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The Effects of the STAD-Cooperative Learning Method on Student Achievement, Attitude and Motivation in Economics Education

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ABSTRACT Scholars in student learning have shown a growing interest in using Student Teams Achievement Divisions (STAD) as a cooperative learning technique in classroom teaching. This study explores the effects of STAD on student achievement, attitude and motivation in economics education. Three research instruments, a Test of Economic Literacy (TEL); a Motivation Scale and an Economics Modular Test were employed for the purpose of this study. Quasi-experimental research, a pretest-posttest design was constructed for the purpose of this research. Results revealed that STAD compared to direct instruction promoted positive attitudes, showed better achievements and motivated students to learn in economics education.

INTRODUCTION

Scholars in student learning have shown a growing interest in using Student Teams Achievement Divisions (STAD) as a cooperative learning technique in classroom teaching. In the past two decades major theoretical perspectives have been explored, related to cooperative learning, namely motivational and cognitive theories on student learning (Slavin 1987). Killen (2007) defines cooperative learning as an instructional design that stimulates peer interaction and learner-to–learner cooperation with the aim of fostering successful learning by all. Van Wyk (2010) reports that cooperative learning is a practical teaching strategy, offering students more active learning experiences, equal access to learning and a more supportive social environment. Moreover, Adams and Hamm (1996) state that cooperative learning as a teaching strategy has been a success story in the transformation of education over the past decade. Student Teams Achievement Divisions as a cooperative learning experiment was designed and researched by Johns Hopkins University and is known as "student team learning" (Sharan 1994). Research studies in the use of STAD as a teaching technique have been applied with great success in various research projects (Slavin 1987; Vaughan 2002; Jacobs et al. 2003; van Wyk 2010).

This paper briefly discusses the conceptualization of STAD as a cooperative learning experiment. Secondly, the research design and data collection procedures are explained. Lastly, the findings of the study are reported.

Student Teams Achievement Divisions (STAD) as a Cooperative Learning Technique

Cooperative learning is generally defined, as will become clear from the following two definitions, as a continuum of learners working together in a small group, so that everyone can participate in the collective task that has been clearly defined by the teacher. Cooperative learning is not merely another name for group work as it includes more than learners simply working together in groups. Cooperative learning is a practical teaching strategy to offer learners more active learning experiences, equal access to learning and a more supportive social environment (Johnson et al.1999). Killen (2007) defines cooperative learning as an instructional design that stimulates peer interaction and learner-to–learner cooperation in the process of fostering successful learning by all. Adams and Hamm (1996) state that cooperative learning as a teaching strategy is a success story in the transformation of education over the past decade. Their research focuses on the application of cooperative learning activities in the classroom where students jointly and creatively identify problems and generate practicable solutions. Sapon-Shevin and Schniedewind (1992) contend that cooperative learning is necessary in any teaching-learning

situation, because this particular strategy "can foster educational excellence for all children regardless of race, class, or gender, and can provide students and teachers with the experience and expectations of active participation in controlling and changing the spheres of their lives" (p.32).

Gathering learners together in a group is no guarantee that they will work together. According to van Wyk (2007), cooperative learning involves much more than regular group work: "Cooperation is much more than physically associating with other students, discussing material with them, helping them, or sharing knowledge with them" (p. 231). These elements are all important for cooperative learning, but Johnson et al. (1999) identify four basic elements that should be present before cooperative learning groups can truly function cooperatively: Positive interdependency, Group interaction, Individual learning performance and Interpersonal and small-group skills. There are different forms of cooperative learning techniques such as Student Teams-Achievement Divisions (STAD), Teams-Games-Tournament (TGT), Jigsaw, Cooperative Integrated Reading and Composition (CIRC), Learning Together (LT), Team Assisted Individualisation (TAI), Academic Controversy (AC), Group Investigation (GI), etc. (Kagan 1994). The idea which lies beneath all cooperative learning methods is that students work together to learn and are responsible for one another's learning as well as their own (Slavin 1994). These two methods can easily be used in economics education classes and they combine cooperative goals and tasks with a high degree of individual accountability (Slavin 1990). These two methods were used because they have simple procedures that are easy to understand, remember and apply.

