

ผลการใช้เทคนิค STAD ของการเรียนรู้แบบร่วมมือที่มีต่อผลสัมฤทธิ์  
ทางการเรียนรายวิชา เศรษฐศาสตร์และเจตคติของนักเรียนชั้นมัธยมศึกษา  
ตอนปลาย เกรด 11 โรงเรียน Hun Sen Chek ประเทศกัมพูชา  
*Effects of STAD-Cooperative Learning Method on Learning  
Achievement in Economics and Attitude of Eleventh Graders at  
Hun Sen Chek High School in Cambodia*

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### บทคัดย่อ

การศึกษาค้นคว้าครั้งนี้มีวัตถุประสงค์ เพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนรายวิชาเศรษฐศาสตร์และเพื่อเปรียบเทียบเจตคติต่อวิชาเศรษฐศาสตร์ของนักเรียนชั้นมัธยมศึกษาตอนปลาย เกรด 11 โรงเรียน Hun Sen Chek ประเทศกัมพูชา โดยการใช้เทคนิค STAD กับวิธีสอนแบบปกติ กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ คือ นักเรียนชั้นมัธยมศึกษาตอนปลาย เกรด 11 จำนวนสองห้องเรียน รวม 54 คน ซึ่งได้มาจากการสุ่มแบบแบ่งกลุ่ม โดยแบ่งเป็นสองกลุ่ม ได้แก่ กลุ่มทดลอง และกลุ่มควบคุม เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล ได้แก่ แบบทดสอบวัดผลสัมฤทธิ์รายวิชาเศรษฐศาสตร์ และแบบสอบถามเจตคติ การวิเคราะห์ข้อมูลใช้ ค่าเฉลี่ย ค่าเบี่ยงเบนมาตรฐาน และการทดสอบค่า t

ผลการวิจัยพบว่ากลุ่มทดลอง มีผลสัมฤทธิ์ทางการเรียนรายวิชาเศรษฐศาสตร์ และเจตคติต่อวิชาเศรษฐศาสตร์ สูงกว่ากลุ่มควบคุม ผลการวิจัยแสดงให้เห็นว่าเทคนิค STAD เป็นวิธีจัดการเรียนการสอน ที่มีประสิทธิภาพสูงซึ่งน่าจะควรใช้ในห้องเรียนที่มีนักเรียนมีความสามารถแตกต่างกันได้

**คำสำคัญ:** วิธีสอนแบบร่วมมือเทคนิค STAD วิธีสอนแบบปกติ ผลสัมฤทธิ์ทางการเรียนรู้ เจตคติ ประเทศกัมพูชา

### Abstract

The purposes of this research were to compare effects of learning achievement in economics, and to compare the attitude toward learning economics of eleventh-graders at Hun Sen Chek High

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School in Cambodia by using STAD and traditional teaching methods. The participants were two classes of 54 students selected by using the cluster random sampling technique. One class was assigned as an experimental group, and the other class as a control group. The research instruments used to collect the data were an economics achievement test and an attitudinal questionnaire. Data were analyzed by using mean, standard deviation and t-test. The research found that the experimental group had higher learning achievement in economics and higher attitude toward learning economics than the control group. These results showed that STAD teaching method is an effective way of teaching and learning worth applying in mixed classroom settings.

**Keywords :** STAD-cooperative leaning method/ traditional teaching method/ learning achievement/ attitude/ Cambodia

## Introduction

Education has a fundamental role in personal and social development. The twenty-first century, dominated by globalization and technology, will bring borderless extension for all human life aspects both academically and professionally. Jerald (2009) wrote that globalization is the major trend shaping future skill demands. School curricula and instruction needs, therefore, to integrate the very vitally social skills such as communication, collaboration and teamwork in order to respond to the economic and workplace needs for flexible and cooperative manpower.

