [3] Creswell, J.W. 2012. "Educational Research". Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 4th Ed. Boston, MA: Pearson Education, Inc.
- [4] Degeng, I Nyoman S. 2013. Ilmu Pembelajaran. Klasifikasi Variabel untuk Pengembangan Teori dan Penelitian, Bandung: Aras Media.
- [5] Friedman, T. 2006. Developing a culture of inquiry for equity: One school's story. In Working toward equity.. Berkeley, CA: National Writing Project.
- [6] Hair, J.,F. Jr., Black, W.C., Babin, B.J., Anderson, R.E. & R.L. Tatham, R.L. 2006. Multivariate Data Analysis, (6th Edition). Upper Saddle River, N.J.: Person Prentice Hall.
- [7] Kelly, A.V. 1978. Mixed-Ability Grouping. Theory and

- Practice. 2nd ed. London: Harper & Row Ltd.
- [8] P. Kutnick, P., Sebba, J., Blatchford, P., Galton, M. & Jo Thorp, J. 2005. The Effects of Pupil Grouping: *Literature Review*, Retrieved from www.dfespublications.gov.uk
- [9] Macintyre, H. & Ireson, J. 2002. Within-class Ability Grouping: placement of pupils in groups and selfconcept. *British Educational Research Journal*, 28 (2), 249-263
- [10] Martin, E. & Paredes, P. 2004. Using learning styles for dynamic group formation in adaptive collaborative hypermedia systems. *In Proceedings of the First International Workshop on Adaptive Hypermedia and Collaborative Web-based Systems (AHCW 2004)* p. 88-198 available at <http://www.ii.uam.es/~rcarro/AHCW04/MartinParedes.pdf>
- [11] Reigeluth, C.M. 1983. *Instructional-Design Theories and Models*, New Jersey: Lawrence Erlbaum Associates Publishers.
- [12] Rotter, Julian B. 1966. Generalized Expectancies for Internal versus External Control of Reinforcement. *Psychological Monographs: General and Applied*. 80 (1). (Whole No. 609). Retrieved from: <http://www.soc.iastate.edu/Sapp/soc512Rotter.pdf>
- [13] Tuckman, B.W. 1999. *Conducting Educational Research*, (5th Edition). (Online). Sea Harbour Drive, Orlando: Harcourt Brace & Company.
- [14] Webb, N.M., Baxter, G.P. & Thompson, L. 1997. 'Teachers' Grouping Practices in Fifth Grade Science Classrooms". *The Elementary School Journal*, 98, 2, p. 91-113.
- [15] Yemem, G. & Clawson, J.G. 2003. *The locus of control instrument*. Retrieved from: <http://www.wlc.edu/uploadedFiles/success/SurveyLocus.pdf>
- [16] Terry Pettijohn's Locus of Control - University of Virginia http://faculty.darden.virginia.edu/clawsonj/General/SEL_F_ASSESSMENT_TOOLS/OB-786_Locus_of_Control.pdf
- [17] Karlimah. 2010. Kemampuan Komunikasi dan Pemecahan Masalah Matematis Mahasiswa Pendidikan Guru Sekolah Dasar melalui Pembelajaran Berbasis Masalah. **Jurnal Pendidikan**. Vol. 11 (2), p. 51-60
- [18] Setiawan, Saragih, S., & Siagian, P. 2012. Tanpa Tahun. Pengaruh Pendekatan Pembelajaran dan *Locus of Control* terhadap Kemampuan Penalaran Matematika Siswa SMP. *Jurnal Pendidikan Matematika PARADIKMA*. Vol. 5 (2), p. 151-164