



Increasing Student's Character Values by Utilizing Combination of Team Accelerated Instruction (TAI) and Numbered Heads Together (NHT)

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Abstract

This research aims to obtain empirical evidence of the effectiveness of combining Team Accelerated Instruction (TAI) and Numbered Heads Together (NHT) learning strategies in teaching Investments to improve students' discipline, creativity, diligence, and participation. Population was students who enrolled in Intermediate Financial Accounting 2 course in Economics Education Department, Economics Faculty of Universitas Negeri Semarang. The sample of the research consists of 48 students. Data were collected by using observations, interviews, and documentation. The stages of the research include planning, implementation, monitoring and evaluation, analysis, and reflection. Findings show that the combination of TAI and NHT does not improve students' learning outcomes even though it manages to increase students' pre-test score in learning Investments as well as their participation in classroom.

How to Cite

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INTRODUCTION

Character education provides views regarding various life values, such as honesty, intelligence, caring, et cetera. Character education is now the core of education. In addition to becoming part of young generation's moral development, it is hoped that education character can be the foundation in succeeding *Indonesia Emas 2045*.

Based on the frequent cases resulted from the lack of national characters as well as the allegation of teachers' lack of understanding about character education because they did not get courses about character education during their study in university, the implementation of character education cannot be delayed. The result of implementing character education is important for college students, so that when they become teachers, they have the knowledge, comprehension and ways to integrate character education in the school subject they're going to teach in the future (Santoso, 2016).

Learning process plays a significant role in education because learning interaction is the focal point of education that can be a means of structured and organized knowledge transfer between teachers and students. Therefore, the students will fully understand the materials being taught by the teacher. In a good learning process, teacher as the manager of learning environment must be able to create a comfortable and fun classroom atmosphere as well as developing students' positive character values.

Intermediate Financial Accounting 2 is a unit of study in Faculty of Economics of Semarang State University. This unit discusses and analyzes components on balance sheet, specifically passive, including liabilities and equity.

Intermediate Financial Accounting 2 is a comprehensive unit. Based on field observations, most students struggle when they are asked to make a journal of transactions, especially comprehensive transactions on Investments. Investments is a key topic that centers on company's action to allocate their money or resources in other companies. The learning process of said key topic last year showed an underwhelming result. This was caused by students' suboptimal comprehension of the materials as shown in Table 1.

Most students have faced challenges in understanding the material. This problem arised from the fact the the key topic about Investments is highly complex and needs in-depth analysis. Not to mention that the teachers of this unit carried out the learning process by merely giving lectures and structured assignments. Based on

end of term evaluation, it was found that 22.5% students said the temperature of class was too hot and, as the result, lowered their concentrations; 17.5% students stated that the lectures were boring and required little to no involvement from them; 25% students expressed that the materials were too much, the other 35% said that the teachers were lack of variations in terms of teaching methods. Clearly, homogenous teaching methods was the cause of the students' poor results.

Table 1. 2013/2014 Mid-Term Test Results Intermediate Financial Accounting 2

Mark	Grade	Number of Students
86 – 100	A	7
81 – 85	AB	4
71 – 80	B	6
66 – 70	BC	6
61 – 65	C	8
56 – 60	CD	5
51 – 55	D	3
< 50	E	11
Total Students		50

Source: Processed data (2014)

In order to make students comprehend the key topic better, it is important to determine the suitable teaching methods the teacher is going to apply. Utilizing the right teaching methods that are suitable with the material can make the learning process becomes more interesting, and in turn, improving students' discipline, creativity, diligence, and participation. The success of a teacher in a learning process doesn't depend on their ability to develop the knowledge, but to create a meaningful and engaging learning environment. Teachers are expected to train their students to be future teachers in both vocational and academic schools as well as being able to deliver the materials they receive at university. According to Degeng as cited in Sugiyanto (2007), two things that make a subject interesting for students are: first, the subject itself, and second, the teacher's teaching techniques.

The observation conducted by the writers last year revealed that one of the challenges teachers face is students' lack of discipline, creativity, diligence and participation during learning process. Students didn't submit their assignments on time, were unwilling to do exercises in the classroom, and tended to copy their friend's work. In addition, given the opportunity, only certain students willingly answered questions in

front of the class.

