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Research Paper

Cooperative Learning Models having better potency to improve Social Attitude of Multiethnic Senior High School Students at Samarinda, Indonesia

Didimus Tanah Boleng[1]* • A. Duran Corebima[2]

[1]Faculty of Teacher Training and Education, University of Mulawarman, Indonesia.
[2]Faculty of Natural Science and Mathematics, State University of Malang, Indonesia

*Corresponding author. E-mail: didimus.tanahboleng@yahoo.com. Tel: 0541-206138, 081217525404.

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Abstract. A quasi experimental research was conducted on the 11th grade science students of Multiethnic Senior High School in Samarinda. Samarinda is a destination of job seekers who come from almost all regions of Indonesia, so its population ethnicities is very heterogenous. The aim of the study is to uncover which learning models have better potency to empower student social attitudes of all ethnicities involved in class. The samples are students of 11th grade of Natural Science class of senior high school. The number of samples is 132 students. The research instrument is a questionnaire for measuring the student social attitudes. All items in the questionnaire are valid and reliable (range of Pearson Correlation value = 0.341 to 0.701, and Cronbach alpha value = 0.585 to 0.819). The learning models applied were Cooperative Script, Think-Pair-Share, combination of Cooperative Script and Think-Pair-Share, as well as conventional learning. The ethnicities involved are *Javanese, Bugis, Banjar*, and *Kutai*. This research was conducted in odd semester of academic year 2012/2013. Six classes used were equivalent based on the National Final Examination score. Data analysis was carried out by factorial ANCOVA ($p < 0.05$). Related to the interaction between the learning model and the ethnicity, result of posthoc analysis showed that combination of Cooperative Script and Think-Pair-Share learning model is suitable to improve the social attitudes of the students of the four ethnic groups. Similar research needs to be done in the future to get more information about this issue.

Keywords: Cooperative script, think-pair-share, social attitude, multiethnic students.

INTRODUCTION

Social attitudes of senior high school students in Samarinda are quite diverse. These facts can be seen when the students express their opinions when doing team-work as well as when the learning situations are dominated by the teachers lecturing. Some students can accept their peers' opinion, but some cannot.

Such social attitudes of the senior high school students in Samarinda as mentioned above, are supported by the finding of initial survey and interviews carried out on seven Biology teachers of 4 senior high schools in Samarinda. It was revealed that many students, especially of the 11th grade of Natural Science Class could not accept their peers' opinions well. The students grouped themselves based on their ethnicities, inside and outside the class. It was found too that students did not make enough interaction with other students during learning; they could only sit, listen, and take note individually because the teachers still used conventional learning dominated by lecturing (the finding of the surveys in the early of January 2012).

In the initial surveys and interviews carried out on seven Biology teachers, it was revealed that all of them had not understood innovative learning models like cooperative learning models including Cooperative Script type (CS), and Think-Pair-Share (TPS). These learning models allow the students to work in small groups (in pair

with their peers). However, there were Biology teachers who could mention certain cooperative learning models, though they did not comprehend the steps of the learning. These Biology teachers still only used conventional learning model in their biology classes.

Based on the real observation result in the initial survey on ten senior high schools in Samarinda (September 2011 and January 2012), it was found that the biology learning process at the 11th grades did not allow students to have some social interactions. Biology teachers still used conventional learning pattern monotonously in their learning activity. The learning situations became uncomfortable and dominated by lecturing.

The learning processes at the 11th grade of Science Class in Samarinda are influenced by various learning factors; one of those factors is the student's characteristic. The students' characteristics are constructed by their ethnical backgrounds. The students' ethnical conditions of senior high schools are influenced by resident ethnical conditions of certain areas.