Cambodia has certain legal frameworks, such as the national constitution, law, policy and national strategic plan on education, which shall protect and upgrade citizens' rights to quality education at all levels and shall take necessary steps for equal education to reach all citizens. These are imperative instruments for the development and improvement of education sector of the country. However, the education

quality as the product of teaching and learning process is remarkably low. Cambodia's human development index value for 2012 was 0.543 which was in the medium human development category positioning the country at 138 out of 187 countries and territories (UNDP, 2013). This means that the country's human development was slightly above the low development category. According to North (2008), the methodology used in Cambodian classrooms is perceived to be passively motivated with the 'chalk and talk' form of teaching very much the traditional method; whatever the teachers dictate is accepted as knowledge and wisdom. Critical and creative thinking is also under-utilized in the classroom. This is perhaps most clearly characterized by the pervasiveness of rote teaching and learning throughout the education system. Little relevant information is being taught, and instead of questioning and analyzing, students are expected to parrot answers. Pedagogy within the Cambodian education system is prefaced on minimal

interaction; students rarely raise their hands in class, and professors rarely take questions. There is widespread concern that teamwork skills are severely absent in Cambodian classrooms, likely in part as a result of passive learning methods reinforced in schools. Besides, decentralized and collaborative governance of the education sector has limitations in Cambodia resulting from historical and deep-rooted predispositions on the part of both the population and the government.

Therefore, in order to produce competent and cooperative Cambodians in this culturally and linguistically diverse world, and to respond to the issues of low educational quality, passive classroom interaction and low level of collaboration among Cambodian students, a cooperative learning-STAD teaching method must be selected and applied in organizing teaching and learning in Cambodian classrooms. The most important goal of this proposed teaching method is to provide students with the knowledge, concepts, skills, and understanding they need to become happy and contributing members of our society (Slavin, 1995). In the teaching-learning cycle of STAD teaching method, students are assigned to small learning teams that are mixed in performance level, gender, and ethnicity. There is a strong theoretical basis for predicting that cooperative learning methods that use group goals and individual accountability will increase student achievement. It is clear that under certain well-defined circumstances cooperative learning can have consistent and important effects on the learning of all

students. The overall effects of cooperative learning on student's self-esteem, peer support for achievement, internal locus of control, time on-task, liking of class and of classmates, cooperativeness, and other variables are positive and robust (Slavin, 1995). Furthermore, after the review of the results of many research studies conducted both in Thailand and in foreign countries showed that STAD teaching method could help students study better. They have a very good attitude toward this teaching method. The researcher, therefore, proposes to use STAD teaching method in this experimental research study as it has been proved to be helpful to students and suitable for teachers to improve students' learning achievement and teamwork skills.

### Objectives of the Study

1. To compare the effects of learning achievement in economics of eleventh-grade students at Hun Sen Chek High School in Cambodia taught by STAD teaching method of cooperative learning and traditional teaching method.
2. To compare the students' attitude toward learning economics by using STAD teaching method of cooperative learning and the traditional teaching method.

### Research Hypothesis

1. After the experiment, the economic learning achievement of eleventh-grade students at Hun Sen Chek High School in Cambodia taught

by STAD teaching method is higher than that of the traditional one.

2. The experimental group taught by STAD teaching method has higher attitude toward learning economics than that of the control group taught by traditional method.

### **Conceptual Framework**

The variables manipulated and observed in this study were: 1) the independent variables were the use of STAD method and a traditional teaching methods; and 2) the dependent variables were learning achievement in economics and the students' attitude toward learning economics.

### **Methodology**

#### **Population and Samples**

The population of this study was four classes of 98 eleventh grade students who were studying at Hun Sen Chek High School during the academic year 2013-2014 in Cambodia. The samples were two classes of 54 students drawn from the population by using the cluster random sampling technique. One class of 28 students was assigned as an experimental group taught by the STAD teaching method and the other as a control group of 26 students taught by the traditional teaching method

#### **Research Instruments**

Three kinds of instruments were used in the study: 1) sixteen lesson plans, 2) an achievement test on economics for grade 11 and 3) a self-administered questionnaire on students' attitude toward teaching methods.