Utilizing the right teaching method is necessary to tackle this situation. One of the methods that can be used is the combination of Team Accelerated Instruction (TAI) and Numbered Heads Together (NHT) learning strategies. This method is expected to create a more energetic and interesting learning atmosphere which, as the result, will help students understand the materials thoroughly. Students are supposed to be more disciplined, creative, diligent, and active in doing the exercises and solving problems.

TAI and NHT are cooperative learning models that merge heterogenous individual abilities and students' capabilities to work in a group. The students are individually responsible for their group's performance. Students' collective responsibilities include managing and regularly checking the group, helping each other to solve problems, and supporting one another to keep making progress. This way, students become more disciplined, creative, diligent and active in preparing themselves to participate in the group discussion. The combination of both strategies is hoped to encourage students' discipline, creativity, diligence and participation so that they can follow the lesson in the classroom better.

Tran (2014) states that "many studies have been conducted in different settings of education, using different kinds of cooperative learning techniques. Such techniques are Learning Together (LT), Jigsaw Grouping, Teams-Games-Tournaments (TGT), Group Investigation (GI), Student Teams Achievement Division (STAD), and Team Accelerated Instruction (TAI). A series of research studies has found a appreciate relationship between the higher cognitive and affective outcomes, and cooperative learning approaches."

This statement is line with the result of a research conducted by Widhiastuti and Fachrurrozie (2014) that says that (1) implementation of TGT in Intermediate Financial Accounting 2 effectively enhances students' participation in the classroom, and (2) implementation of TGT in Intermediate Financial Accounting 2 effectually improves student learning outcomes. Maisaroh (2016) also believes that TGT helps boost the motivation and achievement of fourth graders of SD Negeri Sungapan Bantul class of 2010-2011 in learning social science.

According to Slavin (2009), TAI is a learning model that involves creating a heterogenous small group consisting of individuals with different ways of thinking to enforce them to help each other. In this model, peer support is applied, where gifted students help their lower-achieving

friends. This strategy also increases students' participation within the group. High-achieving students will develop their abilities and skills, while lower-achieving students receive the help they need to solve problems.

Slavin (2009) states that NHT is the right method to boost students' individual responsibilities in group discussion. In this method, every student must prepare themselves to represent their group. Low-scoring students will make an effort to keep up with their teammates, while the high-scoring students will try to help their struggling partners in order to improve their group's performance. NHT consists of four steps, they are: 1) Numbering, divide students into group and give each one a number; 2) Questioning, teacher poses a question to the class; 3) Head Together, students gather to discuss the question and to make sure that everyone in the group understands and can give an answer; and finally 4) Answering. NHT indirectly demands students to share information, carefully listen to each other, and voice their own opinions so that they become more active during the lesson.

From the explanation above, an interesting problem arises: can implementing a combination of Team Accelerated Instruction (TAI) and Numbered Heads Together (NHT) in teaching Investments improves students' core values of character such as discipline, creativity, diligence and liveliness during learning process. The aim of this study is to analyze and obtain empirical data regarding the effectiveness of combining TAI and NHT in improving students' discipline, creativity, diligence and participation in learning Investments.

METHOD

This research was conducted with Economics Education majors of Semarang State University as the participants. The students were in their third semester in university who were taking the Intermediate Financial Accounting 2 course. This learning model was applied specifically for Investments key topic. This three-credit course had 16 meetings. The duration of each meeting was 3x50 minutes. This research was carried out in three meetings, which were on the third, fourth, and fifth meetings of the 2015-2016 even semester. This research involved two teachers: one Intermediate Financial Accounting 2 teacher and one research team member.

The population of this research was Economics Education students enrolled in Intermediate Financial Accounting 2 course, while the

Table 2. Summary of Test Instrument Assessment Result

Reliability Test			Difficulty Level			Question Distinguishing Capability		
Criteria	Total	%	Criteria	Total	%	Criteria	Total	%
Medium	0	0%	Difficult	3	15%	Very Poor	7	35%
High	100	100%	Intermediate	15	75%	Poor	8	40%
Very High	0	0%	Easy	2	10%	Fair	4	20%
						Good	1	5%

Source: Processed Primary Data, 2015

sample was 48 Economics Education A students class of 2014.