Samarinda, just like other regions in East Borneo, is a destination place for the jobseekers, from all over Indonesia, and even from other countries. East Borneo is a new developing industrial region as well as an interesting destination place of transmigration; so Samarinda is very heterogeneous related to ethnic, religion, culture, social and economic status, etc. Several ethnics stayed in Samarinda, are such as *Javanese, Banjar, Bugis, Kutai, Dayak, Batak, Ambonese, Manado, Chinese, Buton, Maduranes, Sundanese. Minang, Palembang, Aceh, Toraja, Palu, Timor/Flores, Balinese, Lombok, Betawi, Buton,* and India. It was assumed that these ethnic diversities would influence the process and outcomes of learning (Maasawet, 2009).

Based on the initial survey (September 2011) at ten senior high schools in Samarinda about the ethnicities of 10th grade students, it was known that their ethnicities were quite diverse. Among 1,670 students surveyed, there were 4 ethnicities dominating; *Javanese* (33.8%), *Banjar* (17.7%), *Bugis* (7,2%), *Kutai* (10,7%) and others (30,6%) such as *Sundanese, Maduranese, Dayak, Chinese, Manado, Minang, Palembang, Batak, Aceh, Toraja, Palu, Ambonese, Timor/Flores, Balinese, Lombok, Betawi, Buton*, and India.

The multiethnic condition, like in Samarinda, theoretically will cause social frictions, although only at a small scale. This condition must be well-managed, in order to minimize bigger frictions among students in schools as well as among people in large scale.

One of the efforts to overcome the potential risk of social frictions is related to education/learning in school. Various learning models enabling the development of student social attitudes should be implemented in education/learning, including biology learning at 11th grade science class in Samarinda.

Kadir et al. (2005) had ever studied the influence of cooperative learning model on student at multiethnic schools in Malaysia. Certain school or class could consist of multiethnic students such as of local ethnic and immigrant ethnics who came to seek for jobs in Malaysia. Kadir et al. (2005) had reported that there were significant differences between cooperative learning strategies and traditional learning on the sub-domain of 'alienation'. Muraya and Kimano (2011) reported that student groups treated by cooperative learning model had their average biology scores higher than those student groups treated by conventional learning model.

Kinds of cooperative learning model which could improve student social attitudes are CS and TPS. Some characteristics of CS learning model are: (1) to train student to listen accurately, (2) to make every student getting role, and (3) to train students in order to reveal others' mistakes verbally (Hamdani, 2011). TPS learning model will create joyful learning and drive the students to have a team work. Some characteristics of this learning model are: (1) to allow students to working independently or in collaboration with others, (2) to optimize students' participations, (3) to give students more opportunities showing their participations towards others (Huda, 2011).

It is very important to uncover information by research related to the effect of CS and TPS learning models as well as their combination on student social attitudes in Samarinda. Cooperative learning models have been proved to having better potency to empower student social attitudes especially of those multiethnic students in Samarinda, and must be recommended soon to be implemented by the teachers in their learning, including biology learning.

Research question

Among the learning models of CS, TPS, combination of CS+TPS, and conventional learning, which one has better potency to improve student social attitudes of all ethnicities of 11th grade students of Science Class in senior high schools at the city of Samarinda, Indonesia?

Aims of the research

The aim of this study is to uncover which learning models type of cooperative learning has better potency to improve the student social attitudes of all ethnicities.

Benefits of the research

The findings of this research are expected to be: (1) a reference for the teachers of senior high schools to select which cooperative learning models are suitable to improve social attitudes of the multiethnic students, (2) a consideration for the Education Department in Samarinda to incorporate multicultural education into the curriculum

of primary and secondary educations.

LITERATURE REVIEW

Walgito (2003) and Ahmadi (2009) had said that every gesture has three aspects: (1) cognitive aspects (conceptual component) associated with symptoms of mind to know, (2) affective aspects (emotional component), involving intangible feelings such as fear, envy, sympathy, antipathy, and so on to particular objects, and (3) conative aspects (behavior components or action component), tangible process tendency/inclination to do something about the object, for example: the tendency to give aid, keep away and so on. Kocak (2008) had stated that cooperative learning models were more effective than the classical models in decreasing student loneliness and social anxiety levels and in increasing their individual perceived happiness levels. Ciark et al. (2011) had suggested that while some of the antecedents are generic, some might depend on varying cultures values, prior experiences, and linguistic levels, and that, therefore, tertiary lectures need to use a range of strategies to modify the effect in diverse groups.