The eighteen lesson plans were divided into eight lesson plans for the experimental group using the five steps of STAD teaching method-class presentation, team study, quiz, individual improvement scores and team recognition and another eight lesson plans for the control group following the five steps of traditional teaching method-classroom management, lesson revision, new lesson, lesson wrap-up, and homework.

The achievement test of economics consisted of forty items with the whole-test reliability of 0.87; the levels of difficulty ( $p$ ) ranged from 0.33 to 0.78; and the levels of discrimination ( $r$ ) started from 0.22 to 0.78.

The self-administered questionnaire consisted of twenty items, each of which had five-level rating scales. The whole-test reliability of the questionnaire was 0.79, and the discrimination indices ( $r$ ) ranged from 0.27 to 0.75.

#### **Data Collection**

The process of experimentation and data collection was as follows:

1. Before receiving the two teaching methods, the two groups took the achievement test that the researcher constructed.
2. Based on these pre-test scores, the researcher ranked and categorized the experimental group into three levels of achievement: the highest achievers, the moderate achievers, and the lowest achievers. By doing this, the experimental sample was easily divided into cooperative learning heterogeneous groups, each of which consisted of four students:

one student from the highest group, two from the moderate group and one from the lowest group.

3. The researcher himself used the eight lesson plans of STAD teaching method with the experimental group for sixteen teaching hours. As for the control group, they were taught with the eight traditional lesson plans simultaneously and for the same period as the experimental group.

4. Right after the sixteen hours of teaching, both the experimental group and the control group took the same achievement test again.

5. The two groups were also rendered the self-administered questionnaire to fill in to reflect their attitude toward their learning economics.

6. The data collected from these tests were used to analyze and compare the students' learning achievement and their attitude toward learning economics in this study.

#### Data Analysis

1. Statistical analysis of mean scores of economics achievement between experimental group (E.G) and control group (C.G) before and after the experiment.

**Table 1** Comparison of means of economics learning achievement of the two groups before and after the experiment

Samples	Before Experiment (Pre-test)					After Experiment (Post-test)				
	(n)	( $\bar{x}$ )	(SD)	t	p	(n)	( $\bar{x}$ )	(SD)	t	p
E.G	28	17.93	4.03	(2-Tailed)		28	32.29	3.55	(1-Tailed)	
C.G	26	18.23	4.02	-0.275	0.784	26	27.96	5.66	3.384**	.001

\*\*  $p < .01$ ,  $df = 52$

As shown in Table 1 above, the derived t-test is -.275 at the significant level of .784. This did not exceed the critical value of t-distribution with  $df = 52$ ,  $t = \pm 2.006$  and  $p = .05$ . Therefore, there was no statistical difference between the two means. It could be concluded that the means of the experimental group and the control group were not significantly different before the experiment took place. After the experiment, the data showed that the correlation between the means of the experimental group and the control group is t-value = 3.384 at the level of

significance (p-value) = .01 and  $df = 52$ . This revealed that there was a significantly statistical difference between the two means. It could be concluded that the STAD teaching method of cooperative learning ( $\bar{x} = 32.29$ ,  $SD = 3.55$ ) helped students gain higher economic learning achievement than the traditional teaching method ( $\bar{x} = 27.96$ ,  $SD = 5.66$ ).

