

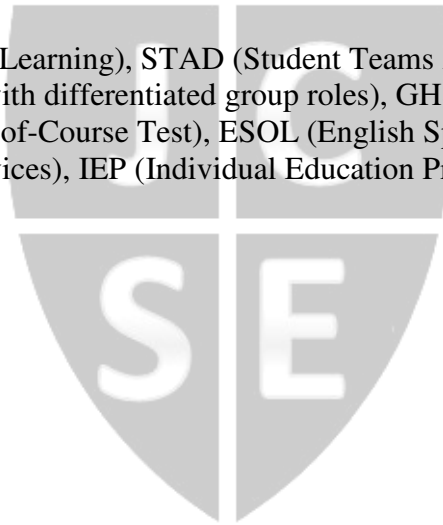
## **High school economics, cooperative learning, and the end-of-course-test—a case study**

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### **ABSTRACT**

The primary purpose of this twelve-week case study was to explore the use of a cooperative learning strategy with small groups of students in a 12<sup>th</sup>- grade economics class as diverse learners prepared for tests. The complete case study was based on observations of students, student surveys, focus group interviews, and interviews with educators at the school who had used cooperative learning strategies with their classes. The experiences of these students and educators informed the case study about individual and cooperative group learning, differentiated group roles, accountability, and test outcomes. Findings were consistent with the literature regarding secondary and higher education cooperative learning with positive outcomes for social and motivational factors.

Key Words: CL (Cooperative Learning), STAD (Student Teams Achievement Divisions), STAD-D (STAD augmented with differentiated group roles), GHSGT (Georgia High School Graduation Test), EOCT (End-of-Course Test), ESOL (English Speakers of Other Languages), ESS (Exceptional Student Services), IEP (Individual Education Program), LEP (Limited English Proficient)



## **PURPOSE OF THE STUDY**

This case study explored how a class of diverse high school seniors responded to instruction to help them learn economics concepts. It includes an exploration and analysis of how a cooperative group learning strategy impacted students in this class, which culminated in their taking the Economics End-of-Course Test (EOCT), a state requirement for Georgia high school graduation.

Cooperative learning was selected in this case study as a strategy to help students learn economic concepts that are tested on the Economics End-of-Course Test. Decades of research on cooperative learning indicate that it enhances achievement, motivation, self-esteem, social skills, and mutual success through collaborative effort (positive interdependence), group goals, and individual accountability for a wide variety of students (Johnson, D.W, Maruyama, Johnson, Nelson, & Skon, 1981).

Student Teams Achievement Divisions (STAD) was selected as a model for a specific type of cooperative learning (CL) method during this case study (Slavin, 1983). It was augmented for this study to include differentiated group roles and identified as (STAD-D). Cooperative learning has been demonstrated to have positive effects on achievement, motivation, social skills, and self-esteem across different subject areas.

It was hoped that the results of the EOCT economics scores would be positively affected by the use of the STAD-D cooperative learning strategy by a highly qualified teacher who had received specialized training for using CL with diverse students. A grade of 70 was a passing score for the economics EOCT.

## **SCHOOL POPULATION RESEARCH SITE AND BACKGROUND**

This research took place for twelve weeks during a recent fall block semester at a public high school in Northwest Georgia with an enrollment of 1412 students (606 Hispanic, 34 African-American, 37 multi-racial, 10 Asian and 744 White/non-Hispanic). Of this student population, over 153 were listed as economically disadvantaged, and 57% were receiving free and reduced lunch. The dropout rate for this high school was 35 percent, according to the school system. The senior class consisted of 232 enrolled students, the majority of whom were full time students.

## **METHODS AND PROCEDURES**

This case study incorporated triangulated mixed methods that included observation of groups within the classroom setting, including descriptive data, (open-ended questionnaires, focus group interviews, teacher interviews), quiz and test score results including pretest and EOCT, and thematic comparative analysis (Patton, 2002). This case study utilized triangulation in order to facilitate validity in the form of quantitative quizzes and EOCT standardized test score data, qualitative data analysis from the group work based on student surveys, focus group interviews of students based on cooperative learning differentiated roles, and interviews with teachers who have utilized cooperative learning strategies at this school. Data analysis included comparison of economics content quiz and pretest and EOCT scores, as well as CL STAD-D group scores. Qualitative data were examined, compared, and analyzed descriptively. Themes,

preponderance of responses, and coding were used to categorize qualitative interview and survey data.

A convenience sample of 27 diverse twelfth grade tech prep students participated in this study for twelve weeks. The instructor who taught the class daily was a veteran educator with several years of experience teaching secondary broad field social studies, including all levels of economics (tech prep, college prep, and honors). She had also taught sheltered ESOL social science classes and had received staff development training in CL methods. Additionally, the instructor had previously taught many of these students other social studies courses at this high school. The other educators at this school who were interviewed had received staff development training in CL and had taught classes using CL methods.

A pretest (a released 2004 economics EOCT) was administered to each student in the study near the beginning of the semester of the economics class. The same pretest was re-administered at approximately the midpoint of the study. Each of these scores was used as base values for the STAD-D individual scores during the first and second rounds of the team groupings. Students in this senior economics class were taught using whole class instruction and a cooperative learning method known as STAD (Slavin, 1983), which was augmented for the differentiated roles, and was preceded by team building activities. The team building activities included introduction interviews, choosing the team name, and working together to answer content and vocabulary questions posed during a game. All teams participated in these ice-breakers. This study augmented the STAD procedure with differentiated roles within each team, referred to in this study as STAD-D. By including the differentiated roles within each group, it was hoped that all team members would be required to share responsibility and accountability for both individual participation and group team performance.