Cooperative Script (CS) learning model is a type of cooperative learning models. Schank and Abelson (1977) said that CS learning was learning interactions that regulate social life of students as illustrated by the students with their environment as individuals, member of families, member of communities as well as member of wider society. According to Brousseau et al. (1986), CS learning was "learning contract between teachers and students as well as among students about ways to collaborate". Dansereau et al. (1988) explained that the steps in the CS learning were as follows: (1) the teacher puts the students to pairs, (2) the teacher distributes reading materials for each student to be read in order to make a summary, (3) teachers and students determine who first acts as speaker and who acts as a listener, (4) the speaker reads out the summary as complete as possible, by indicating main ideas in summary, while the listener shows if the main ideas are incomplete, (5) student roles are exchanged, (6) teacher helps students to formulate conclusions. Warouw (2009) had reported that characteristics of CS learning model allowed students of high academic and low academic ability to interact in order to find out the answers related to the teacher's questions and to correct the concepts each gained by reading and summarizing. This learning is very useful for heterogeneous students by emphasizing the interaction in the groups.

Think-Pair-Share (TPS) learning model is a type of cooperative learning developed by Frank Lyman of the University of Maryland in 1981. TPS learning model follow these steps: students think the problem proposed by the teacher to the class, students are asked to think of an answer of their own, then student pairs up with his partner to discuss the results of his thinking about the problem proposed by the teacher to reach an answer, and finally the teacher asks the students to share their results to the entire class (Slavin, 2005). Miranda (2008) had reported that TPS learning model matched with the characteristics of Central Kalimantan students, although students came from various ethnic groups; they could work together to solve problems. According to Miranda (2008), the implication of these findings was that TPS learning model could enhance the student metacognitive ability, as well as creative thinking skills, cognitive abilities, and also enable students to learn social skills as well as develop their democratic attitudes. In addition to learning models used by teachers in the classroom, the characters of each student ethnicity also affect student learning outcomes. Utami (2013) had reported that the use of TPS learning model seemed affecting three domains of student learning which are affective, cognitive, and psychomotor domain. Mustapha (1985) had stated that unity may occur under any same group status in pursuit of common goals, and intergroup cooperation.

There are four dominant ethnic students at senior high school in the city of Samarinda, which are *Javanese, Bugis, Banjar* and *Kutai*. Suseno (2003) had said that the typical characters of *Javanese* were harmonious and respectful. Those were in accordance with Nurani et al. (2012). Wijayanti and Nurwianti (2010) had reported that there were five main characters of Javanese which were grateful, generous, coexistent, honest and loyal. Idrus (2012) had also stated that the *Javanese* attitude were timorous, bashful, as well as reluctant. Suparto et al. (2005) had stated too that the *Javanese* ethnic had stereotype of polite and respectful. Maasawet (2009) had reported that mean score of social attitudes of *Javanese* ethnic students was not different significantly with *Banjar* ethnic and *Kutai* ethnic, but different with *Bugis* ethnic and *Dayak* ethnic students. Social attitudes of *Javanese* ethnic explained that *Javanese* ethnic students were able to change their social attitudes after learning. Javanese ethnic were known having characteristics of friendly, resilient, and high motivation. *Javanese* ethnic characteristics allowed *Javanese* students could interact well with others in learning.

