THE EFFECTS OF COOPERATIVE LEARNING ON THE CLASSROOM LEARNING ENVIRONMENT, ATTITUDE AND SELF-ESTEEM OF STUDENTS

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ABSTRACT

This experimental study investigated the effects of cooperative learning on the classroom learning environment, attitudes and self-esteem of 110 first-year primary education students toward the psychology subject over the eight weeks of instruction at An Giang University. The results showed that students who were instructed using cooperative learning perceived the classroom learning environment as more student-centered, cohesive and satisfied than did students who were instructed using lecture-based teaching. The results also reported that the experimental group had significantly higher scores than the control group on both scales of self-esteem and attitudes toward psychology.

Keywords: learning together, cooperative learning, classroom learning environment, attitude, self-esteem

TÓM TẮT

Ảnh hưởng của phương pháp học hợp tác đến môi trường lớp học, thái độ và niềm tin của sinh viên

Nghiên cứu thực nghiệm này điều tra ảnh hưởng của phương pháp học hợp tác đến môi trường lớp học, thái độ và niềm tin của 110 sinh viên chuyên ngành đại học giáo dục tiểu học đối với môn Tâm lí học trong thời gian 8 tuần tại Trường Đại học An Giang. Kết quả nghiên cứu cho thấy rằng sinh viên được giảng dạy bằng phương pháp học hợp tác đánh giá môi trường học tập cố kết hơn và thỏa mãn hơn sinh viên được giảng dạy bằng phương pháp thuyết giảng. Kết quả nghiên cứu còn cho thấy rằng nhóm thực nghiệm đạt điểm cao hơn nhóm đối chứng ở hai thang đo thái độ và niềm tin đối với môn Tâm lí học.

Từ khóa: học tập cùng nhau, học hợp tác, môi trường lớp học, thái độ, niềm tin

1. Introduction

Teaching and learning are the central purposes of higher education because they constitute a fundamental element of how and what students are taught and subsequently how their capacities to think and reason independently and creatively are developed [11]. The urgent innovation requirements of higher education and its philosophy in the 21st century are based on the four pillars: learning to know, learning to do, learning to live together, and learning to be [46]. These four pillars of learning indicate that learners need to have the in-depth specialized knowledge and practical skills to work, cooperate, and survive in an internationally competitive environment. In Vietnamese higher education institutions (VHEI), lecture-based teaching continues to be the most

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prevalent teaching method [5]. In the traditional classroom setting, the emphasis on the practice of lower-order thinking competencies such as memorization, comprehension and application skills rather than on higher-order thinking such as analysis, synthesis and evaluation has been argued to be inappropriate to the needs of Vietnamese tertiary students [3]. In recent years, *"lecturers in Vietnam's higher education institutions have been urged to move from passive to interactive teaching modes and systems of problem-based learning, that encourage the active participation of students and deeper levels of learning"* [5, p.68]. Although student-centered learning approaches (e.g. discussion, small-group work and problem solving) are frequently implemented in VHEI, teachers reading or explaining and students note-taking are still the predominant instructional techniques of teaching and learning [5]. Some researchers [5; 9] note that lecture-based teaching, one kind of traditional teaching, tends to produce the lowest degree of acquisition and retention for most learners, and stresses reproduction of written materials, factual knowledge and information, and places an emphasis on theory rather than practice, and breadth of study rather than depth [5]. In contrast, student-centered learning methods such as discussion and cooperative learning have been shown to provide students with positive independence, creativeness, activeness and cooperativeness [11], self-regulation and more cooperative interaction and group work, and higher achievement [7].