The cooperative learning technique that has been extensively researched and assessed specifically on academic achievements, attitudes, social interactions and interpersonal relationships is the Student Teams Achievement Divisions (STAD) (Slavin 1983, 1990; Kagan 1994; Johnson and Johnson 1998; Johnson et al. 1999; Balfakih 2003; Bernaus and Gardner 2008; Tarim and Akdeniz 2008). STAD is one of the simplest and most extensively researched forms of all cooperative learning techniques and it could be an effective instrument to begin with for teachers who are new to the cooperative learning technique (Slavin 1990; Becker and Watts 1998). STAD as a teaching technique was designed and researched by Johns Hopkins University and is known as "student team learning" (Sharan 1995). Research studies in the use of STAD as a teaching technique has been applied with great success in various research projects (Vaughan 2002; Jacobs et al. 2003; van Wyk 2010). The main purpose of STAD is to drastically improve and accelerate learner performance. The modified STAD consists of: subsection teams; individual improvement scores; class presentations/demonstrations and economic quizzes.

Design of the Modified STAD: The teams for this research consist of heterogeneous groups of five members composed on the basis of random selection in accordance with gender and ethnicity (diversity). Each week new subject matter and material of the module EEE 112 (elementary economics) was introduced (van Wyk 2008). The researcher assigned the learners to groups, because learners tend to choose only certain members for their groups. According to Slavin (1994) "*the main idea behind STAD is to motivate students to encourage and help one another master skills presented by the teacher" (p. 23).* Teams had the opportunity to choose a creative name for their respective group and team members remain in their respective groups for the rest of the semester. Team members study the subject matter and learning material together until all students successfully master the subject matter and work assignments. Each student is tested individually on the learning material without any assistance from other learners. Each student's points (marks per worksheet or assignment) are constantly compared with the points (marks) scored previously. The sum of the individual points (marks) in a group serves as the basis for the points allocated to the group. Group members compete with one another and earn certificates on the basis of how well the group performs. Groups are rewarded marks (points) which count towards their semester mark (continuous assessment mark).

Components of the Modified STAD: Slavin (1990) stipulates five major components of the STAD, namely: class presentations, teams, quizzes, individual improvement scores, and team recognition. The researcher implemented a modified STAD during the contact sessions and focused on elements such as direct instruction,

class demonstrations, student presentations through role play, simulations and group discussions. Some of these class presentations were done through audiovisual presentations, such as the playing of a DVD of elementary economics topics during contact sessions (Becker and Watts 1998; van Wyk 2010). Students observed and gave presentations per group on activities during the contact sessions. Students paid special attention to the researcher's presentations during the contact sessions on economic content and skills.

Students in the experimental group (STAD) received individual grades on their assignments. However, the individual performances of team members were combined at the end of each week for a team score. The team with the best score for the previous week (determined by team members' individual improvement) was acknowledged at the beginning of each week with verbal recognition from the researcher (lecturer) and the results written up on a team success chart located in the classroom and also on a 'Blackboard' (e-learning management network system).

The purpose of this study is to explore the effects of Student Teams Achievement Divisions as a cooperative learning experience in relation to direct instruction on student achievement, attitude and motivation in economics education. This study was then guided by the following specific research questions:

1. Is there a significant difference between the effects of STAD as a cooperative learning approach and the direct instruction approach on student teachers' economics education achievement scores?
2. Is there a significant difference between the effects of STAD as a cooperative learning approach and the direct instruction approach on student teachers' economics education attitude scores?
3. When compared to students receiving direct instruction, do students in STAD, as a cooperative learning approach (a) display higher levels of achievement, (b) report being more learning goal oriented, (c) have greater positive self-efficacy beliefs regarding their abilities in economics education, (d) display greater intrinsic valuing of economics, and (e) report the use of deeper cognitive processing strategies?

METHODOLOGICAL CONSIDERATIONS

Research Design: For this research study, quasi-experimental research, pretest-posttest design, with partially matched experimental and control groups, was constructed because of its resistance to common threats to internal validity. The design of a quasi-experiment relates to the setting up of a particular type of experiment or other study in which one has little or no control over the allocation of the treatments or other factors being studied. The key difference in this empirical approach is the lack of random assignment (Mouton 2001; Gray 2004).

