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# The Effects of Cooperative Learning on the Classroom Participation of Students Placed at Risk for Societal Failure

William Drakeford
Bowie State University, Bowie, USA

A multiple baseline design across two subjects was used to determine the effectiveness of cooperative learning techniques on increasing student participation. The study was conducted on two male secondary students attending the upward bound pre-college program. Each student worked in small groups with specific roles, and two observers documented the amount of time each student participated during the cooperative learning activities. The results showed that cooperative learning techniques increased student's participation.

*Keywords:* cooperative learning, student's participation, communication

## Introduction

A multiple baseline design across two subjects was used to determine the effectiveness of cooperative learning techniques on increasing student's participation. The study was conducted on two male secondary students attending the upward bound pre-college program. Each student worked in small groups with specific roles, such as note-taking, investigating and reporting. Two observers documented the amount of time each student participated during the cooperative learning activities. Inter-observer's agreements were 80% and above. Lack of student's participation in the classroom as a result of low motivation has long been a dilemma for educators. As students move through the developmental stages of adolescence, their involvement with extracurricular activities increases. Lumsden (1994) indicated that interest in sexuality, peer groups, sports, and music and family expectations is just a few examples of competing commitments that consume adolescent energies. As a result, many students are distracted and unmotivated to participate in classroom learning. In addition, research suggests that students from low socioeconomic families tend to have greater problems with participation than their more economically advantaged peers. By the time, children reach 18 years of age, more than one in four has quit school (Lumsden, 1994). Observations from a study performed using two ninth and tenth grade students indicate that cooperative learning techniques involving classroom-integrated extracurricular activities and real life applications increase students' participation.

As they grow older and become engaged in more extracurricular organizations, many adolescents begin to view the learning process as a forced activity, which often creates rebellious behavior towards formal education. To compound matters, Daly, Ser, and Roghaer (1994) observed a widening gap between socioeconomically privileged students and their disadvantaged peers with regard to classroom interactions. Daly et al. (1994) stated that students from higher income families are more comfortable asking questions and actively involving

William Drakeford, Ph.D., assistant professor, Department of Teaching, Learning and Professional Development, Bowie State University.

themselves in classroom instruction. These observations present a challenge to Strong, Silver, and Robinson's (1995) who positioned that student's engagement in the learning process promotes student to success, curiosity and originality, as well as satisfying relationships, regardless of socioeconomic status.

In response to growing academic disillusionment, whatever the reason is, educators must actively work to include extracurricular activities in the classroom as incentive for students to enjoy the learning process. Ginsberg and Wlodkowski (1995) believed that when extracurricular activities are incorporated into instruction, students view learning as important. Further, Treducy (1995) stated that engaging students in the learning process increases involvement and allows students to understand how subject material relates to life experiences. If lessons are viewed as relating to the experiences of students in the classroom, and thus a valid application to real life expectations, student motivation will increase (Howe & Warren, 1989).

Current educational practices tend to augment problems contributing to student disengagement. Bonwell and Eison (1991) noted that students prefer teaching strategies involving active participation to traditional lectures. Nevertheless, current research shows that traditional lecturing continues to be the dominant teaching strategy. Despite of the prevalence of this practice, teachers have implemented empirically validated methods dealing with the challenges of teaching students who may be disillusioned, lacking in motivation, or otherwise under-active in the classroom. Cooperative learning is an example of just such an effective approach (Lumsden, 1994; Cooper, Robinson, & Ball, 2003; Howe & Warren, 1989; Kagan, 1989; D. W. Johnson, R. T. Johnson, & Smith, 1991; Millis, 2002; Millis & Cottell, 1998; Slavin, 1986).

## Cooperative Learning

Cooperative learning has been shown to be beneficial for students across a wide racial, ethnic, socioeconomic and disability spectrum, as well as those from differing academic skill levels (Millis, 2009; Salend, 2001). Teachers who use a cooperative learning approach assign students to heterogeneous groups to complete instructional activities (Gillies, 2004). According to D. W. Johnson and R. T. Johnson (1999), successful cooperative learning programs focus on:

(1) Social skills—teacher-provided direct instruction on pro-social methods of communication, decision-making, and conflict resolution;

(2) Positive interdependence—assignment of roles that involve students in the learning process while allowing for division of responsibility (e.g., student note-taker, time-keeper, results-reporter, etc.);

(3) Individual student accountability—embedded individual accountability assessments that make each student responsible for contributing to the group assignment effort;

(4) One-on-one interaction—provision of adequate class time for students to discuss the assignment, share ideas, assist each other, and develop ideas;

(5) Group processing—provision skill instruction to allow students to determine their own progress towards achievement of the group goal(s).

