DOCUMENT RESUME

ED 395 622 JC 960 373

AUTHOR	Wilson, Charles E.
TITLE	The Effects of Cooperative Learning and Teaching Strategies on Student Achievement with Implications for Faculty In-Service Education.
PUB DATE	Mar 96
NOTE	113p.; Major applied research project, Nova Southeastern University.
PUB TYPE	Dissertations/Theses - Practicum Papers (043) -- Reports - Research/Technical (143)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	Classroom Techniques; Community Colleges; Comparative Analysis; *Cooperative Learning; Educational Quality; *Instructional Effectiveness; Instructional Innovation; *Learning Strategies; *Small Group Instruction; *Social Sciences; Student Participation; *Teaching Methods; Two Year Colleges
IDENTIFIERS	*Kansas City Kansas Community College

ABSTRACT

A study was conducted at Kansas City Kansas Community College to determine if cooperative learning strategies were effective in improving teaching quality and enhancing the learning process of students in social science courses in general and in entry-level sociology and psychology classes specifically. A review of the literature provided considerable evidence in support of cooperative learning as a viable educational strategy for college instruction. Outcomes were then compared for four courses: an entry-level sociology and an entry-level psychology course using cooperative learning strategies and control entry-level sociology and psychology courses using more traditional methods. The experimental courses involved small group learning activities, such as discussions, problem solving, and study reviews, while the traditional teaching methods used in the control groups included lectures, question and answer sessions, and textbook/study guide reviews. An analysis of final course grades for the 50 students completing cooperative learning sections and the 100 completing control sections found no significant differences in grades, suggesting that cooperative learning was not more effective than traditional methods. However, based on student comments on course evaluations, students tended to respond positively to the cooperative learning methods that they experienced. Contains 85 references. Comments from students in cooperative learning sections are appended. (TGI)

THE EFFECTS OF COOPERATIVE LEARNING AND TEACHING STRATEGIES ON STUDENT ACHIEVEMENT WITH IMPLICATIONS FOR FACULTY IN-SERVICE EDUCATION

Charles E. Wilson

A major applied research project presented to
Programs for Higher Education in partial fulfillment
of the requirements for the degree of
Doctor of Education

Nova Southeastern University

March, 1996

Acknowledgements

I gratefully acknowledge the considerable direction and review given this study by Dr. David L. Boggs, Dr. Peter Mills, and Dr. Marvin Jones of the Programs for Higher Education staff. In addition, I must thank Ms. Jean Karrick for her generous assistance and her computer skills, and Mr. Gerald Ulrich for his math skills.

For their professionalism and encouragement, I thank Dr. Pam Drayson and Mrs. Mary Fenlon. For their understanding, patience, and friendship, I thank Dr. Henry Louis and my colleagues in the Social and Behavioral Science division at Kansas City Kansas Community College.

I am very grateful to my family, Mrs. Elnora Wilson Collins, Mr. Clifton Collins and Dr. Steve Walker.

Abstract of a major applied research project presented to Nova Southeastern University in partial fulfillment of the requirements for the degree of Doctor of Education

THE EFFECTS OF COOPERATIVE LEARNING AND TEACHING STRATEGIES ON STUDENT ACHIEVEMENT WITH IMPLICATIONS FOR FACULTY IN-SERVICE EDUCATION

by

Charles E. Wilson

March, 1996

The problem under investigation was to determine if cooperative learning strategies were effective learning strategies at Kansas City Kansas Community College. In other words, could cooperative learning strategies improve teaching quality to enhance the learning process of students in social science courses, specifically entry level sociology and entry level psychology?

Students seem to have learned better when cooperative learning strategies were used. However,

there seems to have been a reluctance on the part of the faculty at Kansas City Kansas Community College to use cooperative learning strategies. Dr. J. F. Garmon, vice-president for academic affairs said that cooperative learning was an idea and concept that he wanted the faculty at the college to embrace. According to Siegfried, Getz, and Anderson (1995) colleges and universities adopt higher education innovations very slowly.

If one component of faculty reluctance to use cooperative learning and teaching strategies was lack of knowledge of their effectiveness in the classroom, then a study was needed to address this deficiency.

There were three research questions that guided this study. Each was concerned with students at Kansas City Kansas Community College. They were (a) "Are cooperative learning strategies effective in social sciences?," (b) "Are cooperative learning strategies effective in entry level sociology courses?," and (c) "Are cooperative learning strategies effective in entry level psychology courses?"

The research hypotheses for the study were (a) Students in social science courses which used

cooperative learning strategies achieved higher achievement scores than students in social science courses which used traditional learning strategies, H_1: $\mu_1 > \mu_2$; (b) Students in entry level sociology courses which used cooperative learning strategies achieved higher achievement scores than students in entry level sociology courses which used traditional learning strategies, H_1: $\mu_1 > \mu_2$; and (c) Students in entry level psychology courses which used cooperative learning strategies achieved higher achievement scores than students in entry level psychology courses which used traditional learning strategies, H_1: $\mu_1 > \mu_2$.

The cooperative learning groups and the traditional groups met the college's general admissions criteria, and experienced the same instructors, syllabi, texts, tests, grading system, and methods of evaluation in the respective disciplines. Cluster sampling was accomplished through the college enrollment process which did not allow for such controls as race, gender, and age. The major difference was that the control group (conventional learning strategies) experienced more traditional teaching methods, including the lecture, and the

experimental group (cooperative learning strategies) experienced cooperative learning techniques.

Final course scores for each group were collected, reviewed, and assigned a numerical identifier for computation purposes. The null hypotheses were evaluated using a *t*-test and comparison between the means of the two groups. All three research hypotheses were rejected and the three research questions were answered in the affirmative.

As a result of this study, the following recommendation summary was made: This study be replicated to allow the collection of additional data which could be treated in follow-up studies. This study be reviewed by the vice-president of academic affairs and the academic deans council in an attempt to give additional direction to their respective teaching faculty on the uses and advantages of cooperative learning strategies.

LIST OF TABLES

TABLE OF CONTENTS

Chapter 1

INTRODUCTION

Kansas City Kansas Community College is a publically supported higher education institution located in the city of Kansas City, Kansas. The school offers two-year degrees, along with a variety of certificate training programs for a two-county area in northeast Kansas.

Kansas City Kansas Community College has a student population of more than 6,000, with an FTE of approximately 2,800. The full-time faculty at Kansas City Kansas Community College numbers 140.

Nature of the Problem

The problem under investigation was to determine if cooperative learning strategies were effective in producing higher achievement scores in social science courses at Kansas City Kansas Community College. In other words, could cooperative learning strategies improve teaching quality or enhance the learning process of students in social science courses, specifically entry level sociology and entry level psychology classes.

Wagoner (1992) reported that in U.S. colleges and universities, much attention had been focused on the need to improve teaching quality and to involve students in the learning process through cooperative learning and teaching strategies. It has been suggested that students learned better when cooperative learning and teaching strategies were used.

Faculty, however, have not chosen to use such methods. There appeared to be a reluctance on the part of the faculty at Kansas City Kansas Community College to use cooperative learning and teaching strategies. It may have been that faculty did not perceive cooperative learning strategies as effective as teaching strategies. If one component of faculty reluctance to use cooperative learning strategies was lack of knowledge and conviction about their effectiveness in the classroom, then, presumably, a study was needed to determine if cooperative learning was an effective teaching strategy.