In comparison with other student-centered teaching approaches such as discussion, small-group work, problem solving tasks, student research, role plays, case studies, student writing and especially, cooperative learning, the lecture-based teaching method has been argued to be less effective in improving the positive classroom learning environment [11], developing social and interpersonal skills, promoting students' positive attitudes toward their own learning, enhancing self-esteem [7]. This concern is voiced in a range of research studies in VHEI. An investigation into the current use of the teacher-centered approaches and their effects on student learning in VHEI shows that the need to apply student-centered teaching methods is urgent. Of the student-centered learning approaches, cooperative learning is especially appropriate today when people are being influenced, and society affected, by many changes arising from changing technology. Cooperative learning has also been reported to promote more positive student attitudes toward their learning [7], enhance more positive relationships between participants [6] and develop self-esteem, cohesiveness, and learning skills [11]. However, this approach seems to be, in VHEI, a novel approach for both Vietnamese teachers and students. In addition, although there is a view that the learning styles of students are determined by their cultures, some previous studies [12; 14] report that Asian students [including Vietnamese tertiary students] are highly adaptive in accommodating to the style of teaching and learning they experience in Western education contexts. Therefore, the application of cooperative learning in classrooms is necessary to see whether this approach could be an alternative to lecture-based teaching in the setting of Vietnamese higher education institutions.

Cooperative learning

Cooperative learning has been the centre of worldwide attention because it has been shown to have strong effects on student learning, as well as other positive outcomes. Cooperative learning as a "set of methods in which students work together in small groups and help one another to achieve learning objectives" [7, p.69]. In other words, cooperative learning is the pedagogy within which students are active constructors of knowledge in the learning process instead of passive receivers of any given knowledge. There are three main types of cooperative learning groups, namely *informal cooperative learning groups*, *formal cooperative learning groups*, and *cooperative based groups* [7]. Informal cooperative learning, lasting from a few minutes to one class period, are short-term and ad-hoc groups in which students are required to work together to achieve a shared learning goal. Informal cooperative learning may be used to help students engage in the learning task, and focus their attention on the material they are to learn through focused-pair discussions before and after a lecture. Cooperative based groups usually last a semester or an academic year, or even several years. They are long-term and heterogeneous learning groups with committed relationships, in which students support one another to complete assignments and make academic progress. Formal cooperative learning groups last from one class period to several weeks. These are cooperative learning groups in which students work together to complete the learning tasks assigned and achieve shared learning goals. In this study, the experiment lasts for eight weeks of instruction, therefore, formal cooperative learning is used. Specifically, this study will investigate the effects of learning together, one kind of cooperative learning, on students' perceptions of the classroom learning environment, attitudes and their self-esteem in learning. Cooperative learning has five basic elements, namely positive interdependence, face-to-face (promotive) interaction, individual accountability, interpersonal, and social skills and group processing [7]. Conducting cooperative learning does not mean that we simply let students sit next to each other at the same desk and ask them to do their own tasks. Johnson & Johnson claim that "placing people in the same room, seating them together, telling them that they are a cooperative group, and advising them to 'cooperate', does not make them a cooperative group" [7, p.15]. A cooperative learning environment will exist if groups are structured in such a way that group members co-ordinate activities to facilitate one another's learning [1]. In order to engage students in learning, five elements: positive interdependence, face-to-face interaction, individual accountability, interpersonal & social skills, and group processing, must be present in the cooperative classroom [7].

Classroom learning environment

The results of several recent studies [6; 3] show that in cooperative learning situations, students are provided with more social support, both personally and academically, than students in competitive (effect size [ES] = 0.62) or individualistic

(ES = 0.70) situations. Social support has been shown to promote more positive relationships among participants than does either a competitive learning environment (ES = 0.67) or individualistic learning (ES = 0.60). Such positive relationships result in an increase in motivation and persistence in working toward the shared goals, as well as more satisfaction, commitment to group goals, productivity and personal responsibility for achievement [6; 11]. The learning atmosphere of classrooms is likely to be associated with the educational policy and values of schools [38], but cooperative learning results in positive social relationships among participants (learners and teachers); and expands the circle of companionship among the students [7; 11].