Students provided qualitative information by responding to a learning styles inventory, numerous open-ended questions concerning how they learn best and a variety of surveys, including their attitude about economics, and by providing biographical and demographic information and completing team and personal rating sheets. Students also participated in an audio-recorded focus group discussion concerning their specific differentiated team group roles. The researcher was an observer. The researcher had access to all EOCT scores, as well as other student records.

The pretest was used to determine a base score for each student in the STAD-D cooperative learning class, which was then compared with a subject matter test score (for instance, over supply and demand) for the first three quizzes in order to produce individual improvement scores. The second pre-test became the base score for the second round of three quizzes. The quizzes were patterned as a 30-item version of the 90-item economics EOCT format. The base score for the third round of two quizzes was determined by an average of the quizzes from the second round of quizzes. This occurred for three rounds, and then a new base score (test average) was determined for each student. From these scores, individual improvement scores were derived for each team. Students earned points for their team based on the amount that their quiz scores exceeded their base (individual improvement) scores. The individual improvement score gave each student a performance goal that could be attained if he or she worked hard and, therefore, performed better than in the past. To compute a team score, improvement points of each team member were recorded on the team summary sheet, and total team improvement points were divided by the number of team members who were present. Therefore, team scores were a reflection of those who were present and were based on team summary improvement scores, not simply raw quiz scores.

The researcher observed the CL STAD-D class an average of three days per week (Tuesday, Thursday, and, occasionally, on Friday) from 2:00 to 3:30 P.M. While the numbers changed slightly due to enrollment shifts, 27 students returned the IRB consent forms signed by themselves (some were 18 years old) or their parents permitting them to participate in this study. The consent forms were printed in both English and Spanish.

Students were initially grouped according to criteria that heterogeneously mixed ability levels (based on the pretest), as well as whether a student was ESS (Exceptional Student Services) or ESOL or had recently exited from all but ESOL standard accommodation services. This was done in order to achieve an English proficiency balance among the groups. All of the bilingual students had been exited from ESOL and were being monitored only for potential academic problems. Therefore, they were eligible for standard classroom accommodations only. Most of the ESS students had an IEP (Individual Education Plan) with modifications and accommodations for testing, and they could take all tests with an ESS teacher in another classroom.

The students in the CL STAD-D teams were re-grouped about midway through the 12-week study with most receiving new differentiated roles. This was done to provide an opportunity for each student to work with a variety of other students as a team, as well as to participate in new team roles. The text used for the class was Prentice-Hall *Economics: Principles in Action*, 2005, by O'Sullivan and Sheffrin. The curriculum was based on the State of Georgia PSC standards for secondary economics.

Importantly, the researcher observed students within the CL STAD-D groups as they were assigned group roles and as they subsequently worked together processing and completing activities and worksheet information in their CL STAD-D practice review sessions. Students from each of the two different CL STAD-D groupings during the 12-week period participated in an audio-taped focus group discussion concerning their participation in the group process, including their differentiated roles/tasks and the ways in which CL STAD-D may have helped or not helped them to learn economics content information on which they were tested.

After each standards-based economics lesson was presented as whole class instruction by the teacher (using multiple representations), each team met to study, discuss, and explain guided practice review worksheets (answer check sheets were provided at the end of the group work and obtained by the gopher), as well as to complete cooperatively the guided practice work, which was followed by their individual group assessments. Each team was initially provided with only one guided practice review worksheet (writer), which forced team members to work cooperatively in order to complete it (they could each obtain a worksheet after the original was completed by the group). Team members were instructed to quiz each other in order to correct misconceptions and to use the team guided practice reviews to be sure that everyone had mastered the content. Team leaders were responsible for this. Students were required to explain answers to one another instead of simply checking each other against the answer sheet. One member, the explainer, summarized. If there were questions, team explainers were required to ask all team members first before asking the teacher. The teacher facilitated this process by circulating among teams and by sitting in with each team in order to observe team interactions as well as to hear how each team member was responding. Team spokespersons for each group related guided practice review outcomes/findings to the entire class, often by completing and explaining information or drawings on a poster. Each group was provided a folder containing the guided practice review information so that any group member who was absent would be able to get a copy of the materials. Each group member was individually responsible for the guided

practice review material he or she missed due to an absence. Additionally, it was the responsibility of each group to keep all group members up to date on the group work in order to prepare for quizzes. Group members also rated each other, as well as themselves.

Team recognition award criteria were based on three levels of accomplishment that were based on average team scores and were displayed on the bulletin board. Additionally, teams earned certificates of achievement that emphasized the challenge that doing well as a team was important. All teams could achieve the awards because they were not competing specifically with one another. They were primarily competing with themselves. Student team scores were used to determine up to 20 % of their grades (Slavin, 1983). Therefore, this CL STAD-D study consisted of a regular cycle of instructional activities based on presenting a lesson, team study/practice/activity, individual testing, assessment, and team recognition.