This reluctance has been noted by the college administration. Dr. J. F. Garmon, vice-president for academic affairs at Kansas City Kansas Community College (personal communication, September 21, 1994)

suggested that cooperative learning was an idea and concept that he wanted the faculty at the college to embrace.

He stated that since the Fall, 1992, when faculty were exposed to the idea in an in-service program, only a handful of the more than 134 full-time faculty have attempted to use such strategies in their courses. According to Siegfried, Getz, and Anderson (1995) colleges and universities have tended to adopt higher education innovations very slowly. The vice-president of academic affairs at the college has said that he would like to provide faculty with additional evidence in support of the idea that cooperative learning and teaching strategies were effective teaching and learning tools.

Purpose of the Project

The purpose of this study was to assess the effects of cooperative learning and teaching strategies on student achievement in social science courses, specifically, entry level sociology and psychology classes, with implications for faculty in-service education at the college. This study investigated cooperative learning and teaching strategies as

methods to enhance student learning. If student learning was enhanced, perhaps the quality of student learning could be increased and the level of student achievement raised. Student achievement was assessed by comparing final course grades of two groups of students in two different disciplines. One group in each of two disciplines experienced cooperative learning and teaching strategies and the other group in each of the two disciplines, did not. Each discipline group experienced the same instructor, course syllabus, textbooks, tests, grading scale and methods of evaluation. Essentially, this study was designed to determine the effects of cooperative learning and teaching techniques on achievement, as defined by final course grades in selected sociology and psychology classes.

Background and Significance of the Problem

Parnell (1990) suggested that if higher education institutions were to keep pace with the variety of changes swirling about them, that they must prepare themselves to respond. Educators at all levels have increasingly been urged to use strategies that involve processes of critical inquiry, collaborative

activities, and both written and oral communication as tools for teaching in their classrooms. Wren and Harris-Schmidt (1991) reported that among the calls for reform in college teaching being sounded, was the replacement of the traditional concept of teaching as experts transmitting knowledge, with a new concept, collaborative or cooperative learning. They said:

> This call is often heard only by those who are already converted to its message. Most professors are unfamiliar with the concept and the fact that a parallel shift to cooperative learning is taking place in the elementary and secondary schools. (p. 263)

However, most community colleges and universities have tended to practice the more traditional teaching methods according to Meyers and Jones (1993). Among others, Davidson and Worsham (1992) and Artzt and Newman (1990), explain that these traditional methods are ones in which teachers do most of the work and students remain passive. Since their beginning, community colleges, as well as most universities, have utilized a variety of teaching methods, some of which have become thought of as traditional, while others are viewed as innovative or progressive. These involve a range of methods and techniques. Harris (1993) described individualization as an instruction method

used in a community college history course. Johnson and Kean (1992) discussed the use of heavy vocabulary, textbook-driven teaching in science courses. Others, like Judith Wood (1992) considered the use of tutorials, especially in computer labs. Directed reading was another traditional method of teaching course content. LaCarruba (1993) explained that directed reading was a teacher guided approach where students work individually.

Another teaching method viewed by many as the most traditional, was the lecture (Courtney, Courtney, & Nicholson, 1992; O'Banion and Associates, 1994; Sharan 1990). Additionally, colleges used field trips to reinforce previous learning (Caprio, 1993); problem solving strategies to foster creativity (Guenter, 1994); examples to teach concepts (Decyk, 1994; Miller, 1994); questioning techniques (Hansen, 1994); and inquiry (King, 1994) as tools to enhance critical thinking in classrooms.

In Rethinking College Instructions for a Changing World, Halpern and the co-editors reviewed several college instructional strategies. Brady and Jacobs (1994), Nummedale (1994), Ratcliff (1994), and Wolff

(1994) discussed the role of assessment in strengthening the core curriculum, and Crouch and Fontaine (1994) proposed the portfolio as an instructional tool. Student contracts were described by Harris (1993) as an instructional method used by community colleges. Backer and Yabu (1994) described "hypermedia" as an instructional resource. Some of these hypermedia included interactive video (Semrau & Boyer, 1994), computer assisted instruction (Caprio, 1993), and the internet (Blurton, 1994).

In the midst of the various instructional strategies at many colleges and universities, collaborative learning or cooperative learning techniques were being utilized in a variety of courses across the country (Cooper, Prescott, Cook, Smith, Mueck, & Cuseo, 1994). These courses included foreign language (Klein, 1992), teacher education (Brady & Jacobs, 1994), psychology (Wesp, 1992), social studies (McKee & Day, 1992), science courses (Reif & Morse, 1992; Basili & Sanford, 1991), history (Harris, 1993), counseling (Goldstein, 1993), civil engineering (Hart & Groccia, 1994), geography (Hindle, 1993), math (Garland, 1993; Macleod, 1992; Berg, 1993; Schwartz,

1992; Alvarez, Finston, Gehrkis, & Morandi, 1992); reading and writing courses (Hess, 1993; Ballif, 1993; Dursky, 1993; Scott, 1992; Aghbar & Alam, 1992; Cullinan & Landoli, 1991), as well as diversity and multicultural education courses (Mack, 1993; Goldstein, 1994; Junn, 1994; Barkan, 1994; Comor-Jacobs, 1993).

The reluctance on the part of faculty to use cooperative learning and teaching strategies was also quite evident in the literature on the subject. Gamson (1994) reported that most faculty, even those who are interested, still have a long way to go in doing collaborative learning and teaching effectively. Wren and Harris-Schmidt (1991) discussed the reluctance on the part of professors in schools of education. Their research shows the following;

> Although professors of special education often discuss the use of cooperative learning techniques in K-12 classrooms, they seldom model these techniques in their own courses, in spite of the current call for reform in college teaching by those who advocate the use of collaborative strategies. (p. 263)

Bonwell and Eison (1991) examined the common obstacles and barriers that give rise to faculty resistance. Cooper, Prescott, Cook, Smith, Mueck and Cuseo (1990) also detailed teacher concerns about

cooperative learning. Rosen (1992) described the resistance of teachers to the use of cooperative learning as waging war against a pedagogical shift. Others, including Morton Deutsch (October, 1990) a Columbia University professor and a pioneer theorist of cooperative learning himself, expressed concern that cooperative learning will become a fad and may fade away.

Cooperative learning strategies have involved what Meyers and Jones (1993) call active learning. They explained that "active learning is usually understood to stand in contrast to traditional classroom styles where teachers do most of the work and students remain passive" (p. xi). Davis (1993) stated that

> Various names have been given to this form of teaching, and there are some distinctions among these: cooperative learning, collaborative learning, collective learning, learning communities, peer teaching, peer learning, reciprocal learning, team learning, study circles, study groups, and work groups. But all in all, there are three general types of group work: informal learning groups, formal learning groups, and study teams. (p. 147)

Smith, Johnson, and Johnson (cited in Goodsell, Maher, Tinbto, Smith, & MacGregor, 1992) reported that "cooperative learning techniques encourage students to share knowledge, work in groups, and learn

communication skill while they master the material" (p. 34). Davidson and Worsham (1992) described cooperative learning as "...procedures designed to engage students actively in the learning process through inquiry and discussion with their peers in small groups" (p. xi). The group work had been carefully organized and structured to promote the participation and learning of all group members. In this manner, cooperative learning was more than just tossing students into a group and telling them to talk together. Hill and Hill (1990) further defined cooperative learning by emphasizing that this type of "...activity can be said to exist when two or more people are working together towards the same goal. The two essential elements in any co-operative activity were goal similarity and positive interdependence" (p. 7). In addition, Hill and Hill (1990) supported the contention that social interaction lead to more advanced cognitive development. According to Slavin (1990), cooperative learning strategies have been known to effect a variety of outcomes, from enhanced achievement to improved intergroup relations.