Attitudes toward learning

Cooperative learning has been shown to promote more positive attitudes of students toward their own learning than do competitive (ES = 0.57) or individualistic learning environments (ES = 0.42) because students work together for shared goals [6]. For example, in a six-week experimental study in a secondary school in America, Whicker, Bol and Nunnery claim that the responses of most students in cooperative learning groups were favorable [17]. Similarly, Vaughan suggests that students in the Student Teams Achievement Divisions (STAD) group had positive attitudes toward mathematics after STAD was implemented [16]. These results were supported by previous research studies [6; 11] which showed a strong relationship between cooperative learning methods and the greater positive attitudes of students toward their own learning. For example, Nhu-Le reported the effects of cooperative learning on tertiary students' attitudes toward chemistry in Vietnam [10]. The results showed that students liked working in cooperative learning groups, exchanging information and knowledge, working together, and assisting one another. Students also noted that their peers liked to help one another and they were more motivated to learn. Overall, cooperative learning appears to lead to a greater affective perception of others, greater positive attitudes, and more humanity. Recently, several other researchers [10; 14] investigated students' attitudes toward cooperative learning, and their attitudes toward subject matter in the Vietnamese setting of higher education. The results of these studies indicate that students working in cooperative learning groups believe that they enjoyed doing cooperative activities and obtained more knowledge because cooperative learning improved their relationships with their peers, decreased conflict in the group; and enhanced their self-esteem. Also, students in the cooperative learning groups felt more interested in learning, and less anxious, perceiving cooperative learning as a valuable way to effectively increase their knowledge.

Self-esteem in learning

The cooperative context had been argued to facilitates greater improvement in self-esteem than does competitive (ES = 0.58) or individualistic learning environments (ES = 0.44) [10]. In some studies [7; 2], students' self-esteem increased in cooperative situations because students were involved in cooperative efforts. The findings reported

above validated the results of other studies [8; 12] which report that cooperative learning promotes more use of higher-level learning skills, more positive cohesion among participants, higher self-esteem in learning and more positive feelings toward the learning tasks. These gains in the cooperative learning groups may be explained by two factors. Firstly, students felt that they achieved more by learning through this method, and secondly, there was an improvement in social relations among students [7]. It may therefore be argued that cooperative learning appears to be an effective way to engage students in learning.

The literature reviewed above shows that cooperative learning appears to have a greater likelihood of making the classroom learning environment more cohesive and satisfied, and improving the self-esteem and attitudes of students toward their own learning. However, almost all studies which supported the effectiveness of cooperative learning on student attitude were conducted in the context of western education. The current study was designed to determine if cooperative learning is more effective than lecture-based learning in improving attitudes and self-esteem of university students in VHEI. It also reports students' perceptions of the classroom learning environment. The positive effects of cooperative learning on social, psychological, and affective variables, found in the literature, have led to the following primary research hypotheses:

Hypothesis 1: Students' perceptions of the teaching efficacy of the lecturer between the experimental group and control group will not differ.

Hypothesis 2: Students' perceptions of the learning activity between the between the experimental group and control group will differ.

Hypothesis 3: Students in the experimental group have more positive attitudes toward learning than students in the control group.

Hypothesis 4: Students in the experimental group have greater self-esteem in learning than students in the control group.

2. Research method

2.1. Participants

This study used a convenient sample of 110 primary education students from two intact classes in Faculty of Education at An Giang University. One class ($n_1 = 55$) acted as the experimental group, and another class ($n_2 = 55$) acted as the control group. In the treatment group of 55 students, there were 50 females and 5 males with a mean age of 18.27, while in the control group of 55, there were 50 females and 5 males with a mean age of 18.36. The two groups were pretested on the achievement test before the treatment. The results of a one-way ANOVA analysis showed there were no statistically significant differences on age ($F_{(1, 108)} = .652$, $p = .420$, ES = 0.006) between the treatment group (M = 18.27, SD = .52) and the control group (M = 18.38, SD = .65) and pretest scores ($F_{(1, 108)} = .258$, $p = .613$, ES = 0.002) between the treatment group (M = 18.87, SD = 4.58) and the control group (M = 19.79, SD = 4.79).

These results indicate that students in both the experimental group and control group had similar age and pre-test scores in psychology subject before the experiment commenced.