Sampling: Third-year education student teachers were identified for the experiment. One hundred and sixty-eight Baccalaureus of Education (BEd) students who were registered for the module EEE 112, elementary economics, participated in this study. These students were selected as the proportional stratified sample for the quasi-experimental research. The sample consisted of thirty-five percent (35%) Black students and sixty-five percent (65%) White students. Furthermore, 81% of the students were females (N=109) and 19% were males (N=59). The sample comprised the experimental group (N=85) and the control group (N=83), who were randomly selected from the registered list for module EEE 112. Both groups were taught by the researcher over a 12- week period of two contact sessions of 55 minutes per week for the first semester. The goal for both styles of instruction (direct instruction and STAD) was to have students gain an equal balance of conceptual and computational understanding of elementary economics. A standard curriculum (elementary economics) was followed with the cooperative group of students covering the same course objectives at the same pace as the direct instruction group (van Wyk 2008). The cooperative learning was based on the previous work reported by Slavin (1990) and van Wyk (2010) on Student Teams Achievement Divisions (STAD). Students receiving STAD instruction were placed by the researcher (instructor) in heterogeneous groups consisting of four to five students. Sherman and Thomas (1986) reported student achievement in elementary mathematics classes which used to place students in these CL-groups. Each group consisted of a prior low-achieving student (grade of D), a low–medium

achieving student (grade of C), a high–medium achieving student (grade of B), and a high achieving student (grade of A).

Research Instruments

***Motivation Scale*:** Five dependent variables were measured on the motivation scale: achievement, goal orientation, self-efficacy, intrinsic motivation toward economics, and cognitive processing. An eighty-three-item motivational scale questionnaire was developed to assess the various aspects of student motivation. Variations of this questionnaire have been used by Miller and his colleagues (Miller et al. 1993; Nichols and Miller 1994) on related research projects. The items were Likert-type questions intended to measure student learning and performance goal orientation (12 items), perceived intrinsic and extrinsic valuing of a task (four each subscale), cognitive strategy use (nine deep strategy and nine shallow strategy items), and self-efficacy (eight items). The items were randomly ordered using a 5-point scale with 'strongly agree' and 'strongly disagree' at the extremes. The internal reliability coefficients from the pre-, post-, and post-posttest questionnaire subscales ranged from r=.41 to r=.93. The questionnaire was distributed during the first week of school in August 2010, at the end of the first 6-week grading period and again at the end of the second 6-week grading period. Students completed the questionnaire at the conclusion of each phase of the project in approximately 20 minutes.

The *Test of Economic Literacy* (TEL) which is a standardised test of economics content, is nationally norm-referenced in the United States for use in high schools and first-year economics classes at university level (NCEE 1987; NCEE 2005). The statistical tool used was the Cronbach's alpha coefficient which indicates a measure of internal consistency of the items in the questionnaire (Huysamen 1993). Furthermore, Starborn (2006) mentions that Cronbach's alpha is an appropriate test to use to assess the internal consistency of scales that are computed from a 5-point Likert scale. To test the reliability of the research results, Cronbach's alpha coefficient was calculated for items in question 2 (0.9501 > p), question 3 (0.8788 > p) and question 4 (0.733 > p).

Economics Modular Tests: In addition, two economics modular tests (2 x 50 marks) reflecting the subject content: curriculum statement objectives, economic concepts, microeconomics, economic development, and entrepreneurship were used to measure achievement. These tests or variations of them have been used in previous years. The first was a 25-question multiple choice test with items derived specifically from the objectives students worked on in both the experimental and control groups. This test was administered at the end of the first 6-week grading period and the score counted as 20% of the students' term grade. The second economics test was similar in nature and the results were used to compute the semester grade. It was administered following the second 9-week grading period. At each testing period, students had 1 hour to complete the exam. Reliabilities for each of the two economics 6-week exams were calculated using the Kuder–Richardson 20 and were r = .85 and r = .88. All students had to complete the tests on the e-learning system, 'Blackboard', on a specified date.

RESULTS

This study aimed to explore whether there was any significant difference between the means of the pre-and posttests of the students of the STAD and control groups' achievement, attitude and motivation. Independent t-tests and paired t-tests for both achievement and attitude tests comparing the mean scores of the pretest and the posttest between the experimental group and control group were computed to determine if a significant difference existed. In order to reject or accept the hypothesis for this study, the t-test scores for both groups were computed. The internal reliability of the instruments and the consistency of the significant correlations throughout the project among several of the motivation subscales provide support for the construct validity of the instruments.