## STUDENT DATA AND RESULTS

The Georgia Department of Education Performance Standards established the economics content on both the pretest and the EOCT. This content included economic concept fundamentals, microeconomics, macroeconomics, international trade, and personal finance. When the economics EOCT concept attainment area scores (based on 100%) were disaggregated for this class, the results were reported as follows from the table by the Georgia Department of Education:

<u>Fundamentals</u>	<u>Microeconomics</u>	<u>Macroeconomics</u>	<u>International</u>	<u>Personal Finance</u>
52.12%	40.5%	38.62%	42.9%	49.9%

Additional background information included students who received other instructional services, such as ESS, the number of hours some students worked per week, extra-curricular activities, and attendance in order to establish any observed behavioral impact on teams or on quiz score outcomes. Whether or not students planned to pursue education or training beyond high school was also considered as a probable motivational factor. The total number of missed quizzes, ethnicity, gender, birth nation, language spoken in the home, whether or not the student lived at home, whether or not all portions of the GHSGT had not been passed at the time of this study, summer school attendance, and other special circumstances represented ancillary, but important, contextual information that defined each student individually and the class holistically.

Groups in the first part of the semester were composed of five to six members, but there was an overlap within two of the groups with the differentiated roles in which two team members shared responsibility for the same role. Group roles included a gopher, whose responsibility was to pick up and put back handouts and answer sheets; a writer, who was to fill out the group worksheet, take notes, record responses; an explainer, who was to verbally explain answers or re-state information; a leader, who was to make sure everyone learned the information by informally quizzing the group members; and a spokes person, who was to summarize the information within the group and sometimes, in the case of a specific activity, present group findings or conclusions to the whole class.

When the students switched into the second grouping at the midpoint of the study and after the fourth quiz, they also usually switched their differentiated role. It was anticipated by the researcher that the switch would be made smoothly. However, that was not the case. Many

of the students were adamantly unhappy with their new group assignment and a few others did not like their new role assignment. This result could have very likely been alleviated by repeating the team building and ice-breaker activities with the second groups that had been used at the beginning of the study with the first group. Even though group members were assigned specific roles and observed others within their groups in differentiated roles, the students required additional time to adapt to new groups, new group members, and new roles.

Aggregated student data have been included on all 27 students, 20 who were age 17 and 7 who were age 18. There were 16 males, 8 of whom were Hispanic, 6 white, 1 black, and 1 multiracial and 11 females, 3 of whom were white, 7 Hispanic, and 1 black. The mean high school cumulative average for the class was 79.78 at the beginning of the study, and the mean economics average at the conclusion of the study was 73.2. The mean economics pretest average was 30.04, from the released 2004 EOCT in economics, and the mean economics EOCT score at the end of the study was 63.0, an increase of 109.72 %. Seven students received ESOL services which would be described as monitored-only. That is, they were designated as ESOL with standard accommodations because their language skills had advanced to an assessed level at which they were no longer eligible to take quizzes and tests such as the EOCT and GHS GT, (Georgia High School Graduation Test), in a separate classroom with another instructor, have the quiz or test read to them, or provided additional time to take the quiz or test. However, those students continued to be tracked statistically to graduation by ESOL services.

The five students who received ESS services had an IEP with accommodations that included leaving the classroom to take their quizzes and tests in another classroom with an ESS instructor, and they were also permitted to use their text for those quizzes but not for the EOCT or the GHS GT. They were additionally permitted to have the quizzes and the EOCT and GHS GT read aloud to them, and they were allowed to have additional time in which to complete all tests and quizzes. When taking quizzes with another instructor, these students were also permitted to use the textbook.

Seven students in this study worked at jobs after school, and averaged 189 work hours per week. Four of the seven did not pass the EOCT. Jennifer and David each worked 20 hours per week and scored 65 and 68, respectively, on the EOCT with 70 as a passing score. Blake, who was ESS, worked 20 to 30 hours per week and scored 54 on the EOCT, and Deisy worked 25 hours per week and scored 64 on the EOCT. Two of the male students, Luke and Daniel, who each worked 25 to 30 hours per week, scored 83 and 80, respectively, passing the EOCT. However, none of the other students who worked more than 15 hours per week passed the EOCT. Isabel and Paul each worked only 15 hours per week and scored 86 and 76, respectively, passing the EOCT. Therefore, if a student was not already struggling with the economics content, such as an ESS or ESL student, then the number of hours worked per week did not appear to be a factor in passing the EOCT.

Nineteen students planned to pursue education or technical training beyond high school. Of those 19 students, three were Hispanic males, five were Hispanic females, six were white males, three were white females, one was a black female, and one was a multiracial male. One Hispanic female and one black male were not certain about further training or education, and five Hispanic males and one Hispanic female stated that they were not interested in further training or education.

For the 27 students, 181 total days of class were missed by 25 students during this 12-week study, with 95 of those total days having been missed by only five of the students. Of those five students, three, Lupe, Sonia, and David, did not pass the EOCT. The other two

students, Luke and Paul, passed the EOCT. Two students, Moises and Josh, had perfect attendance, but neither one passed the EOCT. The number of days missed was only predictive of failure on the EOCT if the student was also ESL or ESS and the days missed included a quiz day.

A total of eight quizzes were missed by seven students during this 12-week study. School system policy dictated that those missed quizzes could not be taken at another time due to the unexcused absences of those students. None of those eight students who missed a quiz, Blake, Mark, Shawntay, Alvaro, who missed two quizzes, Tiffany, Lupe, or Sonia, passed the EOCT. Missing a quiz was predictive of failure on the EOCT.

Ethnically, 15 students were Hispanic, eight males and seven females. Nine were white, three females and six males; two were black, one male and one female; and one was a multiracial male. Fourteen students were born in the United States, and 13 had another birth nationality; 12 were from Mexico, and one was from Cuba. Three of the students, Marguerita, Shawntay, and Paul, who were born in the United States, had been born in states other than Georgia. Those states were California, North Carolina, and Florida, respectively. Fourteen of the students spoke English at home, and 13 spoke Spanish at home. Fourteen students had passed all portions of the GHSGT at the time of this study, and 13 needed to retake the math, science, or social studies portions of the test in order to graduate from high school. Eleven students had either gone to summer school or planned to go to the local special purpose compensatory high school, Phoenix, at night in order to take or to retake classes to stay on track for graduation. All but 2 of the 27 students lived at home with a parent. One of those two lived with her husband and young child, and one lived with his older sister.