2. Statistical analysis of the experimental and control groups' attitudinal means toward learning economics before and after the experiment

**Table 2** Comparison of means of levels of attitude of the two groups before and after the experiment

Samples	Before Experiment (Pretest)					After Experiment (Posttest)				
	(n)	( $\bar{x}$ )	(SD)	t	p	(n)	( $\bar{x}$ )	(SD)	t	p
E.G	28	75.93	5.24	(2-Tailed)		28	86.39	7.44	(1-Tailed)	
C.G	26	76.38	5.46	-.313	.756	26	79.92	5.69	3.565**	.001

\*\*  $p < .01$ ,  $df = 52$

According to Table 2, before the experiment, the calculated t-test was  $-.313$  at  $p = .756$ , which did not exceed critical value of t-distribution =  $\pm 2.006$ , at p-value =  $.05$  and  $df = 52$ . It showed no statistical difference between the means of the two groups. This revealed that the level of attitude of the experimental group and the control group toward learning economics were not significantly different. After the experiment, the t-test value was  $3.565$  at the significant level of  $.01$ . It showed that there was a highly statistical difference between the attitudinal means of the two groups. It means that experimental group, who were taught by STAD teaching method of cooperative learning had higher attitude toward learning economics ( $\bar{x} = 86.39$ ) than the control group, who were taught by traditional teaching method ( $\bar{x} = 79.92$ ).

## Results

From the data analyses above, the research found that:

1. The learning achievement in economics of eleventh grade students who were taught by STAD teaching method was higher than that of

the ones who were taught by traditional teaching method at the level of significance  $.01$ , which supported the stated research hypothesis 1.

2. The students who were taught with STAD teaching method had higher attitude toward learning economics than that of the students who were taught by traditional teaching method at the significant level of  $.01$ . This result also supported the stated hypothesis 2.

## Discussion

By comparing the statistical results of the two groups' learning achievement in economics and their attitude toward learning economics, the researcher would like to present the discussion of the findings as follows:

1. This study aimed to compare the effects of learning achievement in economics of eleventh-grade students at Hun Sen Chek High School in Cambodia taught by STAD teaching method of cooperative learning and traditional teaching method. The first hypothesis was: "After the experiment, the economic learning achievement of eleventh-grade students at Hun Sen Chek High School in Cambodia taught by STAD teaching method was higher than that of

the traditional one". The results revealed that the students who were taught with the STAD teaching method had statistically higher learning achievement in economics than those who were taught by the traditional teaching method at the significance level of .01, which supported the hypothesis 1. The possible reasons are as follows:

1.1 STAD teaching method composed of the most influential learning and teaching theories as Johnson and Johnson (1994) indicated that there were at least three general theoretical perspectives that have guided research on cooperative learning: social interdependence, cognitive-developmental, and behavioral. This agrees with social learning theory, which students are perceived to learn from others. More importantly, the experimental group who was taught by the STAD teaching method was given the most opportunities to think, discuss, and find approaches to solve the assigned tasks together. Then they shared, compared and possibly corrected any misunderstanding which they brought about in their teams before they were finally provided further chance to present and share their groups' agreed-on answers in the whole class. Such teaching and learning atmosphere is indeed in line with constructivist and learner-centered views which emphasize on students who are constructors of the framework of knowledge and understanding by themselves.

1.2 The students who were taught by using the STAD teaching method were encouraged to learn by motivating materials and awards. In order to achieve the group goal and

to be highly recognized, the students must help each other to improve since high group scores are accumulated by individual improvement scores as pointed out by Slavin (1995) that the main idea behind the STAD teaching method was to motivate students to encourage and help each other master skills presented by the teacher. If students want their team to earn a team reward, they must help their teammates to learn the material. They must encourage their teammates to do their best. The award motivated spirit built up positive independence, promotive interaction and individual accountability or personal responsibility which Johnson and Johnson (1994) described as basic components to make cooperative efforts effective.