2.2. Instruments

Classroom learning environment scales

The Learning Environment Inventory developed by [4] and the Instructor and Instruction scale constructed by [13] were utilized to investigate students' perceptions of their psychology classroom learning environment. For each item, respondents indicated on a five point scale. Items designated (+) are scored 1, 2, 3, 4 and 5, respectively, for the responses, SD (Strongly Disagree), D (Disagree), U (Undecided), A (Agree), SA (Strongly Agree). Items designated (-) are scored in the reserve way. The first scale, called Teaching efficacy, contained 4 subscales, with 10 items for teaching skills *(e.g. teacher organized the lesson well; teacher asked questions to check students' understanding; students were encouraged to express their ideas to the teacher)*, 4 items for efficacy for student engagement *(e.g. teacher made the information easy for students to understand; teacher made the lesson interesting; student were encouraged to ask questions)*, 7 items for learning goal direction *(the class knows exactly what it has to get done; the objective of the class are specific; each students knows the goals of the course)*, 3 items for professional capacity *(teacher seemed knowledgeable; teacher seemed enthusiastic about the subject; students were pleased with how much they were learning)*. The second scale, called Learning activity, contained 3 subscales, with 9 items for student-centered learning *(e.g. students exchanged information; students discussed the learning material with other students; students learned in groups)*, 7 items for cohesiveness *(e.g. members of the class do favor for one another; members of the class are personal friends; all students know each other very well)*, and 7 items for satisfaction *(e.g. the students enjoy their class work; the members look forward to coming to class meetings; after the class the students have a sense of satisfaction)*. The study indicated that the internal consistency reliability (alpha coefficient) based on a sample of 110 students was accepted for all of the 7 subscales. Table 2.2 described scales, sources and alpha coefficient of each scale.

Table 2.2. *Conbach's Alpha of dependent variables*

Variable	Source	Alpha (α)	No. Items
Classroom learning environment			
Teaching efficacy			
Teaching skills	Tran & Lewis (2012a)	.87	10
Efficacy for student engagement	Tran & Lewis (2012a)	.74	4
Learning goal direction	Fraser et al., (1982)	.84	7

Professional capacity	Tran & Lewis (2012a)	.79	3
Learning activity			
Student centered learning	Tran & Lewis (2012a)	.86	9
Cohesiveness	Fraser et al., (1982)	.85	7
Satisfaction	Fraser et al., (1982)	.87	7
Attitudes toward the subject matter	Researcher		
Values of the subject matter		.89	9
Enjoyment of the subject matter		.81	5
Self-esteem toward the subject matter	Researcher		
Academic self-esteem		.88	9
Social self-esteem		.83	6

Attitude scales

The attitude scale developed by the researcher was used to measure attitudes of students toward psychology after the treatment. This scale comprised 18 items, and was in a format of Likert type. The responses to each item were coded as 1 (SD), 2 (D), 3 (U), 4 (A), or 5 (SA). The 18 items of the attitude scale were subjected to principal component analysis (PCA). Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .74, exceeding the recommended value of .6, and reached statistical significance ($p < .000$) supporting the factorability of the correlation matrix. An inspection of the scree plot revealed two clear breaks. Using Catell's (1966) scree test, it was decided to retain two components for further investigation. The two-component solution explained a total of 46% the variance, with component 1 contributing 28,6%, and component 2 contributing 17,2%. Two components were consequently constructed on the basis of the results of the component analysis. The first component, called value of psychology (V), contained 10 items *(Psychology has contributed greatly to science; Psychology is less important to people than art or literature; Psychology is not important for the advance of civilization and society; Psychology is a very necessary subject; An understanding of psychology is needed by artists and writers as well as scientists; Psychology helps develop a person's mind and teaches him to think; I use psychology knowledge to solve social issues; Psychology is not important in everyday life; Psychology helps develop a person's thinking; Psychology is a helpful subject for activities of people [*])*. Only one item [*] in this component was removed from consideration as its removal increased the magnitude of the Cronbach Alpha

coefficient. The second component, called enjoyment of psychology (E), contained 8 items *(Psychology is enjoyable and stimulating to me; I am interested and willing to acquire further knowledge of psychology; I dislike the psychology subject; Psychology is an uninteresting subject; Psychology is very interesting; I like to use psychology to solve social issues [*]; Psychology makes me feel confused [*]; and I have never liked psychology [*])*. Three items in this component were removed from consideration as their removal increased the magnitude of the Cronbach Alpha coefficient. The students' responses to the two scales were checked for internal consistency by computing respective Cronbach Alpha coefficients. Table 2.2 described scales, sources and alpha coefficient of two scales.