Banjar ethnic, local ethnic in South Kalimantan is an ethnic in the city of Samarinda. *Banjar* ethnic has character of mutual respect for others, obedient to religion, chummy, and always open. Sonhadji (2012) said that *Banjar* ethnic philosophy was: "go on Hajj to raise the status of the family"

Associated with *Bugis* ethnic, Alimuddin (2006) had said that the *Bugis* ethnic character was very hard and upheld the honor. Sonhadji (2012) added that the *Bugis* ethnic life philosophy was: "we need brave people". Achmad (2012) reported that related to the culture concept of *siri* contributing to character building of the *Bugis* ethnic, it was found that the cultural principles were

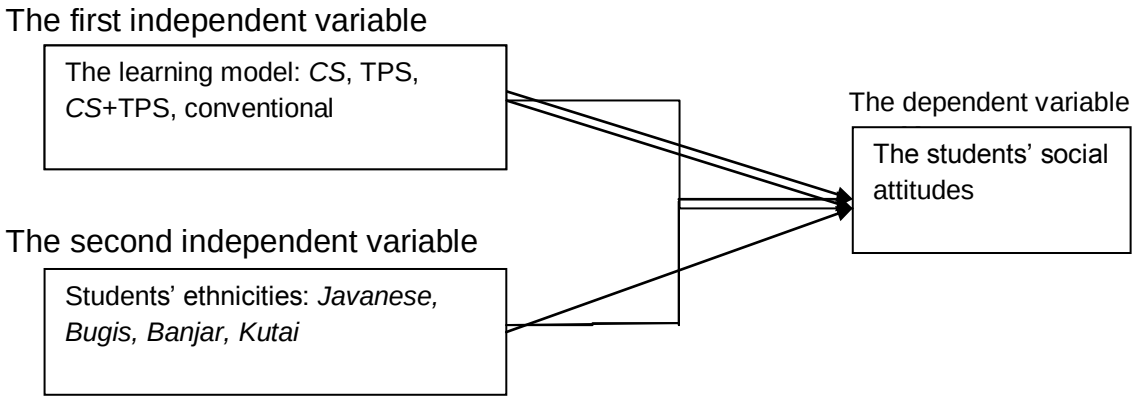

Figure 1. Relationship between independent and dependent variables.

embodied in the six principles: (1) identity strengthening, (2) courage and self-image, (3) dignity and human existence, (4) courtesy and ethics in social interaction, (5) solidarity and mutual assistance, and (6) honesty, responsibility and accountability.

Kutai ethnic according to Ibrahim (2009) was a local ethnic in East Kalimantan. Maasawet (2009) said that the character of *Kutai* ethnic was friendly, honest, and having high spirit of mutual cooperation and respectful for guests or outsiders.

MATERIALS AND METHODS

Research type and design

This research is a factorial quasi experiment. The design of this research is non-equivalent pretest-posttest control group design, consisting of 2 factors (4 × 4). The first factor is learning model (consisting of 4 learning models: conventional, CS, TPS and the combination between CS + TPS). The second factor is students' ethnicities consisting of *Javanese, Bugis, Banjar* and *Kutai*. The dependent variable of this research is student social attitudes. The relationship between independent and dependent variables of this research can be seen in Figure 1.

Population and sample

The population of this research is all of 11^{th} grade students of Science Class in odd semester, academic year 2012/2013. The students come from both private and public schools in Samarinda.

The determination of quasi experimental class is based on minimum number of three students per-ethnic due to the 4 × 4 factorial quasi experimental design. Six classes of experimental group had been detected based on equivalence test related to National Examination Score of Junior High School. Those six classes are of: SMA Negeri 2 (Science Class 4 and 5), SMA Negeri 3 (Science Class 4), SMA Negeri 5 (Science Class 2) and SMA Negeri 8 (Science Class 2 and 3).

The number of students of each ethnics used in each learning model is around and not over than ten. The number of students used in each learning model is 36 in CS, 38 in TPS, 30 in CS+TPS, and 28 in conventional learning. Therefore the total number of students used is 132.

Data collection procedures

The instrument used to measure the student social attitudes is questionnaire. The name of instrument is Questionnaire of Student Social Attitude. All of the items in questionnaire are valid and reliable (range of Pearson Correlation value = 0.341 to 0.701, and Cronbach alpha value = 0.585 to 0.819).