The final economics EOCT raw data for the class produced an overall mean grade of 63.0 out of a possible 100. While the student qualitative interviews and student survey data confirmed the overall positive social and motivational aspects of the CL STAD-D group learning process as indicated by the literature, that observation did not result directly in each student passing the EOCT with a 70 or above, which is the minimal goal for NCLB (No Child Left Behind), the state, and principals. While each student improved from pretest to EOCT, (none passed the pretest), and the overall class improved by 109.72 percent, only seven of the 27 students, (25.93%), passed the EOCT with a grade of 70 or above, which would not be acceptable performance for NCLB. Additionally, the concept attainment data for the class indicated that these students performed poorly. They were at the 50% proficiency level in only two areas, fundamentals and personal finance. Those two concept areas were both taught at the beginning of this study, as well as being constantly mentioned and reviewed within the context of teaching the remaining concepts and current events.

None of the five ESS students, Blake (54), Mark (55), Josh (68), Joaquin (68), and Denzel (49), attained a passing score of 70, although Josh and Joaquin were close. Only one of the seven ESOL students, Antonio, passed the EOCT (75), but two of the remaining six, Deisy and Moises, who did not pass had scores of 64 each. Marguerita, Lucila, and Jorge had scores of 56, 54, and 51, respectively. Sonia, who missed a total of 28 days due to the birth of a baby, scored a 47. These seven ESOL students did not include the student, Isabel (86), who recently exited from all ESOL services, including monitoring.

While disheartening for those of us who had hoped for passing scores of at least 70 for all students participating in this study, the results are consistent with other schools and school systems that immediately surround this one in northwest Georgia that do not make AYP (Adequate Yearly Progress) for NCLB due to ESOL and ESS sub-groups, according to the Georgia State Department of Education.

The 27 students who participated in this study generally knew each other casually as high school seniors, but they admitted there were many in the class with whom they had little personal contact. The way in which the teams were organized forced them to attempt to work together for the good of the team competition. Consequently, the students stated overwhelmingly in focus group interviews and in their written surveys that they believed they were able to get to know their classmates better than they would have without the CL STAD-D process.

The majority of the ESOL-monitored students, both male and female, thought the group work helped them to complete the CL STAD-D group more efficiently as well as review the economics course content before each quiz. However, the bilingual Hispanic girls tended to work through their differentiated tasks within the groups more diligently and with less direction from within the group, and they would often unhesitatingly pair with another bilingual Hispanic girl within the group. If there was no other bilingual Hispanic girl in the group, but there was a bilingual Hispanic boy, then he would help the bilingual Hispanic girl, as with Antonio and Lucila in their first grouping, Go Dawgs. Because this pattern was also acknowledged by other educators at this school as they were interviewed by the researcher concerning CL and ESOL students, it was concluded that it must have been a common practice that was culturally-based and also used in the sheltered ESOL classes in which many of these students had participated previously. Lucila paired with Antonia in the second grouping, Mighty Raiders, even though Antonia was not ESOL, as both spoke Spanish. However, the bilingual Hispanic boys were less likely to routinely pair up on their own in order to help each other within the CL STAD-D groups.

The CL STAD-D student focus groups were each composed of differentiated roles of explainers, writers, leaders, spokespersons, and gophers. These were interviewed in focus groups of five students each based on their respective differentiated roles. Three of the explainers were ESOL monitored-only students, but they indicated that English language reading and comprehension were not problems for them. However, they thought the quiz and test questions were often hard to understand, which an educator might logically conclude involves comprehension that could also be language-related. As an explainer stated, "If I understood the material, then my role as explainer was useful." The explainers agreed that they generally were more comfortable learning individually, but they were specifically more motivated while working together as teams. All of the explainers believed that their role served as the most important and pivotal group function.

In contrast, most of the writers thought that all of the differentiated roles were necessary because they forced team members to share responsibilities. However, one white male stated that "I could have learned it on my own." Writers also believed that "Writing it down helped the writer to learn the material when the others explained it." Again, the ESOL students, mostly males who had been exited from ESOL by 10th grade, did not think the economic content or specialized terminology posed any particular difficulties for bilingual students. Additionally, these students did not view CL STAD-D as either helpful or harmful in terms of preparing them to pass the economics EOCT.

The leaders viewed their primary role responsibility as helping with explanations and making sure that group members were participating and preparing for the tests. They suggested that "bouncing the guided practice group content review questions off of the entire class before the group sessions" might have made the group work process a more efficient task. However, leaders also stated that this might also have resulted in some students not participating as much in a pre-group whole class discussion due to shyness or to poor language (speaking) skills. Most



of the team leaders believed that their groups learned what they were expected to within the group. Additionally, group leaders all thought the team competition and the certificates as rewards helped to motivate the teams. They also recommended that individuals in the groups should be permitted to choose their roles in the second round of grouping instead of those roles being selected only by the teacher.

The spokespersons agreed that the CL STAD-D groups forced them to participate and that they, therefore, had to pay attention and that the individual role responsibilities kept people in each group from being permitted to be left out. One bilingual ESOL monitored-only female who was not yet fluent in English stated that it helped her to learn more effectively if the spokesperson was also bilingual. Additionally, spokespersons agreed that it was good, even if some group members were not naturally competitive, to have the certificates as rewards for overall team improvement quiz scores.