Cooperative learning appeared to be expanding not only in classroom use but also as an important topic for discussions on the improvement of teaching and learning generally. For example, two years ago, the Kansas City Kansas Community College administration, through the office of faculty and staff development, presented a cooperative learning program. According to Dr. J. F. Garmon (personal communication, September 21, 1994), this program was the focus of the Fall faculty workshops. Since that time, some faculty members have utilized several of the student-centered methods, techniques, and strategies presented during those sessions.

Artzt and Newman (1990) reported that most traditional college teaching methods are teacher centered. They explained that "cooperative learning is an instructional strategy that every teacher should have as part of his or her repertoire to use when deemed most appropriate" (p. 20). College teaching has traditionally involved a range of methods and techniques. Discussions, lectures, writing assignments, homework assignments, testing, grading, and evaluation have been joined by the use of

instructional media and technology, as well as outside the classroom methods such as academic advising, mentoring, training or supervising students. In a December 1993 article in The Teaching Professor, Larson stated that:

> The professor who delivered a long lecture from behind the lectern while students diligently scribbled down notes may have worked fine in the past. But this is the '90s. As we near the 21st century, the lecture approach must be complemented with good class discussions, simulation exercises, and use of state-of-the-art audiovisual materials. (p. 8).

Don Doucette (in Terry O'Banion and Associates, 1994) referred to lecturing as "one of the ole models of learning that is passive and imitative" (p. 202). Sharan (1990) explained that "...extended exposition...is totally inappropriate as the dominant mode of classroom interaction" (p. xiv). Fogarty and Bellance (cited in Davidson & Worsham, 1990) described cooperative learning strategies as the new lecture. They suggested that "these are authentic interaction models that take the focus off the lecturer and put it squarely on the learner" (p. 84). Gunter, Estes, and Schwab (1990) pointed out that "teachers are required to do more than teach; to show, to tell, or to point out. They must instruct" (p. xiv). For them, this

means structuring classrooms and other learning environments to build experiences for students who have a wide range of abilities, interests, and needs. Research continues to reveal teaching practices and learning environments that fall short of increasing students involvement. Educational research has shown that the lecture method, when employed exclusively, is one of the least effective learning strategies for students.

Research Questions

There were three research questions that guided this study. Each was concerned with students at Kansas City Kansas Community College. They were (a) "Are cooperative learning strategies effective in social science classrooms?", (b) "Are cooperative learning strategies effective in entry level sociology courses?", and (c) "Are cooperative learning strategies effective in entry level psychology courses?" In other words, "do Kansas City Kansas Community College sociology and psychology students who are exposed to cooperative learning and teaching strategies achieve higher final course grades than students in sociology

and psychology courses taught with more traditional methods?"

Research Hypotheses

The research hypotheses for the research questions were (a) Students in social science courses which use cooperative learning and teaching strategies achieve higher achievement scores than students in social science courses which use traditional learning and teaching strategies, H_1: $\mu_1 > \mu_2$, (b) Students in entry level sociology courses which use cooperative learning and teaching strategies achieve higher achievement scores than students in entry level sociology courses which use traditional learning and teaching strategies, H_1: $\mu_1 > \mu_2$, and (c) Students in entry level psychology courses which use cooperative learning and teaching strategies achieve higher achievement scores than students in entry level psychology courses which use traditional learning and teaching strategies, H : $\mu_1 > \mu_2$.

Definition of Terms

Achievement score is defined as the raw score obtained on the final examination in entry level sociology and psychology.

Cooperative learning strategies is defined as instructional formats which involve two or more students interacting to help one another learn academic material.

Learning strategies is defined as instructional formats used to help students learn among other things, course material and course skills.

Psychology courses are defined as courses which contained a broad survey of human behavior and mental processes and the connections between biological and environmental factors to explain such behavior.

Social Sciences is defined as the field of study that deals with all aspects of mankind's group life. For the purposes of this study, the term included the disciplines included in the social science division at Kansas City Kansas Community College.

Sociology courses are defined as courses which provided a general introduction to understanding behavior patterns of human groups and associations.

Traditional learning strategies are defined as those which relied heavily on textbooks, lecture, and instructor directed and managed activities.

Teaching strategies is defined as a variety of methods used by professional teachers to instruct students for the purpose of learning.

Chapter 2

REVIEW OF LITERATURE

Overview

The typical stereotype of a college classroom has the professor lecturing while the students quietly take notes (Barratt, 1994; Cooper, Prescott, Cook, Smith, Mueck, & Cuseo, 1990; Lewis, 1991; Weissglass, 1993; Young, 1992). This stereotype has not been valid for many years, since there have been labs for science (Basili & Sanford, 1991; Johnson & Kean, 1992; Reif & Morse, 1992); language (Gibson, 1992; Haber, 1994; Klein, 1993; Rosen, 1992; Rousculp & Welsh, 1992; Tebo-Messina, 1993; Young, 1992); computer classes (Hart & Groccia, 1994); discussion or seminar classes (Nattiv, Winitzky, & Drickey, 1992; Petonito, 1991; Wren & Harris-Schmidt, 1991); and workshop classes in which students work on their own project, which are then evaluated by the instructor and student peers (Garland, 1993; Randolph, Robbins, & Gere, 1994; Sun, 1992).

Nevertheless, the image has lingered of students doing their work quietly and privately. Further, many have persisted in believing that students should be evaluated on their own individual work (Backer & Yabu,

1994; Halpern, 1994; Nummedal, 1994; Ratcliff, 1994). Learning on the college level did not need to be private, however. Cooperative learning strategy has been noted to be just as beneficial in higher education as had been seen at all other levels of education (Alvarez, Finton, Gehrke, & Morandi, 1993; Brockman, 1994; Bullion-Mears, 1993; Cooper, Prescott, Cook, Smith, Mureck, & Cuseo, 1990; Davidson, 1993; Davis, 1993,; Dees, 1991; Erickson, 1992; Haber, 1994, Halpern, 1994, Hart & Groccia, 1994; Kealy & Witmer, 1991; Lewis, 1991; Matthews, 1991; Mullin, 1993; Peterson, 1992; Petonito, 1991; Tiberius & Billson, 1991; Young, 1992).