Self-esteem scales

The present study used the self-esteem scale developed by the researcher to measure the students' self-esteem in psychology. This scale included 19 items, and was in a format of Likert type. The responses to each item were coded as 1 (SD), 2 (D), 3 (U), 4 (A), or 5 (SA). The 19 items of the self-esteem scale were subjected to principal component analysis (PCA). Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .73, and reached statistical significance ($p < .000$) supporting the factorability of the correlation matrix. An inspection of the scree plot revealed two clear breaks. Using Catell's (1966) scree test, it was decided to retain two components for further investigation. The two-component solution explained a total of 45,1% the variance, with component 1 contributing 26,2%, and component 2 contributing 18,8%. The first component, called social self-esteem (SS), consisted of 10 items *(I liked to do psychology tasks with my classmates; My lecturer usually helped me to study psychology in the classroom; My lecturer encouraged me to study psychology well; My best friends valued my personal opinions in the class; My lecturer discussed psychology knowledge with my classmates; I did like study psychology with my classmates; I usually got the support from my classmates to study psychology; My classmates hardly helped me to study psychology; My classmates disliked to do psychology tasks in groups; I do not have ability to use psychology knowledge outside the class [*])*. Only one item [*] in this component was removed from consideration as its removal increased the magnitude of the Cronbach Alpha coefficient. The second component, called academic self-esteem (AS), consisted of 9 items *(I believed I have ability to study the psychology subject; I had enough intelligence to study psychology; I had ability to use psychology knowledge to solve a social issue with different ways; I was not good at studying psychology; I had valuable contributions to the psychology lessons; I could use psychology knowledge to solve social issues; I had ability to study psychology [*]; I could not solve social issues with psychology knowledge [*]; I had not enough to study psychology [*])*. Three items in this component were removed from consideration as their removal increased the magnitude of the Cronbach Alpha coefficient. The students' responses to the two scales

were checked for internal consistency by computing respective Cronbach Alpha coefficients. Table 2.2 described scales, sources and alpha coefficient of two scales.

2.3. Research design

The design used in this study was the pretest-posttest non-equivalent comparison-group design (Table 2.3). This design was selected because it may help test the cause and effect relationship between the independent variable and the dependent variables.

Table 2.3. *Research design*

Group	Pretest	Treatment	Posttest
Experimental group **(n_1 = 55)**	O1 - Psychology knowledge (Dependent variable)	X Learning together (Independent variable)	O3 - Classroom environment - Attitudes - Self-esteem (Dependent variable)
Control group **(n_1 = 55)**	O2 - Psychology knowledge (Dependent variable)	- Lecture-based teaching (Independent variable)	O4 - Classroom environment - Attitudes - Self-esteem (Dependent variable)

2.4. Experimental procedure

Prior to the beginning of the academic year, two intact primary education classes at An Giang University in Vietnam were selected for the study before these classes were scheduled. One class was randomly chosen to receive lecture-based teaching technique and acted as the control group, and the other received learning together technique and acted as the treatment group in a psychology course for 8 weeks. A pretest on psychology was administered to both groups before the treatment. The psychology course comprised 8 units (consciousness, feeling, perception, thinking, imagination, sentiment, will, and memory). Each unit taught within 100 minutes in one week. The same psychology lecturer taught both group. In the control group, the lecturer instructed students to learn the psychology content as a result of lecture-based teaching in logical steps, and students worked as a whole class group. In the treatment group, the lecturer guided students to learn the psychology knowledge content using the learning together technique. In this group, the lecturer applied the following eight steps: (1) the lecturer organized the learning materials and identified the objectives of the subject matter, (2) the lecturer introduced the structure of the lesson, and raised the outcomes expected, (3) the lecturer formed groups, (4) the lecturer moved students to