Data used in this research were obtained through tests and observations. The tests conducted were pretest and posttest. The test took form in a multiple-choice template with a total number of 20 questions. The observations were carried out using observation sheets. This research was performed in three cycles. Each cycle involved initial reflection, planning, action, observation and final reflection. The planning phase included (1) creating lesson plan; (2) composing exercises and answer key; (3) creating and preparing observation sheets as well as student's activity sheets to be used in group discussion; and (4) preparing equipments to document the whole learning process. The action phase included: (1) placement test; (2) observation; and (3) reflection. Tests carried out to analyze the experiment result were validity and reliability tests, normality and homogeneity tests, and the final analysis was hypothesis test based on the measure of success. Success was measured by the result of post-test. If 70% or more students got a score of more than 70, then the teaching method was deemed successful. If more than 40% of the students were active in the learning process, then the teaching method was considered as successful.

RESULTS AND DISCUSSION

This research was carried out in three meetings or 3 cycles, which were on the 6th meeting (cycle I), the 7th meeting (cycle II) and the 8th meeting (cycle III) in the even semester of 2015-2016. This research involved three researchers, one teacher of Intermediate Financial Accounting 2 and two observers.

The first step was to create test instrument that was suitable to the procedure and previously planned actions, including the 20 multiple-choice questions. Afterwards, to ensure that the instrument met the qualifications and could be used in the experiment.

From Table 2, it can be seen that the test stability is high (100%). As for the difficulty of the test, 75% of the questions is intermediate, 10% was easy, and the rest (15%) is of difficult level. In terms of the test's ability to distinguish high-achieving and lower-achieving students, the result showed that 7 questions (35%) were very poor or not able to distinguish between high-achieving and lower-achieving students, and the rest was 40% poor, 20% fair, and 5% good. From the overall result assessment, it can be said that all items in the test instrument met the minimum requirement. Therefore, none of the items in the instrument was discarded. Before this research was carried out, a pretest was conducted with the following result:

Table 3. Result of Pretest

	Total	%
Students with score < 70	26	0.54
Students with score ≥ 70	22	0.46

The pretest result revealed that half of the students received scores below 70. In cycle I, the following actions were taken: (1) Created teams by dividing the class into 8 groups. Therefore, each team consisted of 6 students of different levels of intelligence and participation level as assessed in the previous meetings. (2) Delivered the lecture about Investments, especially stock investments, for 2x50 minutes. (3) After delivering the lecture, teacher distributed exercises to each group. Every group member did the exercise individually, and later discussed with other members of the group. (4) After the discussion, their work was corrected by other group. Each group checked other group's work. (5) When correcting the works, teacher asked students to present the result of their group discussion. The members of other groups were allowed to argue against the presenting group. (6) Afterwards, several mistakes were found, such as: (1) Observers didn't

know the students well, resulting in difficulties in taking notes of the observation. (3) Teacher's lack of class coordination, especially in utilizing the white board. As the result, some students were not able to see the writings on the board clearly. (3) Because each group sat in circle and randomly scattered across the classroom, some students sat with their backs facing the white board. These students could not pay attention to the explanation given optimally. (4) Because of time constraints, teacher were not able to give opportunities for students to share their opinions on their classmates' works.

In cycle II, the U-shape seating was applied, so all students faced the front of the classroom. In addition, each student was given a ID number in accordance with their group and their respective number within the group. This was done in order to help the observers document the liveliness of the classroom. In this cycle, actions taken were: (1) Teacher gave materials about investments in bonds, particularly bonds buying that includes bond price calculation, premium/discount amortization schedule, as well as journals related to investments in bonds for 2x50 minutes. (2) After delivering the lecture, teacher distributed exercises to the students. Each student were asked to do the exercise individually. (3) Students graded other group's work after being given the answer key by the teacher. Afterwards, each student in each group combine their individual score to get their group's overall score. (4) Students wrote their answer on the white board and presented the result of their group discussion. In this cycle, students actively participated in the learning process, resulting in loud boisterous class. (2) Too many active students, so some students didn't get the chance to voice their opinions. In cycle III, the impact of applying the combination of TAI and NHT showed. All students actively participated during the learning process in cycle III. In conclusion, it is safe to say that this method successfully increased student's participation. Posttest were carried out following cycle III and the result was as follows:

Table 4. Result of Posttest

	Total	%
Students with score < 70	7	0.15
Students with score ≥ 70	41	0.85

The posttest result proved that utilizing TAI and NHT together resulted in students' score improvement. Based on the t-test, it can be seen that the implementation of TAI and NHT in te-

aching Investments effectively improve student learning outcomes. This is proven by the pretest average score that was 65.33 and the 22% increase in posttest average score that reached 79.63. From the t-test, obtained $t_{hit} -13.930 > t_{tab(5\%, 58)} \pm 2.002$. In other words, the average pretest and posttest scores were significantly different.

In cycle I, before students were given the material, a 30-minute pretest was conducted. This test was carried out to find out students' ability before being taught with TAI and NHT methods. Control class was not involved in this research as comparison. The writers wanted to test the effectiveness of TAI and NHT by comparing the pretest and posttest scores and observing the learning process in the classroom. Cycle I comprised initial reflection, planning, action, observation, and final reflection.

Initial reflection involved reviewing and appraising experience in teaching investments in Intermediate Financial Accounting 2 course from the previous years. Based on this initial reflection, it was found that student's understanding and participation was underwhelming.

Several mistakes were found during the reflection of cycle I and they were adjusted in cycle II. Stages of research in cycle II in details were as follows: 1) Planning. Before learning process started, just like in cycle I, the writers composed a learning scenario by utilizing TAI and NHT methods. In addition, the writers also drew up an observation sheets used to observe teacher's actions and the students' as well while they were implementing TAI and NHT methods. The writers also created and provided learning media required in this research. 2) Action. Actions in cycle II included: (1) Teacher delivered a lecture about investments in bonds, particularly bonds buying that includes bond price calculation, premium/discount amortization schedule, as well as journals related to investments in bonds for 2x50 minutes. (2) After delivering the lecture, teacher distributed exercises to students. Students were asked to do the exercise individually. (3) Students graded their peers' works based on the answer key given by the teacher. Afterwards, each student in each group combine their own score with their group-mates' to get their group's overall score. (4) Afterwards, students wrote the answer of the questions on the white board and presented the result of their group discussion. 3) Observation. From the observation, it was found that the most active group was group White with 4 students actively worked together and 3 students actively gave their opinions. 4) Final reflection. Based on the observation, the writers were able to analyze cycle II.

Table 5. Result of Normality Test

One-Sample Kolmogorov-Smirnov Test			
		PreTest	PostTest
N		48	48
Normal Parameters ^a	Mean	59.2708	68.7500
	Std. Deviation	1.84215E1	1.54197E1
Most Extreme Differences	Absolute	.154	.159
	Positive	.154	.159
	Negative	-.073	-.125
Kolmogorov-Smirnov Z		1.068	1.099
Asymp. Sig. (2-tailed)		.204	.179

Source: SPSS output, 2015

Final reflection was meant to assess the result and mistakes in the cycle. In this cycle, several mistakes found were: (1) Almost all students actively participated in the learning process, making the class in disarray. (2) Too many active students in the classroom, making some students didn't get their chance to deliver their opinions. The result of this analysis and reflection later on was used to improve the learning process in cycle III.

Research stages involved in cycle III were as follows: 1) Planning. Before learning process started, just like in cycle I and cycle II, the writers composed a learning scenario by utilizing TAI and NHT methods. In addition, the writers also drew up an observation sheets that was used to observe teacher's actions and the students' as well while they were implementing TAI and NHT methods. The writers also created and provided learning media required in this research. 2) Action. Actions in cycle III included: (1) Teacher delivered a lecture about bond repayment for 2x50 minutes. (2) After delivering the lecture, teacher distributed exercises to students. Students were asked to do the exercise individually. (3) Students graded their own work based on the answer key given by the teacher. Afterwards, each student in each group combine their own score with their groupmates' to get their group's overall score. 3) Observation. The observation in cycle III showed that 100% of the students actively participated in the learning process. The indicators of being active were student's actively asking, responding to, and answering questions. The observation result revealed that there was an improvement in students' participation in the classroom. 4) Final Reflection. Based on the observation result, the writers discussed and analyzed cycle III. In this cycle, it was proven that all students actively took part in the TAI-and-NHT-based learning process. In conclusion, it is safe to say that this method successfully increased students' participation.