Current empirical evidence supports the use of these methods for improving academic outcomes with a heterogeneous population of students. Gillies and Ashman (2000) conducted a study of varying cooperative learning strategies on a group of 152 elementary school social studies students in Brisbane, Australia. The study group consisted of both general education ($n$ = 130) and special education ($n$ = 22) students. Results indicated improved comprehension of social studies content, elevated levels of on-task behavior and more general involvement in the learning process. These results were more pronounced for the students who were involved

in the structured cooperative learning groups that replicated the framework outlined by D. W. Johnson and R. T. Johnson (1999). The study underscores a cooperative learning approach's ability to provide students the opportunity to grasp curriculum content through active participation. It suggests that students who become more involved in the learning process as a result of increased motivation are more likely to express their ideas, understand the content more thoroughly and experience academic success.

The beneficial effects of cooperative learning are not limited to academic gains. Small groups allow students to interact with their peers and consequently enhance social skills. The structured processes involved in cooperative learning promote pro-social skill development and have been linked to gains in student self-esteem (Jenkins, Antil, Wayne, & Vadasy, 2003; Zinsser, 2009). Jones (1997) studied the effects of cooperative learning strategies on raising students' self-esteem as well as their engagement in classroom activities. The study groups he used consisted of Grade 5 physical education students and Grade 7 life science students in a large mid-western city. Teacher journals documented low student self-esteem and lack of participation, while student reflection journal entries described students' own perceptions of self-esteem as measured by self-concept assessment tools. Post-intervention data indicated an increase in student's self-esteem, greater student engagement in class activities and increased achievement levels.

Other studies also support the academic and personal benefits of cooperative learning. In a study that sought to evaluate the effects of cooperative learning on measures of academic and social skills, Petty (1997) examined a Grade 6 class and two Grade 9 classes in Northern Chicago, Illinois. Prior to the introduction of cooperative learning techniques, children experienced difficulty participating in class lectures and retaining instructional materials, as documented through teacher observations and student surveys. Following the implementation of cooperative learning techniques, students exhibited greater involvement in class lectures/discussion, increased retention and a greater transfer of learning.

The studies discussed above highlight the effectiveness of cooperative learning techniques on improving student's participation, social interactions and learning. The remainder of this manuscript will discuss a study designed to build on the findings of past cooperative learning research. It hopes to add to the current cooperative learning literature by offering an examination of cooperative learning specifically targeted towards low-income minority youth with no family history of college attendance.

## Method

### Participants

The participants in this study were first year students in the pre-college upward bound program at the University of Maryland. The pre-college program at upward bound is designed to assist students from first generation and low-income families in making a successful transition from high school to college.

Two professional counselors from the upward bound program completed classroom observations and documentation. Each of the individuals' recording data had been with the upward bound program more than two years.

The first participant was a 15-year-old Grade 9 Hispanic male attending Parkdale H.S. in Prince George's County. At the beginning of the study, his G.P.A. was 2.86. Teachers' observations noted his lack of participation and class withdrawal. The second participant was a 16-year-old African-American male attending Northwestern H.S. in Prince George's County. At the onset of this study, his G.P.A. was 2.71. Teachers' observations noted that his class participation also needed improvement. Like the first participant, he was

withdrawn and did not participate in class discussions.

In order to gain acceptance into the upward bound program, all students were required to submit three letters of recommendation from classroom teachers. Participant 1's letters of recommendation stated that Participant 1 was a good student but shy, and did not "say much" in class. The recommendation letters for Participant 2 indicated that he needed to work on his social skills and he did not participate in class discussions.

Prior to the cooperative learning intervention, students were encouraged to participate in class discussions and receive individual counseling. During counseling sessions, discussions focused on student concerns as well as their academic and personal growth. As a result, both students displayed periodic improvements in class participation.

**Design**

A multiple baseline across subjects was used to measure the effectiveness of treatment. A baseline was taken until stability was established for each participant. Intervention was then introduced to Participant 1, while a baseline continued to be collected for Participant 2. Once Participant 1 reached criterion, Participant 2 was introduced to the intervention.

**Target behavior.** For the purpose of this study, cooperative learning was defined as the use of small group interaction to facilitate instruction and student participation. Student participation acted as a dependent variable and cooperative learning groups encompassing specific roles to encourage individual member's participation functioned as an independent variable. Participation time was defined as one or more of the following behaviors: student taking notes, providing feedback to the smaller group, or speaking to the larger group.