Spokespersons also suggested that the content review worksheets completed by each group should be graded (scored) each time, not only by each group but also by the teacher. They believed that some groups were primarily copying their work sheet answers from the check sheet provided at the end of each group session instead of agreeing on the answers first in the group and then checking those answers for correctness. Interestingly, when students rated the performance of their own group members as well as themselves, they tended to rate each other as modest or substantial, or average to above average, in terms of contributions to and participation in the group. Once groups had bonded as teams, they were reluctant to be critical of each other and stated in the focus group interviews that “Most groups really did not have slackers, and people generally did what they were supposed to do.” While that was stated commonly in the focus groups, the contradiction was that it was not the consensus of the individual surveys in which a major complaint was that everyone present did not always do the work. Spokespersons also stated that the time lag between CL STAD-D team content review and the quizzes, which were graded electronically, and returned in one or two days, may have been too long. They would have preferred shorter quizzes of 15 to 20 items that could have been taken more frequently and, preferably, graded and returned the next day for use during group content debriefing.

Gophers were concerned about the answer keys being available at the end of the group work. It was their primary responsibility to retrieve the appropriate answer key after the writer had filled out one worksheet with input from the group and then to bring it to the group to check the answers and, finally, to return it to a folder at the front of the room. Gophers preferred that answer keys not be provided to each team. Furthermore, they suggested that the teacher should go over the worksheet answers with the whole class after all groups had completed them. Basically, gophers stated they were happy with direct, whole class instruction for the explanation of economic terms and concepts followed by groups completing a review worksheet. However, they preferred to reinforce the worksheet answers with whole class direct instruction including further explanation by the teacher before the quiz. That is, they would have preferred a teacher-conducted review immediately preceding each quiz. Gophers also thought that talking in groups about the information was useful, as the interaction helped the group members to get to know each other better. They also suggested that changing groups more frequently would help each student to be able to work with more classmates. However, when the students actually switched groups halfway through the study, they overwhelmingly complained about not wanting to change.

The bilingual Hispanic males did not think the CL STAD-D groups made a difference in helping them to better understand the economics content. When asked by the researcher how they preferred to review for EOCTs in other subjects, they mentioned that written outline reviews helped them the most to remember specific content information and vocabulary, and oral whole class reviews were also beneficial, but that individual content study packets were not as useful unless the teacher also went over them.

The teacher interviews from this high school were interesting in that, while most teachers had received staff development training in cooperative learning, it was most often used by them for role play demonstrations in applied English, creating authentic group projects, completing a specific assignment, such as in a chemistry laboratory, discussing character development in a novel, or problem-solving in an applied mathematics class. It was not used as an ongoing process for high stakes test preparation. More often, cooperative groups were primarily used as a strategy for competitive group games in order to review quiz items the day before the quiz. The instructor who taught this CL STAD-D class predicted that a mean EOCT score in the 60-65 range would very likely be considered good for the class. She believed, based on prior experience with the economics EOCT, and with tech prep students at this high school, that it might be impractical to expect an overall mean passing score for the economics EOCT at 70% from this highly diverse class.

It is possible that if the CL STAD-D study had lasted more than twelve weeks, then the test score outcome might possibly have improved for the class. However, that conclusion was not generally reflected in the progression of all of the testing data. Furthermore, while improvement over time was suggested by most of the early team summary improvement points during the first grouping cycle, that did not carry over during the second grouping cycle. The second grouping cycle revealed a reduction in overall improvement points as the cycle progressed. Some of that might be explained by the need to complete the economics content at a faster pace, as well as the more abstract nature of the later macroeconomic content. Also, the students may have simply resorted to simply going through the motions by that point. Additionally, the CL STAD-D process was designed specifically to function best in a four to ten week time span. The process itself may need to be reconfigured for longer periods of study.

The instructor believed the class EOCT scores were actually higher than they might have been due to overall class diversity, given her previous experience teaching economics at this high school. She also concluded that the students generally understood the concepts, but they had difficulty with the academic language on the EOCT in terms of how the questions were asked, such as in the negative. The instructor planned to use this particular STAD-D method again because she believed, as did the students and the other teachers who were interviewed for this study, that it was particularly effective for the students socially and motivationally.

The instructor observed that the ESOL students generally performed better in groups due to its familial cultural structure, and she also noted in my interview with her that they “pair up automatically, especially the girls.” Each of the five other teachers interviewed for this study at this school also shared similar comments about the Hispanic girls naturally working well together, especially in pairs, to complete a task, given the opportunity. Another common thread among these interviews with teachers was policing the groups and that cooperative learning group work was not always shared equally. Some students excelled and some simply did the minimum. However, all of the teachers agreed that group learning outcomes were enhanced due to social interaction. Group social interaction and shared explanations were perceived by the teachers to be the most significant factors that resulted in accomplishing specific cooperative

learning goals. It would be a consideration that prior experience with cooperative learning might have resulted in a preconceived like or dislike for the process before this study was conducted. Many of the survey questions attempted to discern student attitudes about economics as well as cooperative learning.