Normality tests are used to determine whether the confounding variables or residuals

are normally distributed. Normality test is carried out for both pretest and posttest scores by using the statistic analysis of one sample Kolmogorov-Smirnov test (Z values for skewness and kurtosis analysis).

$H_{0,1}$: Pretest scores were normally distributed

$H_{0,2}$: Posttest score were normally distributed

Below is the result of normality test using one sample Kolmogorov-Smirnov test.

The test result showed the value of Z 1.068 and an asymptote significance value of 0.204 > from α 0.05 making $H_{0,1}$ empirically proven that pretest scores were normally distributed. The normality test for the posttest scores showed the value of Z 1.099 and an asymptote significance value of 0.179 higher than α 0.05 which proved that posttest scores are normally distributed.

Table 6. Result of Paired Sample Statistical Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest	59.2708	48	18.42147	2.65891
	PostTest	68.7500	48	15.41966	2.22564

Source: SPSS output, 2015

The result of Paired Sample Statistical Test in Table 6 showed that the average of the pretest scores was 59.27 with a 18.421 standard deviation, while the average for the posttest scores was 68.75 with a 15.419 standard deviation. The observation revealed that the mean difference between pretest and posttest scores was as much as 9.48. This difference must be statistically assessed to determine whether the difference is significant or not.

Independent tests are used to find out mean difference between the pretest and posttest scores statistically. Table 7 explained in detail the result of the independent test.

The result of independent test showed a significance value of 0.202 > 0.05, which means that, statistically, there was a difference between pretest and posttest mean scores. Therefore, hy-

Table 7. Result of Independent Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Differ- ence	Std. Error Differ- ence	95% Confidence Interval of the Difference		
								Lower	Upper	
Equal variances assumed	1.651	.202	-2.338	94	.021	-8.191	3.503	-15.147	-1.236	
Equal vari- ances not assumed			-2.349	90.989	.021	-8.191	3.487	-15.117	-1.266	

Source: SPSS Output, 2015

Table 8. Summary of Research Result

	Cycle I		Cycle II		Cycle III		Mean		SD	
	Total	%	Total	%	Total	%	Pretest	Posttest	Pretest	Posttest
Active	30	62.5%	42	87.5%	45	93.75%	59.27	68.75	18.42	15.42
Non-active	18	37.5%	6	12.5%	3	6.25%				

Source: Processed Research Result, 2015

pothesis test result didn't empirically prove H_0 . In other words, the implementation of combination of TAI and NHT does improve student outcomes in learning Investments.

This research was carried out because of the writers' experience in teaching Intermediate Financial Accounting 2 in Investments from the previous years that showed poor outcomes. This research was an attempt to assess and obtain empirical evidence regarding the effectiveness of combining TAI and NHT in improving students' discipline, creativity, diligence and participation in learning Investments.

Based on the result of the research in cycle I, II and III, it can be concluded that there was an improvement in students' participation both individually and in group. This can be seen from students' increasing participation in asking, answering and responding to questions. Not to mention that the difference between pretest and posttest scores showed students' progress as well. All of these can be briefly seen from table 8 above.

Based on the observation, it is clear that students' participation in the classroom or within group during cycle I was fair. The indicators of participation in this research were their participation in teamwork and their willingness to express their opinions, while the indicators of liveliness were asking, responding to, and answering questions.

The findings of this research was in line with the statement of Suryani (2016) who believes that deep approach to learning in learning evaluation course helps developing students' characters, such as: shaping them to be ethical and honest, encouraging them to have good characters, stimulating them to find ideas, to think critically, creatively, and innovatively.