The results of this study also agreed with the findings of many other researchers. Slavin (1995) concluded that the overall effects of cooperative learning on achievement were clearly positive. Sixty-three (63%) of the ninety-nine experimental-control comparisons significantly favored cooperative learning. Twenty of the 29 STAD studies (69%) found significant positive effects, and none were negative (p. 25). Johnson and Johnson (1994) showed that research results consistently indicated that cooperative learning would promote higher achievement, more positive interpersonal relationships and higher self-esteem than would be competitive and individualistic efforts. Meekins (1987) studied the effect of Student Team-Achievement Division (STAD) learning on improving learning and social acceptance of 55

fifth graders who were low ability in eighteen days. The result revealed that students who were taught by the STAD teaching method obtained higher learning improvement than those who were taught by traditional teaching method. Orlando (1992) studied the effect of using cooperative learning (STAD) of 132 college students on achievement and attitude of learning English. The result indicated that the students who were studied by using cooperative learning obtained higher scores than those who were studied by controlled group. Pinkeaw (1993) who investigated students' opinions on interaction and learning achievement through cooperative learning method in the upper secondary English classroom for 82 Matthayomsuksa four students found that all students' listening and speaking achievement were satisfactory. More importantly, the use of language increased in the cooperative learning situation. Moryadee (2001) studied the effects of cooperative learning using Student Teams Achievement Division (STAD) method on the self-efficacy and English learning achievement of Pratomsuksa five students. The results indicated that the experimental group had higher self-efficacy after the treatment than before the treatment at the level of significance .01. The experimental group had higher English learning achievement after the treatment than before the treatment at the level of significance .01. On the posttest, the experimental group had a higher self-efficacy and English learning achievement than those students who studied through the conventional method at the .01 level

of significance. Somapee's study (2002) revealed that the critical thinking skills of students in the experimental group were higher than those in control group. The post-test scores of students who were taught through the cooperative learning method were remarkably higher than the posttest scores of students who were taught through the traditional group work method at  $p < .05$  level. Suphasaranakom (2003) compared English reading achievement of Mathayomsuksa two students using the instruction of cooperative learning (STAD) and the teachers' manual, and compared the students reading achievement before and after using cooperative learning STAD teaching method. The study found that the reading achievement in English of the students taught by the cooperative learning was statistically higher than that of the students taught by the method in the teacher's manual at significance level of .05.

2. The second objective was to compare the students' attitude toward learning economics by using STAD teaching method of cooperative learning and the traditional teaching method. The predicted hypothesis was: "The level of students' attitude toward learning economics with the STAD teaching method of cooperative learning approach is higher than that of the traditional teaching method". The study found that the students who were taught with the STAD teaching method had higher level of attitude toward learning economics than that of the students who were taught by traditional teaching method at the level of statistical



significance .01, which supported the hypothesis  
2. The possible reasons would be as follows:

2.1 The powerful synergy of cooperative learning groups helped the students to improve respectively, which led to both the achievement of team goal and team recognition. This is the very attribute behind the students' positive attitude and favor toward STAD teaching method as well as the subject matter. In addition, the STAD teaching method provided the students the opportunity to discuss, express out and communicate with each other, which helped to build up and promote the students' self-confidence, pride and ownership as Slavin (1995) summarized that the overall effects of cooperative learning on student self-esteem, peer support for achievement, internal-locus of control, time on-task, liking of class and of classmates and cooperativeness and other variables are positive and robust; similarly, Johnson and Johnson (1994) showed that cooperative learning experiences, compared with competitive and individualistic ones, promote more positive attitudes toward the subject area, more positive attitudes toward the instructional experiences, and more continuing motivation to learn more about the subject area being studied. Furthermore, Rossoongnoen (2005), who compared Mathayom Suksa 2 students' abilities in English reading comprehension before and after using Student Teams-Achievement Division (STAD) cooperative learning method, found that the students' opinions on cooperative learning (STAD) method in English were positive; The

results of Junthongkarn (2005), who studied the development Mathayomsuksa one students' English reading comprehension by using cooperative learning technique: Student Teams-Achievement Division (STAD) and the students' attitude toward using cooperative learning (STAD) method, revealed that the students' attitude toward using cooperative learning (STAD) method was good with the mean at 4.39 rating scale evaluation.

