THE EFFECTS OF PEER TUTORING WITH GROUP CONTINGENCIES
ON THE ACADEMIC PERFORMANCE OF COLLEGE STUDENTS¹

PAUL D. COYNE²

ARIZONA STATE UNIVERSITY

Improving the academic performance of college students who do not demonstrate mastery of course material is a major concern in traditional and nontraditional systems of instruction, where students may drop out, take incompletes, or continue to perform at low levels. The present study examined within-course peer tutoring as a potential solution. Twenty-one undergraduate students enrolled in a three-credit introductory course in Educational Psychology served as subjects. The class met one and a half hours each weekday for five weeks. Five students withdrew from the course and one student was placed on independent study before assignments to experimental conditions were made. The primary source materials were portions of Skinner's *Technology of Teaching*, plus two additional articles. The material was divided into nine equal units, each unit accompanied by study objectives. Nine one-hour essay exams were administered, one every other class day. Two review days were scheduled before a cumulative final was administered. Students could score a total of 20 points on each exam and the final. If a student scored 90% or better on an exam a score of 10 was earned. If a student scored 80% to 90%, a score of eight was awarded, and so on. A total score of 90 of 100 possible points at semester's end earned a student an "A", 80 a "B", and so on. The study consisted of three phases: Baseline I, Intervention, and Baseline II. Baseline I: after an initial introductory class, three lectures were presented—one for each unit. Each lecture day was followed by an exam day. Intervention: following the third exam, students were rank ordered and divided into high, medium, and low levels of performance on the basis of their raw scores on the previous three exams, and assigned to a paired or independent group. This assignment procedure resulted in three high-low pairs, three middle-middle pairs, two high-middle pairs, three low-independent students, and two middle-independent students. If, and only if, both students in a pair met a 90% mastery criterion on an exam did each receive five bonus points for the exam(s) reaching the criterion. The bonus points were used to offset points lost on the cumulative final. If both students in a pair met the 90% mastery criterion for units 4, 5, and 6, the pair received an automatic score of 10 on the cumulative final and had the two review days off. Other students who studied independently received identical payoffs if they met the same mastery criterion. The previous lecture time was used for inclass study. Baseline II: Baseline I procedures were reinstituted for the final three units. The test scores are the independent and paired students are shown in Figure 1. Compared

¹See NAPS document no. 03190 for 18 pages of supplementary material. Order from ASIS/NAPS c/o Microfiche Publications, P.O. Box 3513, Grand Central Station, New York, New York 10017. Remit in advance for each NAPS accession number. Institutions and organizations may use purchase orders when ordering; however, there is a billing charge for this service. Make checks payable to Microfiche Publications. Photocopies are \$5.00. Microfiche are \$3.00 each. Outside the United States and Canada, postage is \$3.00 for a photocopy or \$1.00 for a fiche.

²Department of Educational Psychology, Arizona State University, Tempe, Arizona 85281. The author expresses his appreciation to Jack Michael, Alice Dybsky, Norman Higgins, Joe Witt, and Peter Killeen for their ideas, assistance, and comments; and Lee Meyerson, Emily Herbert-Jackson, and Nancy Kerr for their help in preparation of this manuscript.

Fig. 1. Test scores of students assigned to study in pairs or independently during intervention. Following baseline, paired students earned bonus points toward the final only if each member scored 18 points; independent (I) students earned the same bonuses dependent on their individual test scores. H, M, and L indicate high, medium, and low test scores in baseline.

to baseline, performance during peer tutoring improved for every student paired with a high partner, and not for those students who studied independently. Between-group comparisons suggest that the effective variables were related to the tutoring or its combination with the group contingency. However, the opportunity for intergroup discussion about treatment procedures and unequal assignment of subjects to the tutored and independent groups make conclusions about the between-group portion of the experiment tentative. Half to two-thirds of the students in each performance category viewed the peer-tutoring procedure favorably, and two-thirds or more reported that the procedure was effective in improving academic performance. Proportionately fewer students assigned to independent study found that procedure effective or viewed it favorably. It appears that pairing students with others who do better on tests and rewarding them for their combined performance results in considerable improvement in the performance of lower-level students.

DESCRIPTORS: academic behavior, college instruction, group contingencies, peer tutoring, individualized instruction, college students

Received 20 November 1976.

(Final Acceptance 30 September 1977.)