Some mistakes and downsides found in cycle I had been adjusted in cycle II in order to help improve students' participation in expressing their opinions and their ability to work in team. Similar to cycle II, students actively participated in cycle III and became more enthusiastic in answering questions rather than responding and asking questions. The measure of success of this research was at least 40% of the students actively participated in the learning process in the classroom and within their groups. The combination of TAI and NHT successfully reached this benchmark, and even surpassed it. The percentage of students' participation was 62.5% in cycle I, 87.5% in cycle II, and 93.75% in cycle III. Therefore, it can be concluded that implementing TAI and NHT in teaching Investments was proven to improve students' participation.

This finding supports Slavin (2009) who states that TAI is a learning model that involves creating a heterogenous small group consists of individuals with different ways of thinking to en-

force them help each other. In this model, peer support is applied, where gifted students help their lower-achieving friends. This strategy also increases students' participation in a small group. High-achieving students will develop their abilities and skills, while lower-achieving students receive the help they need to solve problems.

Slavin (2009) states that NHT is the right method to boost students' individual responsibilities in group discussion. In this method, every student must prepare themselves to represent their group. Low-scoring students will make an effort to keep up with their teammates, while the high-scoring students will try to help their struggling partners in order to improve their group's performance. By using this method, high-achieving students are able to finish the material faster than other students. They are given the more difficult version of the material, while other students learn the regular materials at their own pace. Students are expected to not only learn individually but also cooperatively because the performance of the group heavily depends on students' individual abilities.

This method is certainly different from the traditional lecture-based method where the role of the teacher is extremely dominant while students are just being listening objects. Only a small number of students are able to understand the materials and actively participated in the learning process. The rest of the students usually pay little to no attention to the lecture and are unwilling to ask, answer, and respond to questions. In TAI and NHT-based learning process, student's role is highly dominant in understanding and solving problems compared to the role of the teacher. Students are demanded to dig deeper, to comprehend the materials better both individually and collectively. Rewards being given to active groups encourage all group members to compete and ensure that their group wins. Dividing students into groups with different levels of intelligence has become the best solution to push students to solve problems by discussing it together.

Merely delivering oral lecture and giving assignments make students tend to memorize the materials since it is the easiest way to get through tests and examinations. Lecture-based method is not too effective because it doesn't involve the process of strengthening students' memory or understanding the lesson with the help of teaching aids.

According to the statistic result of the test, it was found that the average pretest score was 59.27, while the posttest score reached 68.75, 9.48% higher than the pretest score. The result

of independent test revealed a significance value of $0.202 > 0.05$ which means that statistically, there is a difference between pretest and posttest average scores. Thus, it is safe to say that implementing the combination of TAI and NHT successfully improved student learning outcomes in learning Investments.

The measure of success for learning outcome improvement was based on the posttest scores. Learning method combining TAI and NHT was considered as successful if more than 80% of the students got posttest scores of 70 or more. The posttest average score of the class was 68.75. The number of students who get posttest scores of 70 or more was 21 or 56%, while the rest, 44% or 27 students, received scores below 70. Therefore, it can be concluded that combination of TAI and NHT did not successfully improve student learning outcomes, despite improvement on pretest scores.

The result of this research was the opposite of the finding of the research conducted by Maman (2016). Maman's study was aimed to describe the implementation of NHT for students of SMPN 2 Maros. The method used was classroom action research carried out in two cycles. Data were collected using test for quantitative data and non-test for the qualitative ones by employing observations, field notes, student's workbook, student's reflection sheet, and test of learning outcomes. The improvement of competence on cycle I was 44% that was categorized as extremely good, 56% was categorized as good, and no student was categorized as low. In cycle II, 84% was classified as extremely good, 16% was grouped as good, and no student was classified as low. The research conducted by Miaz (2016) proved that NHT improved student's achievements in social science.

CONCLUSION

According to the observation and analysis results of cycle I, II and III, it can be concluded that combination of TAI and NHT did not improve student learning outcomes, even though it managed to increase students' pretest scores in learning Investments as well as their participation in the classroom. The analysis of pretest and posttest results as well as the t-test showed that combination of TAI and NHT was proven to successfully enhance students' learning effectiveness. The writers suggest future researchers to apply the combination of TAI and NHT in other courses and for teachers to optimize students' understanding and increase group interaction. This can be

done by giving structured assignments to students and ask them to do it outside contact hours.

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