Data are collected by distributing questionnaire to all student sample to measure student social attitudes. The questionnaire is adopted with some modifications from Maasawet (2009). The number of questions is 15 items based on Likert scale of 0 to 4.

The attitudes were measured before and after conducting the experiment. Data collection procedures are: (1) prior to the treatment, the social attitudes questionnaire are given to all sample student to be answered, (2) the questionnaire is collected back directly, (3) after that, all the sample students in the class already determined, are treated by applying certain types of learning models of cooperative learning, (4) at the end of the study (at the end of semester), students answer the same questionnaire administered prior to treatment. The data of student social attitudes are summarized and analyzed.

Analysis of data

The research hypothesis is tested by ANCOVA test

Table 1. Statistical descriptive mean score of student social attitude score on pre-test and post-test.

Learning model	Ethnic group of students	Pre test		Post test	
		Mean score	N[a]	Mean score	N
TPS	*Banjar*	43.3000	10	52.7000	10
	Bugis	48.9000	10	55.6000	10
	Javanese	46.1000	10	53.9000	10
	Kutai	44.8750	8	52.5000	8
	Total	45.8421	38	53.7368	38
CS	*Banjar*	48.9000	10	50.5000	10
	Bugis	48.8000	10	52.7000	10
	Javanese	47.5000	10	50.1000	10
	Kutai	46.6667	6	56.0000	6
	Total	48.1111	36	51.9167	36
CS+TPS	*Banjar*	48.1667	6	55.3333	6
	Bugis	51.6250	8	56.8750	8
	Javanese	48.6000	10	53.6000	10
	Kutai	51.5000	6	58.3333	6
	Total	49.9000	30	55.7667	30
Konventional	*Banjar*	50.7778	9	45.2222	9
	Bugis	48.0000	5	42.2000	5
	Javanese	47.8000	10	41.2000	10
	Kutai	49.0000	4	52.0000	4
	Total	48.9643	28	44.2143	28
Total	*Banjar*	47.6571	35	50.6000	35
	Bugis	49.3939	33	53.0000	33
	Javanese	47.5000	40	49.7000	40
	Kutai	47.6667	24	54.7500	24
	Total	48.0455	132	51.6818	132

Note: [a] = N is Number of students

($p < 0.05$). Posthoc analysis is conducted by Least Significant Difference (LSD) test. All the statistical tests are carried out by SPSS version 17 for Windows.

RESULTS

Research data

Social attitude scores of students at pre-test and post-test are relatively different among ethnic groups related to each learning model. Mean scores of student social attitude in each student's ethnic group of each learning model related to pre test and post test, can be seen in Table 1.

Results of data analysis

All the independent variables and their interaction have very significant influences on the students' social attitudes (Table 2). The computation result of size effect related to ANCOVA tests is presented Table 3. Based on Table 3, it can be concluded that the size effect of the learning model to social attitude classified as large, while the size effect of the ethnicity as well as the size effect of their interaction classified as medium. Posthoc analysis of interaction effect is presented in Table 4.

Based on Table 4, it can be explained that social attitude scores related to the combination group of CS+TPS learning model with those ethnics of *Kutai*, *Bugis* and *Banjar*, are same to each other and highest. On the other hand, social attitude scores related to the combination group of CS+TPS with those ethnic of *Bugis, Banjar* and *Javanese* are same to each other. In this case, it can be said that social attitude scores of students related most combination group of CS+TPS learning model with all ethnic groups of students are similar to each other and highest compared to those of the other

Table 2. Effect of learning model, ethnicities, and their interaction on the students' social attitude.