Cooperative learning has been described as a method of instruction in which students work together in small groups to reach a common goal. (Cooper, et al, 1990; Gamson, 1994; Nattiv, Winitzky & Drickey, 1992; Rosen, 1992; Slavin, 1987). Slavin (1987) identified cooperation as one of the most important human activities. He saw cooperation as important to all kinds of successful human activities. However, one area in which cooperation was not a primary focus has been the classroom, where helping between students has

often been viewed as cheating. Romer and Whipple (1991) have added to the definition of cooperative learning by insisting that it means noncompetitive learning, in which the reward structure encourages students to work together to accomplish a common end.

However, students typically compete with one another for good grades, for teacher approval, and for other rewards. As a result of this competition, students do not encourage and may discourage one another's academic efforts. These definitions of cooperative learning have evolved from the work of such psychologists as Johnson and Johnson (1975, 1987) and Slavin (1987). Considerable evidence continues to exist in support of cooperative learning as a viable educational strategy for college instruction. Of course, cooperative learning methods have been used for years in the form of laboratory groups (Basili & Sanford, 1991; Johnson & Kean, 1992; Klein, 1993; Reif & Morse, 1992; Sun, 1992); project groups (Berard, 1992; Dees, 1991; Murray, 1993; Nattiv, Winitzky & Drickey, 1992; Phoenix, 1991; Randolph, Robbins, & Gere, 1994; Tinto, Goodsell-Love, & Russo, 1993; Wesp,

1992); discussion groups (Matthews, 1991; Mink, 1992; Perham, 1992; Peterson, 1992); and so on.

Much of the recent research on cooperative learning has documented the effects of having students work together. For example, among others, Urion and Davidson (1992) described increased performance among students; Freeman (1993) promoted the idea of understanding how small groups interact; Sun (1992) discussed the usefulness of multiple perspectives, while Tinto, Goodsell, and Russo (1993) believed cooperative learning strategy effective in promoting commuter student involvement and achievement.

In addition, Kealy and Witmer (1991) related the strategy to higher level thinking skills; Johnson and Kean (1992) to multicultural understanding; Mack (1993) to the creation of openness to unassimilated others, while Erickson (1992) discussed the level of confidence students gained. Moreover, several, including Bullion-Mears (1993) described the importance of the evolution of the student voice in the classroom.

Additionally, the research has shown that cooperative methods have been applied to teaching a broad range of skills, including critical thinking

(Klein, 1993), writing formal arguments (Berard, 1992), responsibility (Mink, 1992), understanding the usefulness of multiple perspectives (Sun, 1992), and test taking (Matthews, 1991). Cooperative learning strategies have been refined and systematized to the point where they are being used extensively in every conceivable subject area including literature (Mink, 1992); Poetry (Perham, 1992); special education (Wren & Harris Schmidt, 1991); chemistry (Basili & Sanford, 1991); psychology (Wesp, 1991); ESL (Freeman, 1993); civil engineering (Hart & Groccia, 1994); writing (Brockman, 1994; Davidson, 1993; Gibson, 1992; Haber, 1994; Mullin, 1993; Sills, 1992; Tebo-Messina, 1993); teacher education (Sun, 1992); and higher education (Kealy & Witmer, 1991); from grade school through college level, including elementary (Hill & Hill, 1990); junior high (Reif & Morse, 1992; Urion & Davidson, 1992); high school (Randolph, 1994; Tietze, 1992; Urion & Davidson, 1992; Wren & Harris-Schmidt, 1991); colleges and community colleges (Basili & Sanford, 1991; Petonito, 1991; Phoenix, 1991; Tinto, et al, 1993; Wesp, 1992);and in all kinds of schools throughout the world (Gaillet, 1992).

Kenneth Bruffee, in Collaborative Learning: Higher Education, Interdependence, and the Authority of Knowledge (1993) gives credit for the recent discussion of collaboration in education to Edwin Mason, a British educator who wrote in the 1960's about the comprehensive and grammar schools. Gaillet (1992), Gamson (1994) and Haber (1994) agreed with that view. While social psychological research on cooperation dated back to the 1920's, according to Haber (1994), Nattiv, Winitzky, and Drickey (1992), Slavin (1987), and Weissglass (1993), research on specific applications of cooperative learning to the classroom did not begin until the early 1970's.

Often, the concepts of cooperative learning and collaborative learning have been confused, thought to be the same thing, or used interchangeably. Romer and Whipple (1991) stated that

> Cooperative learning means noncompetitive learning, in which the reward structure encourages students to work together to accomplish a common end. Collaborative learning is always cooperative, but takes students one step further: to a point where they must confront the issue of power and authority implicit in any form of learning, but usually ignored. Either mode may employ group work; neither depends entirely on this technique. Collaborative learning always takes both the student and the

> professor "into enemy territory'; cooperative learning generally maintains traditional authority structures.(p. 66)

In the United States, both of these learning strategies began their development during the 1970's. Much of the development of group work, however, took place in elementary and secondary schools (Barratt, 1992; Gamson, 1994; Hill & Hill, 1990; Slavin, 1987; Nattiv, Winitzky & Drickey, 1992). Cooperative learning has only recently trickled up to higher education (Barratt, 1992; Bonwell & Eison, 1991; Johnson & Kean, 1992; Nattiv, Winitzky & Drickey, 1992; Weissglass, 1993). Gamson (1994) reported that cooperative learning strategy was inspired by the work of many, including John Davey, and Paul Freire. Nattiv, Winitzky and Drickey (1992) reported that this form of group work had been refined since the early 1970's when researchers and classroom teachers found that group work was more effective when the following components were included: "individual accountability, group goals, task support, and social/task skill development."p. 216

Groups, or teams, were usually composed of four to six members and were generally heterogeneous in

students' achievement levels, gender, and ethnicity. Often, each team member had a different role. Some of the typical roles included the coordinator, recorder, and gatekeeper (Hill & Hill, 1990; Slavin, 1987; Weissglass, 1993). Roles were usually rotated. There have been more than 50 cooperative learning instructional strategies identified, most of which were explained in more detail in Kagan's (1988) resource book for teachers. They all involved working in small groups.

Educators at all levels have increasingly been told that classrooms should be places where students are guided through processes of critical inquiry, work collaboratively, and use both written and oral language as tools for learning (Rosen, 1992). In spite of such findings which have argued the need for greater student participation in learning (Kealy & Witmer, 1991), there has been a general reluctance by higher education institutions to employ cooperative learning techniques in the classroom. Much of this reluctance had to do with course conflict and fear (Freeman, 1993; Gibson, 1992); loss of time, energy or ego (Allen, Atkinson, Morgan, Moore, & Snow, 1987; Bullion-Mears, 1993; Wren

& Harris-Schmidt, 1991); change in or loss of professor authority (Bullion-Mears, 1993; Mink, 1992; Perham, 1992; Sun, 1992; Weissglass, 1993); reluctance to give up the lecture method (Weissglass, 1993); the fact that the process is not always comfortable for participants (Mack, 1993); and of course general resistance to change (Reif & Morse, 1992).

Opinions of Experts

The cooperative learning perspective which moved from K-12 into higher education (Basili & Sanford, 1991; Hill & Hill, 1990; Phoenix, 1991; Randolph, 1994; Reif & Morse, 1992; Tietze, 1992; Urion & Davidson, 1992; Wren & Harris-Schmidt, 1992), promises to change dramatically the social arrangements between teachers and students (Candee, Carmichael, Klosek, Pratt, Seidel, Shepherd, & Walker [in Fullen, 1993]; Comor-Jacobs, 1993; Felder, 1992; Meyer, 1994; Pierce & Gillis, 1992).