**Baseline data.** Baseline data were collected for each student simultaneously. Each investigator alternated leading 15-minute group discussions on interviewing techniques, drug abuse, alcohol abuse and stress/depression. The first 10 minutes of class consisted of informing students of upcoming events and reviewing the information covered in the previous class session. The teacher proceeded by conducting a 15-minute lecture on the assigned topic. Discussion of the topic filled the remaining 25 minutes of class. During this tune, the two investigators independently and simultaneously observed and documented the active participation time of each participant. Baseline data were collected on Participant 1 for four sessions. During this timeframe, the baseline achieved stability with respect to level and trend. Intervention was then introduced for Participant 1, while baseline data continued to be collected on Participant 2. When Participant 1 met the criteria of 15 minutes of participation time, the intervention was introduced to Participant 2. Baseline data were collected for eight sessions on Participant 2. The four additional discussion topics for Participant 2 during baseline included public speaking, eating disorders, career interest and time management.

**Intervention.** During session 5, students were randomly divided into small groups consisting of four to five students each. Every student was given a role to play in the cooperative work group, along with information and examples of what the roles and responsibilities of a note-taker, investigator, and reporter encompassed. At this point during the session, the teacher stressed the importance of input from every group member. The students were also informed that they had the flexibility to assist other members in their group in performing their roles. The session continued with a 10-minute lecture on the assigned topic. During the last 25 minutes of the period, students participated in a cooperative learning activity. At the beginning of sessions 6, 7 and 8, the teacher reviewed the roles and responsibilities of each group member. The students were then given a

10-15 minutes lecture on an assigned topic. During the last 30 to 35 minutes of the sessions, students engaged in the cooperative learning process.

During Participant 1's intervention, the discussion topics during sessions 5, 6, 7 and 8 were public speaking, eating disorders, time management and career interest. During session 8, Participant 1 reached the criterion at 15 minutes of participation time. Participant 2's intervention took place during sessions 9, 10, 11 and 12, during which the topics of discussion included cultural awareness, values in our society, self-esteem and health and wellness. Subject 2 met or exceeded the criterion of 15 minutes of participation during sessions 11 and 12.

**Data Collection**

The method of data collection used to calculate the amount of time each student participated was the duration per-occurrence. The stopwatch started when the student began participating. When the student ceased participating, the stopwatch was turned off. At the end of the 40-minute observation time for each session, the total duration of student participation was calculated.

**Reliability**

During baseline and cooperative learning exercises, two observers documented data on the participants in question. The observers were given specific definitions of "participation" and instructed on how to document their observations. In addition, each observer was provided with a detailed description of how to observe and document data to which they could refer during observations. Training of observers continued until their observations reached 85% reliability.

Reliability measures were calculated by dividing the shorter duration of time recorded by observers by the longer duration of time and multiplying by 100 at the end of each session. The resulting reliability was 96% during intervention and 94% during baseline. Since this method had a tendency to inflate observer agreement, the reliability for each interval was then calculated by dividing the smaller number by the larger number and multiplying by 100. Using this method, the mean reliability was 89% during intervention and 82% during baseline.

## Results

Baseline data for Participant 1 consisted of four data points, each corresponding to the amount of time he participated in the classroom activity. The four points during baseline totaled 3.5, 4, 4 and 2.75 minutes respectively. During the fourth session, the baseline achieved stability. On the fifth day, the intervention was introduced to Participant 1. On the first day (session 5) of intervention, the amount of participation time increased to 7.75 minutes. During session 6, intervention was introduced and the amount of participation time increased to 10.5 minutes. During session 7, the amount of participation time rose to 11.5 minutes. During session 8, the participant reached the criterion at 15.5 minutes.

Baseline data continued to be collected for Participant 2 until the criterion was met for Participant 1. Baseline data for Participant 2 was conducted for eight sessions. The four points during baseline totaled 4, 3, 3, 4, 4.5, 3, 2.5 and 2 minutes respectively. At this point, the baseline was stable. The intervention was introduced to Participant 2 during the ninth session, at which point participation time rose to 7.5 minutes. During the next three sessions, participation time increased to 8.5, 15 and 15.5 minutes. Criterion was met at 15 minutes and 15.5 minutes during the last two sessions (see Figure 1).