Source	Type III sum of squares	d.f[a]	Mean squares	F[b]	Sig.[c]
Corrected model	2.979.845	16	186.240	20.859	.000
Intercept	2.007.158	1	2.007.158	224.801	.000
Pre SS	78.006	1	78.006	8.737	.004
Model	1.730.755	3	576.918	64.615	.000
Etnis	357.390	3	119.130	13.342	.000
Model*Etnis	333.613	9	37.068	4.152	.000
Error	1.026.791	115	8.929		
Total	356.580.000	132			
Corrected Total	4.006.636	131			

Sources: Result of data analysis. Note: [a] = d.f is degree of freedom; [b] = F is F-value (F = Fisher); [c] = Significance

Table 3. Computation result of size effect for ANCOVA tests.

Source	Eta squared (η^2)	Size effect
Learning model	0.522	Large
Ethnic	0.184	Medium
Learning model-ethnic	0.174	Medium

Table 4. Result of LSD Posthoc analysis of the interaction between learning model and ethnic on student social attitudes.

Learning model	Corrected average	Notation (LSD[a] =2.958)
Conv. *Javanese*	41.243	a
Conv. *Bugis*	42.208	ab
Conv. *Banjar*	44.740	b
CS *Javanese*	50.196	c
CS *Banjar*	50.349	c
Conv. *Kutai*	51.832	cd
CS *Bugis*	52.567	de
TPS *Kutai*	53.059	de
TPS+CS *Javanese*	53.502	ef
TPS *Banjar*	53.537	ef
TPS *Javanese*	54.243	ef
TPS+CS *Banjar*	55.312	fg
TPS *Bugis*	56.449	fg
CS *Kutai*	56.243	fg
TPS+CS *Bugis*	56.243	fg
TPS+CS *Kutai*	57.724	g

Sources: Result of the Data Analysis. Note: [a] = LSD is Least Significant Difference.

learning models applied.

DISCUSSION

Based on the interaction posthoc analysis, it is uncovered that the average score of the student social attitude of the combination group of TPS+CS and *Kutai*, which is 39% higher than average score of the combination group conventional learning and *Javanese* ethnic (the lowest). All the combination groups of conventional learning with all ethnicities have the lowest student social attitude.

During learning process dominated by lecturing activity of the teacher, the students only listen and take notes individually. They really have few chances to interact with their peers, so every student is alienated to each other. This fact agrees to the research of Kadir et al. (2005) that there was a significant difference between cooperative

learning models and the traditional learning related to subdomain of alienation. Therefore, teachers need to use more cooperative learning in order to increase social contact among students.

There are no significant difference of social attitude scores between the combination group of CS-*Javanese* and CS-*Banjar*; these scores are lower than the scores of CS-*Bugis* as well as of CS-*Kutai*. Therefore, we can see that CS learning model is not suitable to improve the social attitudes of *Javanese* and *Banjar* students. These findings reinforce previous findings by Warouw (2009) that the CS learning model allows students to interact in the heterogeneous group. On the other hand, according to our opinion the heterogeneity of the students needs to be considered based on the aspect of the ethnic character of the students in the group. *Bugis* ethnic character likes to emphasize ethics in social interaction, honest, responsible (Achmad, 2012), and *Kutai* ethnic characters like honesty, and have a high spirit of cooperation (Maasawet, 2009), thus allowing students of both ethnic groups to interact with other students in the learning steps of CS, especially in the implementation step where students correct the error of student partners' summary politely. On the other hand, the *Javanese* ethnic characters are coward, bashful, respectful (Idrus, 2012), and *Banjar* ethnic characters are religious (Sonhadji, 2012), thus allow students of both ethnic groups to be less brave and harmonious in group cooperation at CS learning.

The steps of CS learning model allows the students to summarize their assignments independently, train their listening skill and their accuracies, give and accept others' opinion, as well as have a habit of teamwork between the student pairs. Huda (2013) stated that CS learning model steps can help students to respect their friends of smart students as well as of not too smart students, and also to accept the diversities among them.