Based on the data in Table 1, mean of pretest scores prior to instruction is not significantly different (t_{66} = -0.078, $p<0.05$). The results of post-achievement test indicate that the mean of post-test scores for participants in the experimental group that studied STAD as a cooperative learning technique are statistically different from the control group that learned via direct instruction (t_{66}= -5.231, $p<0.05$).

Table 1: Independent t-test results of data gained from achievement scale

Tests	*Groups*	*N*	*Mean*	*SD*	*t*	*P*
Pretest	Experimental	88	32.88	4.55	-0.078	0.956
	Control	80	33.44	4.23		
Posttest	Experimental	88	57.89	4.67	-5.231	0.000*
	Control	80	54.23	5.67		

**Significant at p<0.05 (Sig. 2-tailed)

Table 2: Paired samples t-test results of data gained from achievement scale

Groups	*Tests*	*N*	*Mean*	*SD*	*t*	*P*
Experimental	Pre-test	88	31.78	4.66	-29.018	0.000*
	Post-test	88	59.04	4.73		
Control	Pre-test	80	37.49	4.37	-2.631	0.0210*
	Post-test	80	39.13	7.17		

*Significant at p<0.05 (Sig. 2-tailed)

Table 2 reported the paired samples t-test results of data gained from the achievement scale. The use of the paired sample t-test on the gathered data reveals that both the STAD cooperative learning technique experience (t_{168} = -29.018, p<0.05) and direct instruction (t_{168} = -2.631 p<0.05) are statistically effective for the achievement of students in economics. STAD as a cooperative learning experience, however, leads to a better performance of achievement than direct instruction. The change in scores of the pretest and posttests for experimental and control groups is presented in Figure 1.

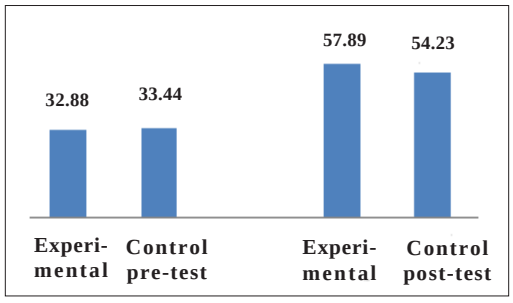

Fig. 1. Change in pre-test and post-test scores of achievement

Based on the results in Table 3, independent t-test results of data gained from attitude scale are reported. A summary is given of independent t-test results comparing the mean scores of economics education students' performances in both the experimental and control groups with respect to the achievement and attitude scales. As seen in Table 3, the mean of pre-test scores for both groups is statistically significantly different (t_{168} = -0.021 p<0.05). The analysis of the results of the post-tests in the attitude test indicates that the mean of post-test scores for the experimental group (mean=87.19) that studied the STAD cooperatively performed better compared to the control group (mean= 77.23).

Table 4 reports the paired samples t-test results of data gained from the attitude scale that aimed to assess the effects of direct instruction on students' attitude toward economics education. The findings from the experimental group, however, showed that STAD cooperatively, which took place in the experimental group, is statistically effective on the attitude toward economics education (t_{168} = -4.018, p<0.05). It is reasonable to claim that STAD as a cooperative learning experience is more effective in promoting a positive attitude in students towards economics education than direct instruction. Figure 2, depicts the changes in pre- and post-test mean scores of the attitude towards economics education. There is also a relative decrease in students' positive attitude scores after direct

Table 3: Independent t-test results of data gained from attitude scale

Tests	*Groups*	*N*	*Mean*	*SD*	*t*	*P*
Pretest	Experimental	88	77.88	14.55	1.08	0.256
	Control	80	79.44	18.23		
Posttest	Experimental	88	87.19	13.67	-0.021*	0.022*
	Control	80	77.23	23.67		

**Significant at p<0.05 (Sig. 2-tailed)

Table 4 : Paired samples t-test results of data gained from attitude scale

Groups	*Tests*	*N*	*Mean*	*SD*	*t*	*P*
Experimental	Pre-test	88	71.78	14.06	-4.018	0.000**
	Post-test	88	78.04	13.73		
Control	Pre-test	80	77.49	16.37	0.556	0.595
	Post-test	80	72.13	24.17		

**Significant at p<0.05 (Sig. 2-tailed)

instruction, whereas STAD cooperatively showed an increase in positive attitude scores towards the subject.