2.2 The constant evaluation and recognition of STAD teaching method also contributed to the students' higher level of attitude toward learning economics. The experimental group who were taught by the STAD teaching method were challenged and encouraged to learn by feedbacks and rewards, which agreed with the views of stimulus-response relation of behaviorist theory. Watson, Pavlov, Skinner, and Thorndike view learning as a change in behavior brought about by some form of action or experience in a step-by-step fashion and it is encouraged by a reward of some description (Gould, 2012).

2.3 The techniques and tactics used to build initial cooperative learning teams increased the level of the students' attitude toward their learning. The students were amused and encouraged to learn when they were grouped and introduced into the assigned tasks. The students were assigned into heterogeneous groups which consisted high, moderate and low scorers by using purposive numbering technique. Then they were allowed to change names, make

symbols and even compose songs in their styles as their group identities. This kind of classroom arrangement supported the students' interests and freedom to learn, it gave the students a sense of ownership, relief and fun, which the methodological concept said that students could learn the best when they felt fun and relaxed and they tend to have positive attitude toward learning and the subject area.

Based on the data analysis, the result and discussion of this study, the students who were taught by using the STAD teaching method had higher learning achievement in economics and higher level of attitude toward learning the subject than those who were taught by the traditional teaching method. This result supported the stated hypotheses and conformed to the findings of many other researches. The STAD teaching method of cooperative learning has been proved to be an effective and helpful teaching method to promote students' learning achievement, and toward which students have high attitudinal level. Moreover, it builds up students' teamwork skills which students need for their social work and life. The teaching method is therefore worth being used in cross-subject classroom situations.

## Recommendations

### General recommendations

1. Based on the results of the study, it is recommended that teachers of economics use STAD teaching method in their classroom teaching and learning in order to promote

students' higher learning achievement in economics and to improve the students' social skills.

2. Prior to conducting classroom teaching and learning using STAD teaching method, teachers should set up classroom disciplines and team roles for cooperative learning groups. The teachers should explain these rules and roles to the students as needed.

3. The objectives of daily lesson, tasks and worksheets need clarifying or presenting before they are to be assigned to each cooperative learning group. This helps students stay on focus and get on the right track to achieve their group goals.

4. The teacher should provide adequate time for each stage of STAD lesson, and there should be a good time management from stage to stage.

5. There ought to be sufficient materials for each stage of STAD teaching cycle and there should be a good material to team ratio since undersupply of materials results in some students working on and others doing wrong things. Oversupply of materials is not good either; it breaks away the spirit of teamwork or cooperation.

6. The teacher should move around the classroom during teamwork in order to provide support each team might need and to oversee if each group is doing the right and correct tasks.

7. The teacher should conduct weekly assessment of individual improvement and team achievement. Then each team is recognized

and awarded verbally or materially. The first few sessions, the teacher might calculate the individual improvement scores and team means by him or herself, but some time later, he or she could allow the students to help calculate the scores and means.

8. No one teaching method can work best in all classroom subjects and settings. Teachers should then choose the one best matching with classroom situations, students' levels and interests, which, in most settings, STAD teaching method should be a good alternative.

#### **Recommendation for further research**

1. As this study was experimented with economics for eleventh graders, there should be further experimentation of STAD teaching method with economics for twelfth graders in order to ensure the consistent results of this teaching method.

2. Further studies should be replicated by experimenting with other grade levels, with a wide range of academic subjects, and at different schools.

3. Future researchers should look into other dependent variables, such as students' communication, presentation, facilitation, leading and problem solving skills.

4. There should be more researches to compare STAD teaching method with other student-centered teaching methods rather than traditional teaching method.

5. Future researches should study whether the effects of STAD teaching method will be consistent if the size of each cooperative learning group varies.

6. Further researches should study the effects of a combined STAD-TGT teaching method on students' learning achievement and their attitude.

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