groups assigned, (5) the lecturer delivered the learning materials to students, (6) students studied their learning materials, (7) students helped each other to learn their learning materials, (8) students presented their understanding of the entire unit, and (9) the lecturer assessed students' understanding through their presentation in front of the whole class. This whole process was repeated 8 times, once for each unit of work. Throughout the experiment both groups could not meet at the same time as they were taught by the same mathematics teacher. Therefore, the treatment group was conducted on Wednesdays, while the control group was on Fridays. Both groups covered the same psychology content and received psychology instruction for the same amount of time in the mornings, and in the same room. All students in both groups participated in one instructional session of 100 minutes per week for each unit over the 8 weeks. After the treatment, both groups took a posttest measuring some factors of the classroom learning environment and a posttest measuring the attitude and self-esteem of students toward the psychology.

2.5. Data analysis

A one-way ANOVA analysis was performed to compare the means of the pretest scores between the groups before the treatment. An independent-samples t-test was used to compare the scores of classroom learning environment factors, attitude scales and self-esteem scales between two groups. All analyses were tested for significance at the .05 level.

3. Results and discussion

Classroom learning environment

The results obtained from t-test analyses showed no statistically significant difference in scores of the four components of the teaching efficacy between the experimental group and the control group (Table 3.1). Results support the first hypothesis that; students' perceptions of the teaching efficacy of the lecturer between the experimental group and control group will not differ, whether taught by cooperative learning or taught through lecture-based teaching. The students in both groups have similar perceptions of much of the teaching efficacy. They do not differ significantly for four components of instruction, namely teaching skills, efficacy for student engagement, learning goal direction, and professional capacity. The students perceived teaching skills as effective. The lecturer helped students comprehend the psychology knowledge content well by organizing lessons systematically, asking questions to check students' understanding, and giving satisfactory answers. The students also valued the teacher's efforts in facilitating their appreciation of the learning material and directing learning goals clearly. The lecturer made the lessons interesting, and engaged students to ask questions. In addition, students perceived the lecturer as knowledgeable and enthusiastic about the subject, and they were pleased with how much they were learning. Such positive perceptions on these four instructional factors indicated that the lecturer who taught the psychology to both groups was not biased against students in

the control group.

However, the results obtained from t-test analyses showed students in both groups have significantly different perceptions regarding the learning activity component of the classroom learning environment, namely student centered learning, cohesiveness and satisfaction. Results support the second hypothesis that; students' perceptions of the learning activity between the between the experimental group and control group will differ. The findings obtained from the t-test analyses showed that the student centered learning, cohesiveness and satisfaction mean scores of the treatment group were statistically significantly higher than those of the control group (Table 3.1). The students in the experimental group perceived their learning as more cooperative and more student-centered than did those in the control group. The former students reported more learning in groups, more helping and teaching each other, and more discussing the learning material among participants as well as a greater exchange of information. In the experimental group students perceived the relationship between students as cohesive and they were satisfied with how much they were learning. These perceptions of the classroom learning environment are compatible with the nature of cooperative learning in which students work together to maximize their own learning and others' learning [11]. This validated the cooperative learning treatment in the experimental group.