The social attitude score of the combination group of TPS *Kutai* is the lowest compared to the scores of the other combination groups. Therefore, we can see that TPS learning is suitable to improve the social attitudes of *Bugis, Javanese* and *Banjar* students, and not of *Kutai* students. The steps of TPS learning model allow students to think how to solve their problems/assignments individually, to work together in peer groups, to give and to accept opinions from others, to share with each others in class conducted both during peer discussion phase, as well as during share phase. TPS learning characteristics would give students greater opportunities to have more interaction with others, compared to CS learning model as well as to the conventional learning.

Kutai ethnic characters likely friendly, honest, and having a high spirit of cooperation, allow students to interact with other students in the step of thinking independently, discussion in pairs, and sharing with other groups in the TPS learning. This condition is caused by the learning steps of TPS that do not allow students to summarize. On the other hand, summarizing is suitable for students of *Kutai* ethnic having the character of being friendly and honest in correcting the errors of the other students' summary as uncovered in the learning steps of CS; but summary is very useful in collaborative activities at later steps of the TPS learning. These findings are in accordance with the previous findings by Miranda (2008) and Rambitan (2012), that the TPS learning is suitable for all characters of the students' ethnics. Rambitan (2012) had reported on the results of research on social attitudes of junior high school students at Samarinda city, that the average percentage increase of student social attitudes is highest in TPS learning.

The social attitude scores of the combination group of CS+TPS-*Kutai*, CS+TPS-*Bugis*, and CS+TPS-*Banjar* are highest compared to the scores of other combination groups. The CS+TPS learning is suitable to improve the social attitudes of the students of the four ethnic groups. Therefore, it is suggested for the biology teachers to implement the CS+TPS learning in the classes consisted of students of *Kutai, Bugis, Banjar, Javanese*, and may be other ethnic in order to improve their social attitudes.

Steps of CS+TPS learning allows students of *Javanese, Bugis, Banjar* and *Kutai* ethnic to interact better in the working group. Students can start their learning process by summarizing the subject matter and think independently, followed by working in small groups (pairing), and terminate by sharing with the whole group (sharing). This learning atmosphere allows students of different ethnic backgrounds, will interact better within or among groups. Nevertheless, this findings are inconsistent with the previous findings by Maasawet (2009) related to the social attitudes of junior high school students in cooperative learning models at Samarinda city, saying that the social attitudes of students of *Kutai* ethnic and *Banjar* ethnic does not differ, but differ with the social attitudes of students of *Bugis* ethnic and *Dayak* ethnic. The difference of this research results related to the students' social attitudes may be caused by difference of students' psychological and academic ability between junior high school and senior high school student.

The CS+TPS learning model steps allow students to think and to summarize learning material assigned to interact with the students in pairs, to train their listening skill, to improve their accuracies, to give and to accept opinions, to respect others, as well as to share with others in class. This learning characteristic allows students to have more social contacts with others, compared to conventional, CS, and TPS, which could be done in peer group phase and share phase. These facts agree with Slavin (2005) who stated that at structured team learning model, every student would have chances to give their substantial contribution for their team and the position of the team member is equivalent.

Therefore, in order to manage learning, teachers should know the characteristics of their students' such as

social-economic background, ethnicity, gender, intellectual level. Thus the teachers could choose and apply learning model which allow all students' of various ethnic groups to develop their whole potency in interacting with other students. Agatha (2012) stated that efficient and productive teacher could create situations where the students could learn by their own unique ways. The class was arranged not to bury their personal identities, but to expand their opportunities to have self-actualization.

CONCLUSIONS

The interaction between learning model and ethnicity influenced significantly social attitudes of the students. CS+TPS learning model has greatest as well as same influence on students' social attitude, of all ethnicity. Therefore, CS+TPS learning model is suitable to improve the social attitudes of students of the four ethnic groups.

RECOMMENDATIONS

Some suggestions can be proposed: (1) the government of Samarinda city should consider to implement multicultural education in the curriculum of senior high school, (2) the biology teachers of senior high school may implement the CS+TPS learning in their biology learning to improve students social attitudes, especially in multiethnic classes, (3) further research carried out should involve more student ethnicities, in order to find out which learning model suitable to improve the social attitudes.

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