## CONCLUSIONS AND RECOMMENDATIONS

The qualitative data from this study essentially confirmed the overall positive social, self-esteem, peer support, and motivational team aspects of the CL STAD-D groups indicated by the research literature. However, many of the students stated in the surveys and the focus group interviews that they preferred to work either independently or with a partner of their choosing. Cooperative groups were instructed to ask each other first if they had questions concerning the review sheets before asking the teacher. That was difficult as well as frustrating for some of them, as the standardized textbook worksheets could be challenging, and the required information was formatted in several different ways, such as fill in the blank, short answer, multiple choice, and explanation. Frustration often occurred when the instructor was working with another student or group when she was immediately unavailable for some other reason. Whenever possible, teacher-made cooperative learning content review worksheets designed to accompany the teacher-directed whole class instruction could be less confusing, more straight forward and, therefore, more useful in helping to produce more positive learning outcomes for diverse students.

These students generally knew each other casually as seniors but admitted that there were many in the class with whom they had never had much social contact at all. The manner in which the CL STAD-D teams were organized was designed to encourage the students to work together, and the students responded positively to that desired outcome on the open-ended survey questionnaires. Furthermore, the students indicated that they would not have worked together with so many other students had it not been for the CL STAD-D group process. In focus groups, most group members believed they had accomplished together what was expected of them for the team within the groups, given their respective differentiated roles.

Interestingly, many of the ESOL students in the CL STAD-D groups also indicated in focus group interviews that the guided practice group review work, although sometimes difficult to understand, generally helped them to review the instructional content. That was especially true for ESOL females within their differentiated group roles. Furthermore, the ESOL students did not think that being bilingual either helped or hurt their ability to understand the content review in groups. However, most of these seniors were no longer receiving sheltered ESOL instruction from bilingual teachers and were being monitored-only for standard classroom instruction and for graduation tracking purposes. That is, they took all quizzes and tests in the regular classroom with no specific interventions, and their overall English language development was relatively high. The only students who definitely did not think the CL STAD-D groups were useful for guided practice review of the instructional material were the two students, one white male, Luke, and one Hispanic female, Isabel, who achieved the highest scores, 86 and 83, respectively, on the economics EOCT. While they did not think the group reviews helped their overall test score achievement, they did enjoy the social and motivational aspects of participating in the groups for their teams, which correlated with the research literature with regard to higher-achieving secondary students (Sternberg & Willard, 2002).

While the students often remained on task during group work, there was a great variability within the groupings as to the type and quality of talk. Some groups were off task more than others and a few students appeared to struggle more with understanding the required tasks. However, the groups usually completed the assigned task within the time allowed. Although students were instructed to ask each other questions within their CL STAD-D groups first before asking the teacher, groups often requested assistance from the teacher and most students admitted in the focus group interviews that they preferred to do the class work on their own and to be able to ask questions during the whole class lesson instruction with teacher guidance and prompts for the appropriate response. That may also very likely have been the method with which they had become most familiar while in school. In their individual surveys, a preponderance of these students responded that they preferred a quiet classroom in which the teacher explained everything to the whole class as it would appear on the test. They also preferred that the teacher respond immediately to questions for clarification, review the pertinent information prior to the test, and then review what they had missed on the test soon after the test had been graded and returned. The most frequent responses on the surveys concerning what each student could do individually to improve his or her classroom learning were to listen more attentively, to take careful notes, to ask questions, or to study more. The Hispanic students also typically included memorization skills as important to improving their classroom learning.

The CL STAD-D group dynamics were interesting to observe but difficult to assess individually during each grouping. It was observed that even within a group processing review strategy such as an activity or through a cooperative learning differentiated team role, learning was most often approached by these students as a preferentially individualistic undertaking. For instance, the manner in which a team member approached a particular role frequently reflected how he or she typically approached a learning task individually as a visual, auditory, or kinesthetic/artistic learner. What was already normally present in terms of how each student learned best was what often came out during the specific group roles within the team structure. Additionally, even though each group member rated each other and themselves, they admittedly became somewhat protective of each other as they formed group/team bonds. Unless someone was overtly obnoxious, too loud, not contributing in any positive way to the group, or was often absent when groups met, they received a modest or average rating. Group ratings by group members were substantial or above average most of the time. It would be interesting to videotape each individual group during each group session in order to discover if better data concerning within-group interactions could be derived.

The smaller groups in the second grouping did not perform as well overall on the last four quizzes as the larger groups performed during the first grouping on the first four quizzes. They admitted overwhelmingly that they did not want to switch groups. In fact, it often took as many as two group sessions before the students adjusted to their new roles in their second team groupings even though those roles had been modeled in their previous groups. Some students stated in both their individual surveys as well as in the focus group interviews that they did not perform as well in a group with others whom they did not personally like. This was particularly true for most of the Hispanic females and one white female. Additionally, the smaller groups placed more responsibility on each group member as the course content became somewhat more abstract and analytic with the study of macroeconomics and the pace of instruction accelerated as the date for the EOCT approached. Furthermore, the team building activities at the beginning of the case study provided more time, and possibly, more enjoyable team building activities for the first team groupings to bond, to learn the CL STAD-D process, differentiated roles, and to

choose team names. It was assumed that as much time for those essentials should not be as necessary for the second team groupings, but that may not have been the case. Additionally, the newness or initial excitement of the process abated over time, and the overall process simply became either less interesting or possibly, more burdensome for some students as the semester progressed.

Researcher overall thoughts based on this study are that the prior research on cooperative learning has been less conclusive for high school and higher education because students who have reached upper secondary education and higher education status have very likely already adaptively accommodated their own learning styles through individual meta-cognitive coping mechanisms. In other words, such older students must have become cognizant about how they learn best in order to make the necessary adjustments that help them to become successful academically in a particular instructional situation in order to progress to a higher educational level. That was reflected in the surveys in which students expressed the ways in which they learned best, as well as the learning style inventories they took. Additionally, researcher observation was that the students often viewed the instructor as the content knowledge expert and, therefore, often trusted/requested her responses to their questions more than the other group participants. That was generally true for most of the females and for two of the ESS males, as stated in individual surveys and focus group interviews.