Table 3.1. *Results from t-test analyses on the classroom learning scales*

Variable	**Experimental group (n_1 = 55)**			**Control group (n_2 = 55)**				
	Mean	S.D.		Mean	S.D	t-value	Mean difference	p-value
Teaching efficacy								
Teaching skills	3.90	.70		3.75	.66	1.14	.14	.256
Efficacy for student engagement	3.82	.63		3.70	.54	1.04	.11	.298
Learning goal direction	3.88	.75		3.69	.68	1.41	.19	.159
Professional capacity	4.04	.60		3.84	.77	1.56	.20	.122
Learning activity								
Student centered learning	3.99	.70		3.55	.52	3.86	.45	.000*
Cohesiveness	4.02	.79		3.69	.71	2.30	.33	.024*
Satisfaction	3.91	.83		3.60	.75	2.10	.31	.037*

*p <.05 (significantly different)

Attitude

The findings obtained from the t-test analyses showed that the value of psychology and enjoyment of psychology mean scores of the treatment group were statistically significantly higher than those of the control group (Table 3.2). The results showed that the treatment group, which had engaged in cooperative learning, produced a higher overall improvement in scores on both V and E attitude scales ($p < .05$). Results support the third hypothesis that; students in the experimental group have more positive attitudes toward learning than students in the control group. These results are consistent with student responses to cooperative learning reported by other researchers [7; 16; 6; 12]. Students had positive attitudes toward their learning since they were socially, academically and psychologically successful [15]. These findings clearly supported several previous studies which show that cooperative learning groups result in positive attitudes of students toward the subject matter [47; 15].

Table 3.2. *Results from t-test analyses on attitude scales*

Variable	**Experimental group ($n_1 = 55$)**			**Control group ($n_2 = 55$)**				
	Mean	S.D.		Mean	S.D	t-value	Mean difference	p-value
Value of psychology	3.96	.81		3.61	.66	2.41	.34	.017*
Enjoyment of psychology	3.80	.65		3.50	.51	2.65	.30	.009*

*p <.05 (significantly different)

Self-esteem

The findings obtained from the t-test analyses showed that the social self-esteem and academic self-esteem mean scores of the treatment group were statistically significantly higher than those of the control group (Table 3.3). Results support the fourth hypothesis that; students in the experimental group have greater self-esteem in learning than students in the control group. The results showed that the treatment group, which had engaged in cooperative learning, produced a higher overall improvement in scores on both SS and AS scales ($p < .05$). The results of this study validated the findings of other studies [7; 2; 8; 12] which indicate that cooperative learning facilitates greater improvement in self-esteem than does competitive or individualistic learning environments. These findings clearly support several previous studies which show that cooperative learning groups result in positive relationships among participants [16; 7], and enhance learning skills and self-esteem [3].

Table 3.3. *Results from t-test analyses on the self-esteem scales*

Variable	**Experimental group (n_1 = 55)**			**Control group (n_2 = 55)**				
	Mean	S.D.		Mean	S.D	t-value	Mean difference	p-value
Social self-esteem	3.92	.78		3.60	.66	2.40	.33	.018*
Academic self-esteem	3.79	.60		3.51	.54	2.57	.28	.011*

*p <.05 (significantly different)

4. Conclusion

Cooperative learning advanced the social, psychological and affective growth of a sample of Vietnamese students because it provided an interactive approach for learning. The students in the learning together condition perceived the learning environment as more cohesive and satisfied than the students in the traditional learning condition. This study further reported that the experimental group had significantly higher scores in both the academic ability and the social support scales of self-esteem in psychology than the control group. This study also claims that the frequent reciprocal interaction among participants in the treatment group enhanced positive attitudes toward learning. This study supported the findings of previous studies from different cultures, and claims that cooperative learning is an effective teaching approach. The findings provide Vietnamese teachers with more empirical support for promoting productive changes in teaching methods to improve students' classroom learning environment and their self-esteem and attitudes toward learning. Therefore, cooperative learning is highly recommended as an alternative instructional pedagogy in the current wave of educational reform in Vietnamese schools, especially in relation to the aim of making the learning environment more stimulating for students. In this study the significant improvement of students' social, psychological and affective domains suggests that cooperative learning has considerable potential for promoting a better quality of instruction and learning in the level of Vietnamese higher education. As only a few research studies have investigated the effectiveness of cooperative learning in Vietnamese higher education, the findings of this study are not sufficient to decide on the optimal use of cooperative learning at this level of education in Vietnam. Therefore, a series of further studies on cooperative learning at the higher education should be conducted.

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