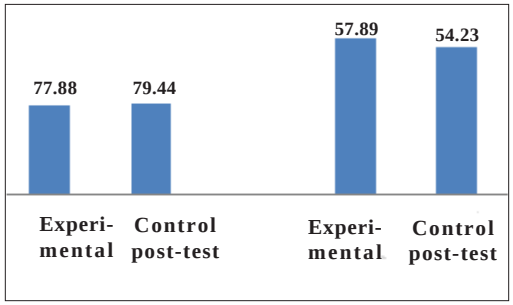

Fig. 2. Change in pre-and post-test mean scores of attitude toward economics

The means and standard deviations for the pre-test, and post-test achievement, attitude and motivation mean scores are reported in Table 5, Figures 3 and 4.

Using the achievement measure as a covariate, analysis of covariance revealed a significant difference between the two groups on the achievement variable at the pre-test-post-test on the experimental group, F(88) 27.26, p<.05 of the study (Table 5). Planned comparisons revealed that achievement scores of the STAD experimental group were significantly greater

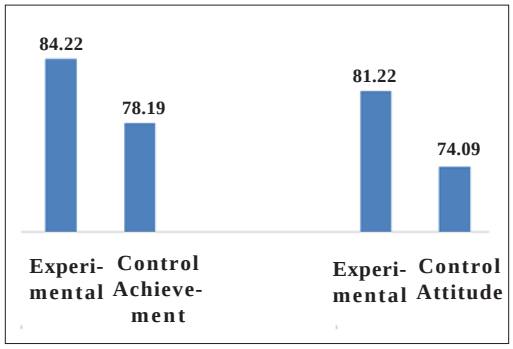

Fig. 3. Pre-post-test means scores in achievement and attitude tests

than those of the control t_{168} 19.91, p < .05, at the end of the twelve weeks of the study. The analysis of the achievement and attitude test data indicate significant overall effects, controlling for pre-test, F(79.22)=3.24, p=0.000. Regarding academic achievement, students in the STAD experimental group benefited significantly more than those in the direct instruction control group (mean difference: 3.24, p=0.000), as did students in the STAD groups (mean difference: 4.26, p=0.000). On the attitude test data, the overall analysis for covariance for both groups, F(71.22)=11.69, p=0.018, showed significant effects attitude toward economics.

Table 6 indicated the motivational variables for both groups of the study. A repeated-mea-

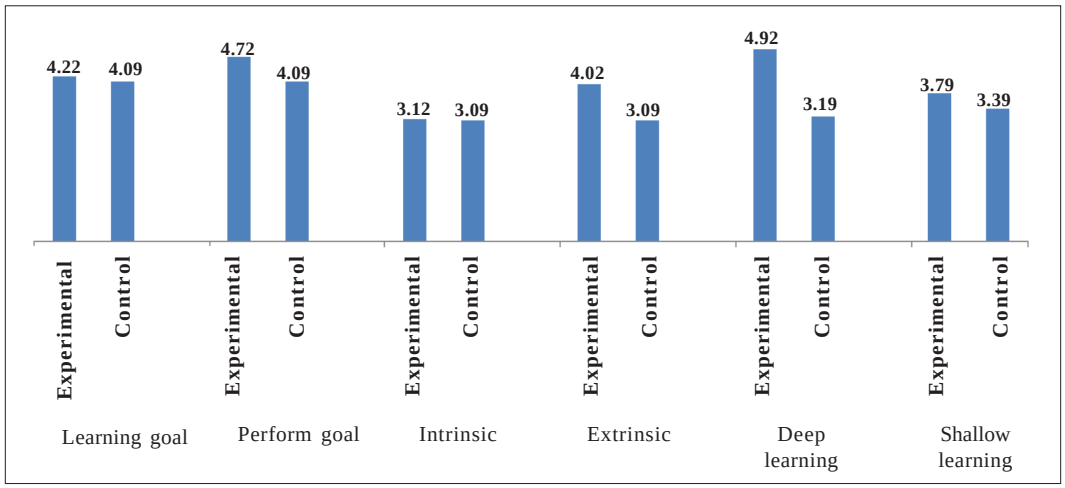

Fig. 4. Comparison of motivation variables on mean scores between experimental (N=88) and control groups (N=82)

Table 5: Results of analysis of covariance of overall achievement and attitude scales