Community college classrooms have tended to be particularly diverse, often encompassing an age span of 40 years and a wide range of skill deficiencies Berard, 1992; Klein, 1993; Matthews, 1991; Mink, 1992; Sun, 1992). Cooperative learning strategies have tended to

de-emphasize lectures, assignments, and tests to place more emphasis on group discussion, group problem-solving, and goal setting (Alvarez, Finton, Gehrke, & Morandi, 1992; Carroll, 1991; Comor-Jacobs, 1993; Felder, 1991; Garland, 1993; Goldstein, 1993; Gore, 1993; Gura, 1992; Hart & Groccia, 1994; Karre, 1993; Keller, 1993; Matthews, 1991; Murray, 1990; O'Malley & Scanton, 1990; Peterson, 1992; Petonito, 1991; Reif & Morse, 1992; Sandell, 1991; Slavin, 1990; Starr, 1991; Young, 1992).

Cooperative learning has been described as an instructional strategy in which small groups work toward a common goal (Cooper, 1990; Gamson, 1994; Rosen, 1992; and Slavin, 1987). The main features of cooperative learning have been summarized by Millis (1990) and Freeman (1993): positive interdependence (all members of the group contribute to one anothers' learning); individual accountability (no student can ride free on the labor of others, because course grades largely reflect individual learning); heterogeneous teams (a mixture of students represents differences in learning abilities, ethnic diversity, and gender); group processing (such activities as reflecting on the

group's effectiveness are designed to build team skills); and social skills (to help students engage in cooperative interaction and show mutual respect).

Mealy and Hart (1992) reported that such strategies reduce text anxiety, while Finley (1990), Obler (1991), Rau and Heyl (1990), Schmitz (1992), and Tyler (1993) discussed the positive impact of such strategies on culturally diverse students. Some did not see small group learning as positive. For example, Rau and Heyl (1990) called these groups student rap sessions. However, in an interview with Uri Treisman, Garland (1993) noted in his work a correlation between success in math and students studying in groups. Additionally, Karre (1993) and Soukup (1992) were among those who saw an improved quality of learning as a result of the use of cooperative learning strategies. Andrews (1992) and Wagner, Scharinger, and Sisak (1992) detailed the attention focused by U. S. colleges and universities on the need to improve teaching quality and to involve students in the learning process.

With the cooperative learning model, the teacher's role was expanded beyond the typical model of simply presenting information and evaluating. Among others,

Comor-Jacobs (1993) and Harris (1993), suggested that teachers using cooperative learning strategies have to move from a teacher-centered to learner-centered environment. Additionally, Kirch (1991) noted that the use of cooperative learning required the teacher to plan carefully and respond spontaneously. Ballif (1993), Barratt (1992), Brady and Jacobs (1994), Kelvin (1993), Mello (1993), along with Tiberius and Billson (1991) reiterated that cooperative learning techniques have sought to reconstruct the classroom as a site of social cooperation. Tyler (1993) and Wesp (1992) noted the increased personalized attention that students have received as a result of the use of cooperative learning. However, Wesp (1992) summarized a major concern held by many proponents of cooperative learning. He reported that cooperative learning strategies required too much time as teachers facilitated, set tasks, guide the groups toward cooperation, trust, and interdependence.

Using this strategy, the responsibility for learning has been shifted from the teachers' shoulders (Hart & Groccia, 1994; Murray, 1990) to the student's; the teacher becomes the coach rather than the expert

(Karre, 1993; Keller, 1993; Young, 1992). Karre (1993) and Osborne and Wyman (1991) have suggested cooperative learning as a way to avoid teacher burnout. The teacher's role in cooperative learning has been linked with Rogers' person-centered therapy (Hassard, 1990). He went on to say that:

> "It requires a conscious shift of perspective on the part of the teacher, away from authoritarianism and toward coordination of cooperative actions and the facilitation of instruction. Teachers who have incorporated this philosophy into their classrooms orchestrate the students' activities and are masters in securing and creating well-designed, team-oriented tasks." p. ix

Erickson (1992) indicated that if the U. S. was to be competitive in the global market, students must learn to work with one another. Although it appeared that opinions about cooperative learning tended to be positive, there were some additional concerns. Much of the concern centered around the time needed or some unsubstantiated benefit claims. Caprio (1993) on the other hand reported that the time spent was an investment in good teaching. Beckman (1990) cautioned that although there were many advantages of cooperative learning for students, that it was not a panacea. She indicated that "this type of

collaboration prepares students in the latest techniques of capitalism, not democracy," as some had suggested. Lyons (1990) was concerned that cooperative learning did not provide the short-term extrinsic rewards for those students who rely on such.

Although most of the research documenting the advantages of cooperative learning had been conducted so far in K-12 settings (Slavin, 1989, 1990), recent college-based research supported similar conclusions. Cooperative learning was effective, more fun, and led to greater student involvement and enhanced cooperative group skills (Dees, 1991; Millis, 1990).

Review of Research

It seems that for many experts, cooperative learning strategy was at least an effective method of shifting the focus away from lecture and the professor during class time to student-centered discussion groups (Felder, 1991; Geske, 1992; Hawkes, 1991; McKeachie, 1990; Murray & Murray, 1992; Tritt, 1993). Lewis (1991) described cooperative learning as an alternative to the traditional lecture-homework-quiz method of instruction. While several, including Keller (1993), Lyons (1990), and Slavin (1990) viewed cooperative

learning as a method that college faculty could use to enhance student motivation and learning.

There were others, Hindle (1993) among them, who discussed several problems convincing college faculty members that cooperative learning was a good thing. As has been suggested previously, objections to cooperative learning have made on academic, political, as well as philosophical grounds. Again, Hindle (1993, p. 17) stated that most problems tended to be organizational and could be overcome; and it was vital that the approach to cooperative learning strategies be a pragmatic one. At the college level, research results appeared mixed. Although student responses to cooperative learning strategy were often positive, some studies (Berg, 1993; Keller, 1993), reported difficulty in evaluating the success of cooperative learning projects. For example, projects like that of Hindle (1993) put student-controlled small group and transferrable skills at the core of geography course, but used no control groups.

However, Hufford (1991) described cooperative learning modifications made in a traditional biology course and the resulting improvements in student

achievement and attitude. Results of other studies (Glidden & Kurfiss, 1990) showed small-group work as effective as traditional lecture in three cases and more effective in two cases. Basili & Sanford (1991) agreed. They also noted that good as well as poor group leaders had a strong positive influence on group success. King (1990), using a reciprocal peer-questioning model for learning expository material presented in lectures, supported the feasibility of using cooperative learning groups at the college level.

In other results, Overlock (1994) in a study using physics classes at Northern Maine Technical College, tested cooperative learning along with other collaborative styles. He found no significant difference in student success, but found that several collaborative learning methods, including cooperative learning, were as effective as others. Similar results were reported by LaCarrubba (1993). Brown and Long (1992) found that students made significant gains in their writing after use of cooperative learning question-probe procedure. However, maintenance of improved written performance did not occur. Berg (1993) reported similar findings, and added that

students responded positively to the experience of cooperative learning and worked cooperatively and productively together. An early review of cooperative learning literature by Slavin (1990), found that cooperative learning methods using group rewards and individual accountability consistently increased student achievement more than control methods in elementary and secondary classrooms. However, another study conducted by LaCarrubba (1993) on second graders, indicated no significant achievement in academic achievement.