The group surveys revealed a preference for teacher explanations and examples as well as a quiet classroom or one in which the talk was limited to serious content discussion. One student, who was representative of most, stated that the best thing about learning on her own was, "I already know how to make myself learn and remember things better than anyone else." Others in the class mentioned that a primary benefit of studying on their own was that they could "go at their own pace." The attitude survey and focus group interviews revealed that, while these students generally did not enjoy the study of economics as a subject, they certainly understood the benefit of being able to learn it well enough in order to pass the required course and graduate, as it was a state mandated course for high school graduation. These students were clearly survivors who had persevered academically and behaviorally to the point of becoming high school seniors, and they believed that they would graduate. Furthermore, they all did graduate even though two were required to complete compensatory course work at Phoenix High School in the evening and one finished later in summer school. All were 2008 high school graduates.

In the focus groups, most of the students stated that they knew how they reviewed best for a quiz. Several mentioned the use of outlines, vocabulary reviews, and oral reviews over the major topics, mnemonic devices, and simple repetition that helped them to remember important information. Additionally, they indicated that teacher-prepared study packets designed to help them study specifically for the economics EOCT were not individually useful to them for test review unless the teacher also reviewed them together with the whole class.

Most of the students were not happy with having to change groups at the mid-point of the case study. They had achieved a comfort level with each other within the groups even when it was obvious that a change might be advantageous for some individuals, and it had been explained to them as a requirement for the CL STAD-D process during this study. Consequently, there was a longer than expected period of adjustment following the switch that was surprising. Even when students stated that they did not particularly like someone else in their first grouping, they still preferred the known of their respective roles and group members to the unknown of a new group. Perhaps the process could be refined or reconstructed so that groups could be switched out two people at a time instead of all at once or students could rotate

but their respective roles would remain the same. Their clear preference would have been for self-selected groupings.

Those students who did not mind participating in something different basically played along, at least for a while. However, those who perceived that they learned best on their own were less likely to view CL STAD-D as useful. Those students did not complain about being in the CL STAD-D case study and stated that they mostly enjoyed it, but it was not evident from either the later quiz scores or the team scores that they all gave it their best effort. Most went through the motions and did what they had to do within their respective groups, but they did well to accomplish completing the worksheet reviews as a differentiated role guided practice group activity with the intended consequence of everyone in the group participating and learning a concept well enough and retaining it long enough to pass the quiz and, later, the EOCT.

Individually, Isabel, Luke, Daniel, John, Antonio, Johnny, and Miguel had the highest individual EOCT scores within a range of 86 to 70, respectively. Isabel, Antonio, Johnny, and Miguel were Hispanic. Neither they nor the other Hispanic students in the class received ESOL services during this case study, as they were monitored-only for standard education. Luke missed 21 days and worked 25-30 hours per week. Daniel worked 40 or more hours per week, and John worked 15 hours per week and was absent 19 days. Their EOCT scores were 83, 80, and 76, respectively. The ESS students, Josh, Joaquin, Mark, Blake, and Denzel had individual EOCT scores that ranged from 49 to 68, respectively. None of the ESS students passed the EOCT, and no ESS inclusion teacher was present in the classroom. Joaquin, Mark, and Blake missed 8, 9, and 9 class days, respectively, the most days missed of the five ESS students. Josh missed no days and Denzel was absent twice.

According to the focus group interviews, some students viewed the group work as an opportunity to do less work by simply dividing the tasks, as opposed to producing better work by specializing in a particular task and then discussing and explaining the results with the entire group in order for all members to understand and to refine it. When the group work involved making something together such as a poster or a manipulative for a group game, or participating in a special group learning activity, such as the trade simulation, these students became much more enthusiastic and also appeared to respond individually more positively to the group effort. Furthermore, they enjoyed the mild team competition aspect of CL STAD-D as well as receiving team recognition.

From interviews with other teachers at this school who had not only received in-service training in the use of cooperative learning but who had also used it across grade and subject matter levels, a group project emphasis had most often produced the most observable cooperative learning results at this high school. Additionally, working in self-selected pairs was often suggested by students, according to interviews and surveys, as most likely to result in positive cooperative learning experiences even if those pairs were unequal in ability.

Importantly, a few students were explicit in their surveys that they preferred for the instructor to provide all of the explanations for them and to tell them the correct answers outright. They particularly did not want to work through the standardized guided practice group worksheets following the initial whole class teacher lecture and instruction. A few of the students thought the group process of going over the worksheets was a waste of time. While they went through the motions, they also acted accordingly by not giving it their full effort.

The ESOL monitored-only students, as well as the ESS students, seemed most accommodative with others while working in CL STAD-D groups. That may have occurred because group learning was an important component of both of those programs at this high

school, and the students who had been served by those programs were used to it, possibly giving them a slight social or interactive advantage over others in their groups who were not as familiar or as comfortable with the strategy. In fact, the classroom inclusion accommodations and modifications for those students who were served by ESS either recommended or required the frequent use of small group instruction. However, none of those students scored above 68 on the economics EOCT, and three had total class absences of 8 days or more, which is especially significant in terms of 90-minute daily class time missed from a 4 X 4 block schedule.