Measures	*F*	*df*	*P*	*Direction*
Achievement overall	79.22	3.24	0.000*	
STAD vs Direct instruction	74.26	4.26	0.000*	STAD > Direct instruction
Attitude toward economics	71.22	11.69	0.018*	Experimental = Control

sures multivariate analysis of variance was used to determine if significant differences existed among groups on the motivational variables at each phase of the study. Results for the learning goal variable showed a significant group main effect F(2.63) 3.81, p < .01; and a significant group by time interaction F(4.15) 37.76, p < .01. Performance goals also showed a significant main effect for group F(2.63) 4.83, p < .01, for time F(2.15) 21.51, p< .01, and showed a group by time interaction F(4.15) 22.95, p < .01. Results for self-efficacy revealed significant group main effects F(2.63) 2.23, p < .01, significant effects for time F(2.15) 56.05, p < .05, and a significant group by time interaction F(4.15) 38.57, p < .01. Intrinsic valuing of the learning task showed a significant group main effect F(2.63) 1.35, p < .01, a significant effect for time F(2.15) 70.80, p < .01 and a significant group by time interaction F(4.15) 47.09, p < .01. Extrinsic valuing of the learning task also exhibited a significant group main effect F(2.76) 7.27, p < .01, a significant effect for time F(2.15) 10.77, p< .01, and a significant group by time interaction F(4.15) 3.55, p < .01. Students involved with the cooperative learning experience also exhibited significant gains in their reported use of shallow and deep processing strategies. The analysis of shallow processing revealed a significant group effect F(2.63) 3.38, p < .05, a significant effect for time F(2.15) 23.03, p<.01, and a significant group by time interaction F(4.15) 5.27, p< .05. The results for the reported use of deep processing revealed a significant group effect F(2.63) 9.82, p< .05, a significant effect for time F(2.15) 58.42, p < .01, and a significant group by time interaction F(4.15) 9.32, p < .01.

DISCUSSION

The results of this investigation into the impact of cooperative learning on students in economics education provide optimistic support for this instructional technique. Achievement gains were observed in the STAD experimental group when cooperative learning experience was implemented. This is consistent with similar achievement gains previously reported (Stahl and Van Sickle 1992; Nichols and Miller 1994; Slavin 1990; van Wyk 2010). When cooperative learning techniques are used properly, achievement benefits appear to be one of the results that can be anticipated. The results of this study

Table 6: Achievement, attitude and motivation means and standard deviations (SD) of experimental (n=88) and control groups (n=80)

		Pretest		*Posttest*	
		M	*SD*	*M*	*SD*
	Achievement Scale				
	Experimental	31.78	4.66	59.04	4.73
	Control	37.49	4.37	39.13	7.17
	Attitude Scale				
	Experimental	71.78	14.06	78.04	13.73
	Control	77.49	16.73	72.13	24.17
Motivational Variables	*Learning Goal*				
	Experimental	3.08	.80	6.89	.67
	Control	3.14	.64	4.23	.45
	Perform Goal				
	Experimental	3.08	.60	6.19	.77
	Control	3.08	.60	6.19	.77
	Intrinsic				
	Experimental	2.88	.90	6.39	1.77
	Control	2.44	1.14	5.03	1.65
	Extrinsic				
	Experimental	3.18	.35	4.19	.47
	Control	3.74	.44	3.23	.51
	Efficacy				
	Experimental	3.68	.69	6.09	.42
	Control	3.94	.54	4.03	.55
	Shallow Learning				
	Experimental	3.18	.50	6.99	.60
	Control	3.19	.64	4.83	.47
	Deep Learning				
	Experimental	3.68	.69	6.19	.31
	Control	3.14	.54	4.23	.45