Studies by Peters and Stuessy (1991) and Tlusty, McIntyre, and Eierman (1993) found that while cooperative learning did not produce differences in achievement along gender lines, there were discernable differences in male and female attitudes and beliefs toward the subject matter. Additionally, they found that cooperative learning reduced the negative slide on self-perception of ability, interest, and effort among females. In a published study from the Netherlands, Van Voorhis (1992) reported that cooperative learning at the college level in teacher education yielded positive outcomes for students of different genders,

academic ability, college majors, and previous instructional experience who studied together in the same course. The twenty participant study also showed increased student interest in the material, use of language, in learning the material, and an active pursuit of learning was enhanced by structuring cooperative groups.

Carroll (1991) found that cooperative learning groups were more effective than straight lecture method for teaching business communication. Glidden and Kurfiss (1990) found that small-group work was as effective as traditional lecture in a philosophy course. Dees (1991) detailed the results of a study of remedial math students. Reported conclusions were that students using cooperative learning performed as well as or better than the control group on every measure. Outcome variables that showed significant differences in favor of cooperative learning were solving word problems in algebra and proof-writing in geometry. Wood (1992) conducted a study at Central Florida Community College. The results indicated that 69% of the experimental group received course grades of a, b, or c compared to 52% of the control group, and that 87%

of control group students were successful in their subsequent math course compared to 80% of the experimental group students.

Other research projects, including Courtney et al. (1992), Phoenix (1991), and Ward (1991) found no significant differences between groups using cooperative learning and those using more traditional instruction methods. Additionally, Phoenix (1991) reported that cooperative learning was helpful to remedial math instructors in planning strategies that helped improve achievement levels of their students. Though there was no significant achievement differences noted in the study (Ward, 1991), the experimental group posted the greatest gains. Osborne and Wyman (1991) were among those who suggested cooperative learning strategies as a way, among other things, to avoid instructor burnout.

Summer Sessions

Since this research project was being carried out during the Summer semester, it seemed appropriate to review the current literature with regard to the similarities and differences of Summer semesters and Fall and Spring semesters. For more than a century

collegiate institutions have provided organized educational degree credit programs during the Summer months. There was a paucity of information regarding collegiate Summer terms in general and in two-year colleges in particular. Yet this period consumed from one fourth to one third of the calendar year, and the number of students served ranged from one to two fifths of Fall enrollments (Young, 1989).

Were Summer school students or programs different from those in Fall and Spring terms? Young (1989) concluded several things. One was that the most important purpose cited for Summer sessions was to provide credit courses for the institution's regular degree or certificate students, permitting students to make up deficiencies, attracting new students and more fully utilizing the facilities. A second conclusion was that at 89% of colleges, the same official was responsible for the Summer as well as the Fall and Spring academic terms. A third conclusion was that 90% of the colleges had no statement of specific policies and procedures appertaining to Summer. Could one conclude that both curricula and students would not be significantly different in Summer or in the so called

regular terms? Young and McDougall (1991) described the Summer term as a hybrid of the academic world. They went on to report that the Summer session was simply an extension of the teaching function into the Summer months. Both Young (1989) and Young and McDougall (1991) concluded that most Summer students enrolled for credit were indigenous undergraduates and graduates pursuing their education year round.

According to Young (1989), based on the service level ratio of enrollments during Summer and Fall terms, public two-year colleges, the numbers were significant. In fact, they were serving, during the Summer periods, their fair share of the nation's populace seeking formal college credit educational experiences, comparable to the service levels of other types of collegiate institutions. Additionally, most difference regarding characteristics of Summer sessions in public two-year colleges, were associated with regional locations rather than with other factors.

Present Status of Topic

Kealy and Witmer (1991) advocated college instructors adding cooperative learning to their repertoire. Among others, Artzt and Newman (1990), Petonito (1991), and Wesp (1992) reported that cooperative learning promotes the importance of peer relationships in classrooms. Additionally, Van Voorhis (1991) has insisted that cooperative learning at the college level was just as beneficial as at other levels.

Reluctance to cooperative learning strategies may have been related to what Siegfried, Gety, and Anderson (1995) have identified as industry adopting innovation twice as fast as higher education. Hegarty (1995), in the March publication of KNEA Issues indicated that she believed that cooperative learning was an important form of teaching. In addition, she thought that this learning strategy would be a method of helping people to grow, by pushing them beyond what's comfortable.

Among those who have called for additional research of cooperative learning techniques at the college level, Slavin (1990) has suggested such research to focus of how cooperative learning could

help instill higher order concepts. Barratt (1992) has indicated that more research at the college is necessary to gauge the effectiveness of cooperative learning as a teaching tool.

Summary Statements

Among the ideas that have been suggested in the current literature were cooperative learning as a complement to the traditional lecture/discussion format in colleges and universities (Artzt & Newman, 1990; Comor-Jacobs, 1993; Felder, 1991; Haber, 1994; Hindle, 1993; Kealy & Witmer, 1991; Lyons, 1990; Rosen, 1992; Savitz & Yoder, 1993); as an alternative instructional strategy that could help address the recognized need for greater student participation in learning at the higher education level (Freeman, 1993; Geske, 1992; Gura, 1992; Keay & Witmer, 1991; King, 1990; Lewis, 1991; Petonito, 1991; Scmitz, 1992; Wren & Harris-Schmidt, 1991); and that cooperative learning groups could lead to improved academic achievement (Garland, 1993; Kelvin, 1993; King, 1990; Marchant, 1991; Phoenix, 1991; Slavin, 1990; Soukup, 1992; Van Voorhis, 1991).

Cooperative learning strategies have been credited with the promotion of critical thinking, higher-level thinking, and improved problem-solving ability of students (Artzt & Newman, 1990; Hart & Groccia, 1994). Mello (1993) and Mink (1992) have reported that the benefit of groups is that they can allow the instructor to develop more comprehensive assignments and help students gain deeper insights about group dynamics. In addition to such benefits, others, including Berg (1993), Harris (1993), Keller (1993), Klein (1993), Marchant (1991), Meyer (1994), Rau and Heyl (1990), and Tlusty, McIntyre, and Eierman (1993) described positive attitudes of students toward cooperative learning. However, Mack (1993) reminded the reader that some attitudes were negative. He stated that cooperative learning strategies were not always comfortable for participants. Wesp (1992) pointed out that cooperative learning was a technique that required much time. Even so, Sandell (1991) indicated that it was a liberating pedagogy for women.

Though cooperative learning has been described as a technique to reconstruct the classroom (Ballif, 1993; Comor-Jacobs, 1993; Reif & Morse, 1992), Lewis (1991)

has suggested that it should not replace the lecture. There has been some support for that idea. However, Bassili and Sanford (1991), Dees (1991), Glidden and Kurfiss (1990), Starr (1991), Tyler (1993), and Urion and Davidson (1992) have reported that cooperative learning was as effective as the traditional lecture. On the other hand, Carroll (1991), Tinto, Goodsell-Love & Russo (1993), and Tlusty, et al (1993) have suggested cooperative learning is more effective than lecture method. Perhaps more significant were the numbers of research results that showed no significant difference (Courtney, et al. 1992; LaCarrubba, 1993; Overlock, 1994; Peterson, 1992; Sandell, 1991; Ward, 1991; Wood, 1992).