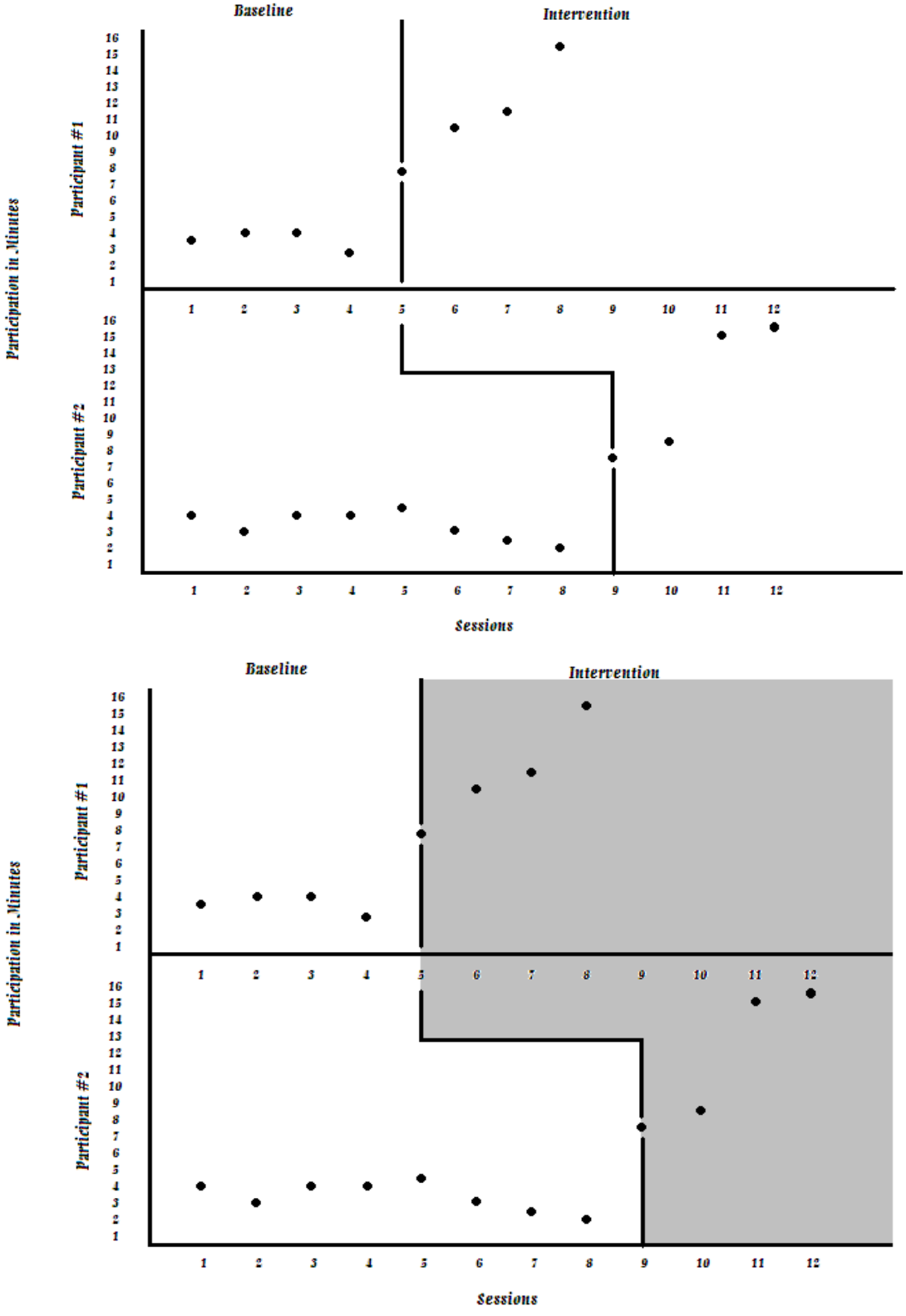


*Figure 1.* Criterion was met at 15 minutes and 15.5 minutes during the last two sessions.

## Discussion

During the course of this study, cooperative learning techniques were implemented to increase the classroom participation of Grades 9 and 10 students in the upward bound pre-college programs. The time of participation, as measured by observers, increased for both participants, indicating that structured small group activities were effective at increasing student's participation.

Cooperative learning is a successful teaching tool supported by several researchers. The observed data of this study supports the findings of Petty (1997) and Jones (1997). The data further indicates that cooperative learning groups can increase engagement of low-income minority youth.

## Conclusions

In summary, this study met its goal by successfully increasing student's participation. However, there are several limitations to the research's findings. Replication of the methodology employed in this study with a similar participant sample across varying settings is needed. In addition, the investigators in this study worked with the participants in the upward bound program. This study should ideally be conducted with researchers that have no prior relationship with the subjects. Finally, the observed increase in engagement time following intervention was not empirically linked to academic performance in this study. This relationship should not be assumed and further research investigating the link between engagement time and individual student's academic achievement as a result of cooperative learning groups is necessary.

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