also offer support for previous findings in that cooperative learning instruction was used to explore student motivation in a variety of ways (Nichols and Miller 1994). Both groups of students in this research who received STAD as a cooperative learning experience, as well as direct instruction increased their intrinsic valuing of the learning task, self-efficacy, learning goal orientations and their reported use of deep processing strategies for this project. In previous studies, Bernaus and Gardner (2008) and van Wyk (2007) observed increases in achievement and motivation gains when cooperative learning replaced the traditional form of instruction. One goal of this study was to replicate these findings while improving upon the design of the earlier project. In the earlier study, van Wyk (2010) used STAD in a quasi-experimental design on student performances in economic literacy. The results showed that the experimental group had a 16.13 score; an increase from the pre-test to the post-test compared to the control group. The experimental group which was exposed to STAD had a statistically significant increase in economic literacy levels compared to the control group. By using the STAD experimental group and implementing cooperative learning at two different times of the year, the findings of this project provide additional support for this type of instruction technique. Emanating from this study, it has been suggested that student perceptions of the learning environment remain relatively fixed or stable after the first six weeks of contact; after this time it becomes difficult to change their impressions (Bernaus and Gardner 2008; Nichols and Miller 1994). The findings of this study suggest that STAD as cooperative learning technique is one avenue that effectively promotes a positive change in student perceptions and motivation. A second design improvement was the use of Slavin's Student Teams Achievement Divisions (STAD) design as opposed to Team Assisted Individualisation (TAI) in the earlier studies. The previous findings were contingent with the use of TAI which incorporates individualised instruction. In the earlier study, a retesting component was used when students did not meet

predetermined objectives. The findings of the current study offer support for this type of instruction in that increases student motivation and achievement and may also be generalised to other cooperative group structures (in this case STAD) that do not include individualised instruction or a retesting component. Furthermore, several studies report that STAD is the most successful cooperative learning technique for increasing student academic achievement (Mills 2001; Zenginobuz and Meral 2008; van Wyk 2010). The bulk of research studies on STAD have been conducted at the elementary level and in subject areas other than social studies and economics education. Slavin (1995) reported on 29 studies that examined the effectiveness of STAD. Thus, it can be said that STAD as a teaching technique consistently has positive effects on economic literacy levels of all educational student learning. The findings of this investigation are also in agreement with the efficacy of STAD as a teaching technique for better performances in elementary economics (Vaughan 2002; van Wyk 2007). Additionally, research studies conducted in STAD as a teaching technique were also applied with great success in various research projects (Slavin 1994; Mills 2001).

CONCLUSION

The results of this study are encouraging and add to the work of other research studies conducted in this. While cooperative learning was found to be more effective than the lecture method with respect to home economics students' achievement and retention, the literature suggests there may be additional reasons to use cooperative learning.

In summation, the results indicated that STAD compared to direct instruction promotes positive attitudes, shows better achievements and motivates students to learn in economics education. The adoption of learning goals, the intrinsic valuing of the learning task, increased self-efficacy and increased use of deep processing strategies are all positive indications of the impact STAD, as a cooperative learning experience, can have on student motivation. Although several perspectives may be considered in interpreting these results, the initial findings are encouraging. Additional research should be conducted in the future that investigates the possible long-term effects of STAD as a cooperative learning technique and the subsequent decline of achievement and student motivation that was observed in the current and previous studies after the removal of cooperative group instruction. Future research should also focus on comparisons between the Jigsaw method and the STAD method of cooperative learning, as well as comparisons with the lecture method, in order to determine if other cooperative learning models are equally effective in producing desired student outcomes.

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REFERENCES

Adams D, Hamm M 1996. *Cooperative Learning: Critical Thinking and Collaboration Across the Curriculum*. Springfield, Illinois: Charles C Thomas Publishers.

Balfakih NMA 2003. The Effectiveness of Student Team-Achievement Division (STAD) for Teaching High School Chemistry in the United Arab Emirates. International Journal of Science Education 5(5): 605 – 624. From <http://www.informaworld.com/smpp/content~db=all~ content= a713864989> (Retrieved 10 December 2010).

Becker WE, Watts M 1998. *Teaching Economics to Undergraduates: Alternatives to Chalk and Talk*. Cheltenham: Edward Elgar Publishing Inc.

Bernaus M, Gardner RC 2008. Teacher motivation strategies, student perceptions, student motivation, and English achievement. *The Modern Language Journal*, 92: 387-401.

Gray DE 2004. *Doing Research in the Real World*. SAGE Publications: London.

Huysamen GK 1993. *Metodologie vir die sosiale en gedragswetenskappe*. Halfway House: Southern Boekuitgewers (Emds) Beperk.

Jacobs M, Gawe N, Vakalisa N 2003. *Teaching-Learning Dynamics: A Participative Approach for OBE*. Cape Town: Heinemann Publishers.

Johnson DW, Johnson RT 1998. *Cooperative Learning, Values and Culturally Plural Classrooms*. Boston: Interaction Book.

Johnson DW, Johnson RT, Taylor B 1999. Making cooperative learning work. *Theory into Practice*, 38(2): 67-73.