Others emphasized such factors as the social nature of learning and the importance of the cultural context of teaching (Andrews, 1992; Davidson, 1993; Erickson, 1992; Gibson, 1992; Johnson & Kean, 1992; Tiberius & Billson, 1991; Tyler, 1993; Van Voorhis, 1991); while Johnson and Kean (1992), Starr (1991), and Van Voorhis (1991) also noted the positive diversity outcomes associated with cooperative learning. Although the role of the teacher tended to change with

cooperative learning (Sun, 1992; Weissglass, 1993), according to Bullion-Mears (1993), Johnson and Kean (1992), and Mealey and Hart (1992), the learning environment was significantly improved.

Positive about cooperative learning strategy, Tebo-Messina (1993) suggested that it worked in complex ways and could not be reduced to a field manual. They also described cooperative learning as a positive strategy, but one that required attention to group formation and composition, dynamics, design, and assessment. Elder (1991) has suggested that U. S. classrooms are finally doing what countries like Japan and Israel have done all along.

Chapter 3

METHODOLOGY AND PROCEDURES

The proposed design methodology for this project was quasi-experimental. The design controlled for as many variables as possible. Those variables included additional tutorial assistance outside of the class structure, course syllabus, grading system, texts and examinations. For example, students were not referred to the learning center for additional assistance. Students identified as receiving extra tutoring were not included in the data. Students in each respective class received the same generic syllabus authorized by the social science division. These syllabi have been in use for at least three years. The same discipline texts were used for each respective class in the study. The grading system used for all samples used in this study was 90-100%=A, 80-89%=B, 70-79% =C, 60-69% = D, and below 60% =F.

There were two additional possible grades given. One was the (W) for withdrawal, and the other was the (I) for incomplete. Neither of these two grade classifications was used as part of the data. The treatment tested was exposure of students to

cooperative learning techniques and activities in entry level sociology and entry level psychology classes. The independent variable was learning strategies. The dependent variable was final course grades for students.

For the 1995 Summer semester, students in the cooperative learning groups were involved in small group learning activities, including discussions, problem solving, study, review and testing. The conventional learning groups received more traditional learning activity, including lecture, question and answer sessions, study review, as well as testing.

Procedures

Kansas City Kansas Community College enrolls approximately 6,000 students each Fall and each Spring semester, and roughly 2,300 students during Summer semesters. The students have generally been described as 63% female, 30% nonwhite, 4% international, 99% with high school equivalency or high school diploma, and with an average age of 29 years. Kansas City Kansas Community has been described as an open door community college. These students have primarily come from the

state mandated service areas of Wyandotte and Leavenworth counties in Kansas.

Each Fall and Spring semester, the college has offered some 15 entry level sociology classes and almost 30 entry level psychology classes. During the Summer semester, the offerings have been roughly six each. The minimum number of students required for each class was eight and the maximum number was 35.

There were three research questions that guided this study. Each was concerned with students at Kansas City Kansas Community College. They were (a) "Are cooperative learning strategy effective in social sciences?", (b) "Are cooperative learning strategy effective in entry level sociology courses?", and (c) "Are cooperative learning strategy effective in entry level psychology courses?" Effectiveness was measured by final examination course grades.

Data Collection

The same procedural steps were followed for each of the research questions which guided this study. A review of current literature on cooperative learning strategies was conducted. Through a process of random assignment, one entry level sociology class (so 107-20)

and one entry level psychology (ps 101-01) that used cooperative learning strategies, were used as experimental groups. Through the same process, one entry level sociology class (so 107-50) and one entry level psychology class (ps 101-80), that used more traditional teaching methods, including lectures, were used as the control group.

The dean of the social and behavioral science division at the college, Dr. Henry Louis, randomly assigned the entry level sociology and entry level psychology classes noted above, for this study. These classes were selected from the six sociology and five psychology classes offered during the 1995 Summer semester, and those which used and did not use cooperative learning and strategies. Instructors were cautioned not to allow their teaching methods and strategies to influenced by their participation in the study. Instructors were also requested to keep accurate grade records, and to provide final course grades scores to the researcher at the end of the semester. Along with this information, instructors were asked to provide data on the number of students enrolled, the number of students withdrawn, and the

number of incomplete grades assigned. Additionally, instructors in the cooperative learning strategies groups were requested to ask their students to provide anecdotal information about their experiences with cooperative learning methods. Since classes at the college were generally not held unless there was a minimum of eight students enrolled, each class assigned to this study contained at least eight students. Therefore, the cooperative learning strategies group and the conventional learning strategies research groups each contained a minimum of 16 students.

Cluster sampling was accomplished through the college registration process. This process began in April 1995 and ended with the first day of the Summer term in June 1995. There was no attempt made to control for age, gender, race, or ethnicity. The college offered six entry level sociology classes and five entry level psychology classes during the research semester. The enrollments in the social science courses were as follows: sociology, so 107-01 (6), so 107-02 (14), so 107-20 (20), so 107-22 (22), so 107-50 (17), and so 107-80 (10); psychology, ps 101-01 (34), ps 101-02 (15), ps 101-50 (5), ps 101-51 (11), and ps

101-80 (15). Students enrolled in these courses met the same general admission requirements as all students enrolled at the college. Students in both the conventional group and the cooperative learning group were students enrolled in day/morning classes.

For the purposes of this study, the independent variable was learning strategies. The dependent variable or outcome measured was the final course grades of students. The treatment tested for each group was the exposure of students to either more traditional learning and teaching strategies or to cooperative learning and teaching strategies. In both cooperative learning and conventional learning groups, students followed the prescribed course of study, including the various learning methodologies used for each group. For the Summer semester of 1995, students in the cooperative learning groups were involved in small group activities, including discussion, problem-solving, study review and testing. These small groups averaged five students each. The conventional learning groups were involved in more traditional learning activities, including lecture, question and answer

sessions, textbook/study guide reviews, as well as testing.

There was one instructor for each sociology class and one instructor for each psychology class. Each sociology class experienced the same generic syllabus, course objectives, textbooks, tests, grading scale, and methods of evaluation during the semester term. Each psychology class in this study experienced the same generic syllabus, course objectives, textbooks, tests, grading scale, and methods of evaluation during the semester term. Neither group was provided extra tutorial help beyond the regular classroom activity.

Students were given the final examinations designed by the social science division. These examinations were one produced by the sociology and the psychology departments, respectively. The final examinations used standardized test questions obtained from the publisher's testbank of the sociology and psychology textbooks and selected by the full-time faculty who teach the sociology and psychology courses for the college. Each examination contained questions adopted by consensus of the respective discipline faculty, based upon agreement about what information

constitutes a course final exam and what students ought to have learned in the specific entry level courses.