The application of economic concepts and principles requires some ability to work through multi-step problem solving processes analytically, the ability to infer from graphic data, and the capacity to compute mathematics correctly. While most high school seniors should be able to accomplish this, the chapter and unit quizzes that the instructor administered to the class were composed of multiple choice questions that were designed specifically to prepare them for the economics EOCT standards content and testing format. Some of those questions, as on the EOCT, were formed in the negative in which the negatively phrased choice was the correct answer.

Overall, it was observed behaviorally that the students in the class got along with each other and rooted for each other to do well both individually and within their groups, and they overwhelmingly stated on their individual surveys and in the focus group interviews that they thought they had learned more about economics. That is substantiated by the percentage gains between their pretest and EOCT scores. However, the class achieved only an overall mean of 63 on the economics EOCT. The goal was for the CL STAD-D process to aid these diverse students in passing the economics EOCT with a minimum score of 70. Only 7 of the 27 students achieved 70 or higher on the EOCT. None of the ESS students and none of the students who missed one or more quizzes passed the EOCT. Those missed quizzes could not be made up due to school policy on unexcused absences. Only one of the ESOL monitored-only students, Antonio, passed the EOCT.

The deeper thought processing skills, as well as the necessary positive interactive social skills, required for a more thorough knowledge of abstract instructional content that results from shared information gathering, categorizing, questioning, discussion, decision-making, and reflective analysis and evaluation, probably required more than a structured group review process in order to be transferred and then transformed into a high test score. That is not to conclude that academic learning is only accomplished or better accomplished when it is a uniquely meta-cognitive experience. Group dynamic interaction strategies may be quite helpful for diverse 12th grade students in processing instructional content, as well as being successfully tested on that content. However, that success may depend as much on how those same students both perceive and then act on how they learn best, which is meta-cognition. Certainly, meta-cognition and well developed higher order thinking (verbal, written, quantitative, analytic, reflective, and evaluative) skills become increasingly significant learning and critical thinking tools as students navigate successfully through secondary and higher education.

Individual success may also depend on perceived status, as well as the perceived status of other group members within each unique group (Cohen, 1984). On their individual surveys, two of the Hispanic girls, Isabel and Lupe, expressed feelings of racism from some of the other group members on their second teams. While overt racism was never observed in the class as a whole or within the team groupings, the fact that those two students mentioned it independently in each of their surveys is worth noting and should be reviewed seriously. That issue never came up as such in the differentiated role focus group interviews. While racism existed at this school, some

Hispanic students there refer to any non-Hispanic whom they do not like or with whom they share a serious disagreement as being racist. That acknowledged, there has existed anti-illegal immigrant xenophobia in the community in recent years that has been directed toward all Hispanics of Mexican descent, and current economic conditions have further exacerbated this phenomenon.

The use of verbal and written explanations along with the kinesthetic production of manipulative explanatory devices (such as the paper finger devices used to describe the pros and cons of the different types of business organizations) during the CL STAD-D group process was an observably effective strategy for successful team cooperation. When everyone participated diligently, fulfilling their individual role responsibilities in order to complete such tasks, many of the teams were quite successful, receiving numerous awards. However, unless the cooperative group work effort depended on making a chart or drawing a poster or making a hand manipulative, the guided practice worksheets became either routine or burdensome. Many students would have preferred to have been dependent primarily on the instructor to tell them immediately if their group answers were correct instead of dividing the work, attempting to read for understanding, verbally discussing/explaining, coming to a consensus, completing the guided practice by filling out the worksheet together, and then checking the answers for correctness and mastery by each team member.

The class endured the many difficult course quizzes as well as the frequent surveys, questionnaires, and pre-post-testing that was required for this case study. Consequently, it was a concern that the students might suffer from the added stress of the research process itself, and that may have been reflected by the general downward trend of the quiz scores over the course of the study. Nevertheless, the students were generally good natured, and they appeared to accept as well as participate in the overall process. This researcher enjoyed the time with them very much, and the feeling appeared to be mutual.

Questions concerning the use of specific group information processing structures for the purpose of instructional content review with diverse students at the secondary high school level should be investigated through further research that would go beyond the scope and the 12-week time span of this study. Videotaping each CL STAD-D group could also provide valuable data from many perspectives in which to analyze the individual members of each group in their differentiated roles as they process content review information. Interviewing each group and each individual student as well as rotating a specific differentiated role person, described as a listener, from group to group to report on the compatibility and functionality of each group might be another way to obtain and share more information concerning both inter-and intra-group dynamics.

Conducting similar secondary high school cooperative learning studies that investigate the dynamics of group structures such as self-selection of groups, as well as a choice of differentiated roles, and a closer examination of elaborated explanations, when those exist, could also provide important information concerning status. Group goal descriptors that require more individual accountability and the use of structured pairs as either a group or as a group within a larger group might provide additional perspective on group information processing as it related to individual effort. The use of teacher-prepared guided practice review sheets directed toward specific economics EOCT content questions and fewer textbook standardized guided practice reviews might have resulted in less confusion and more understanding of specific concepts. Providing as much time for the second grouping team building activities as for the teams at the beginning of the study might have improved the quiz outcomes of the second team grouping.



Debriefing the whole class on the review sheets after cooperative learning groups had completed them, and debriefing the whole class as soon as possible after quizzes were the suggestions of the students who thought that would help them to retain information.

This study followed the CL STAD process guidelines as closely as possible while simultaneously including differentiated group role protocols. However, the process could be modified to provide a better fit for the purpose and the setting. For instance, not having all members change at the mid-point or having groups switch but keep their respective roles might be one way to refine the process. Permitting groups to self-select two of the four members based on compatibility or other criteria would be another recommendation.

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