Johnson DW, Johnson RT, Maruyama G 1983. Effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analyses. *Psychological Bulletin*, 104: 207-216.

Johnson DW, Maruyama G, Johnson RT, Nelson D, Skon L 1981. Effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analysis. *Psychological Bulletin*, 89: 47-62.

Kagan S 1994. *Cooperative Learning*. San Juan Capistrano, CA: Kagan Cooperative Learning.

Killen R 2007. *Effective Teaching Strategies for OBE Teaching*. 2nd Edition. Boston: Social Science Press.

Miller RB, Behrens JT, Greene BA, Newman D 1993. Goals and perceived ability: Impact on student valuing, self regulation, and persistence. *Contemporary Educational Psychology*, 18: 2–14.

Mills JB 2001. Cooperative Learning: It's Here to Stay. Essays on Teaching Excellence, 12(8): 1-4 [Online]. From <file://C:my Documents\ cooperative learning it's here to stay.htm> (Retrieved: March 13, 2007).

Mouton J 2001. *How to Succeed in your Master's and Doctoral Studies: A South African Guide and Resource Book*. Pretoria: Van Schaik Publishers.

National Council on Economic Education (NCEE) 2005. *The National Council of Economic Education*. New York: Washington D.C.

National Council on Economic Education (NCEE) 1987. *America Economics and Economics International*. New York: Washington D.C.

Nichols J, Miller R 1994. Cooperative learning and student motivation. *Contemporary Educational Psychology*, 19(2): 167–178.

Nichols JD1998. The effects of cooperative learning on student achievement and motivation in a high school Geometry class. *Contemporary Educational Psychology*, 70(4): 532-538.

Sapon-Shevin M, Schniedewind N 1992. If cooperative learning's the answer, what are the questions? *Journal of Education*, 174(2): 11-37.

Sharan S 1994. *Handbook of Cooperative Learning Methods*. London: Greenwood Press.

Sharan S 1995. Cooperative learning. *Review of Educational Research*, 50(2): 315-345.

Sherman LW, Thomas M 1986. Mathematic achievement in cooperative goal-structured high school classrooms. *Journal of Educational Research*, 70(3): 169-172.

Slavin RE 1983. When does cooperative learning increase achievement? *Psychological Bulletin*, 94: 429-445.

Slavin RE 1987. Developmental and motivational perspectives on cooperative learning: A reconciliation. *Child Development*, 58: 1161-1167.

Slavin RE 1990. *Cooperative Learning: Theory, Research and Practice*. Massachusettes: Allen and Bacon.

Slavin RE 1994. Outcome-based education is not mastery learning. *Educational Leadership*, 51(6): 14.

Stahl RJ, Van Sickle RL 1992. *Cooperative Learning in the Social Studies Classroom: An Invitation to Social Study*. Washington, DC: National Council for the Social Studies.

Starborn K 2006. Cronbach's Alpha and Likert-Type Scales. From <http://listserve.uga.edu/cgi-bin/wa?A2=ind0605&L=spssx-1&P=29372> (Retrieved August 30, 2007).

Tarim K, Akdeniz F 2008**.** The Effects of Cooperative Learning on Turkish Elementary Students' Mathematics Achievement and Attitude towards Mathematics using TAI and

STAD methods. Educational Studies in Mathematics, 67(1): 77-91. From <http://www.springerlink.com/content/y52816481542x725/> (Retrieved December, 10, 2009).

Vaughan W 2002. Effects of cooperative learning on achievement and attitude among students of color. *The Journal of Educational Research*, 95(6): 359-364.

Van Wyk MM 2010. Do student teams achievement divisions enhance economic literacy? A quasi-experimental design. *Journal of Social Science*, 23(2): 83-89.

Van Wyk MM 2008. *Module EEE 112: Elementary Economics Study Guide for Bachelor of Education : Foundation and Intermediate Phase*. Bloemfontein: University of the Free State.

Van Wyk MM 2007. *The Use of Cooperative Learning in the Further Education and Training Phase in the Free State Province*. PhD Thesis, Unpublished. Bloemfontein: University of the Free State.

Zenginobuz B, Meral M 2008. The Impact of Cooperative Learning Techniques on Student Academic Performance in a High School Geometry Class in Turkey. In J Luca, E Weippl (Eds.): *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications*, pp. 2791-2801. Chesapeake, Virginia: AACE.