The respective examinations were ones that had been adopted by each of the two disciplines in the Spring of 1994 and had been given to sociology and psychology students for at least three previous semesters. These examinations were deemed appropriate by the social science division for measuring learning in the courses for which they were given. Additionally, students in the cooperative learning strategy groups were asked to provide anecdotal data comparing their experience with cooperative learning activities and the more traditional learning methods they have been exposed to.

Data Analysis

The treatment tested was the exposure of students to learning strategies. Final course grades for the cooperative learning groups and the conventional learning groups were collected from the instructors of each class to be analyzed. The numbers of samples for each group was sociology and psychology cooperative learning, 20 and 34 respectively. For the sociology and psychology traditional learning groups, the sample

numbers were 17 and 15 respectively. For the larger social science group, the cooperative learning sample was 50 and the traditional learning group was 100. Grades were arbitrarily transformed to numerical identifiers to enhance consistency. The numerical identifiers ranged from 0-4. The scoring scale was A=4, B=3, C=2, D=1, and F=0. Final course grades were compared for the groups in each research question category. Students who received the (W) withdrawal grade or the (I) incomplete grade were not included in the sample numbers. The null hypotheses for each research question was evaluated using a *t*-test. The means of the cooperative learning strategy groups and the conventional learning groups were compared.

The null hypotheses for this study were that (1) no difference existed between students in social science courses which used cooperative learning strategies and those which used more traditional learning strategies, H_o: $\mu_1=\mu_2$, (2) no difference existed between students in entry level sociology courses which used cooperative learning strategies and those who used more traditional learning strategies, H_o: $\mu_1=\mu_2$, and (3) no difference existed between

students in entry level psychology courses which used cooperative learning strategies and those which used more traditional learning strategies, H_o: $\mu_1=\mu_2$.

The alternative hypotheses were that (1) a difference existed between students in social science courses which used cooperative learning strategies and those which used more traditional learning strategies, H_a: $\mu_1=\mu_2$, (2) a difference existed between students in entry level sociology courses which used cooperative learning strategies and those which used more traditional learning strategies, H_a: $\mu_1=\mu_2$, and (3) a difference existed between students in entry level psychology courses which used cooperative learning strategies and those which used more traditional learning strategies, H_a: $\mu_1=\mu_2$.

The population for this study was the total number of students enrolled for entry level sociology and entry level psychology at Kansas City Kansas Community College during the Summer of 1995. The sampling units included those students enrolled in the assigned classes who received a grade of A, B, C, D, or F after taking the appropriate discipline final examination.

For visual purposes the data have been presented in tables included in chapter 4. Additional anecdotal information has been included in the appendix.

Assumptions

One assumption was that there would be consistency in the grading scale or manner in which grades were to be assigned to sociology and psychology classes used in this study. Another important assumption was that the course content, course syllabi, instructors, testing, textbooks, and other methods of evaluation for psychology and sociology classes used as part of this study, would be alike, with the exception of the exclusion of the independent variable.

Additionally, it was assumed that the research populations would be large enough to select reasonable samples, in order to increase the study's validity. The grades given students in the psychology and sociology classes were assumed to be a valid measure of the subject content of each course.

Limitations

The primary limitation of this study was that the size of the sample populations and thus the size of the samples, tended to be relatively small. There has been

some tendency toward smaller classes at Kansas City Kansas Community College, because of enrollment declines. However, classes at the college have usually required a minimum of eight students to avoid cancellation. This was the case for the Fall, Spring, and Summer classes in 1995.

The samples used in this research study were clustered through the college enrollment process. There was no way of estimating the representativeness of the samples and thus of estimating the population's parameters. Additionally, the results of this study could be limited to Kansas City Kansas Community and to students enrolled in the sociology and psychology courses evaluated in this study. Generalization could be seriously limited.

Chapter 4

RESULTS

The research design was conducted according to appropriate research methodology. The research questions were (a) "Are cooperative learning strategies effective in social sciences?", (b) "Are cooperative learning strategies effective in entry level sociology courses?", and (c) "Are cooperative learning strategies effective in entry level psychology courses?"

A review of current literature about cooperative learning strategies was conducted to establish information on the effectiveness of such approaches in higher education generally, and learning in social science (sociology and psychology), specifically. Data found in the literature review revealed that cooperative learning has been described as a method of instruction in which students work together in small groups to reach a common goal, in a noncompetitive learning situation. Additionally, the data from the literature review reported a variety of significant information.

The first was that cooperative learning strategies apparently worked their way up from the elementary and

secondary levels of education to higher education. The second was that there has been a reluctance by higher education faculty to use such strategies in their classes. This could have been due to course conflict, fear, loss of time, energy or ego. Additionally, it could have been due to the potential for change in or loss of professor authority, reluctance to give up the lecture method, or the fact that the process was not always comfortable for participants. Third, educators at all levels have increasingly been called upon to make classroom learning less private, and more collaborative.

Indeed, they were called upon to produce environments where students were guided through processes of critical inquiry, and used both written and oral language as tools for learning. Fourth, positive outcomes tended to include positive interdependence, individual accountability, heterogeneous teams, enhanced social skills, and reduction in test anxiety. Five, negative concerns tended to include taking too much of the teacher's time, and not providing short-term extrinsic rewards.

At the K-12 levels, cooperative learning tended to be viewed as having more advantages than at the college level. At the level of higher education, research results tended to be mixed, although students responses were often positive. Generally, the data from the literature review found no significant difference in student success or level of achievement. However, the literature reports that several collaborative learning methods, including cooperative learning, were as effective as other teaching and learning strategies.

Dr. Henry Louis, dean of social and behavioral sciences, assigned two entry level sociology classes and two entry psychology classes for this study project. They were SO 107-20 with total enrollment of twenty (20) students, and PS 101-01 with a total enrollment of thirty-four (34) students who used cooperative learning strategies. For the traditional learning methods groups, he assigned SO 107-50 with seventeen (17) students and PS 101-80 with fifteen (15) students. Each entry level sociology and psychology class used the same respective generic syllabus, textbook, course objectives, and the final exams used by the social and behavioral science division. For the

larger social science group, he assigned the remaining sociology and psychology classes offered during the research semester, to treatment and control. The cooperative learning group contained 50 students and the traditional learning group contained 100 students. The traditional learning groups used a variety of texts, teachers, and methods. However, they used the same generic syllabus, course objectives, and tests. The major difference between the cooperative learning group and the conventional learning group was the learning methods.

During the Summer semester of 1995, students in the cooperative learning groups were additionally exposed to small group activities, where students helped each other learn the course material. Each cooperative learning classroom divided students into groups of 3-5. These small groups were constituted by the instructor, to ensure diversity with regard to age, race, ethnicity, and gender, among those enrolled in the specific course. The conventional learning classes were not grouped.

Instruction took place for the approximately six-week term, using the appropriate methods for each

research group. At the end of the term, students took the same respective final examinations. The class instructors provided final course grades for each student enrolled. They also asked their students to provide anecdotal information about the differences in their experience with more traditional learning activities and those experienced in the cooperative learning groups. This information was collected and appears in the appendix. For each of the research questions, the following was accomplished.

Effectiveness of Cooperative Learning Strategies in Social Science

The first research question was "Are cooperative learning and teaching strategies effective in social sciences? Fifty four students were reported in the cooperative learning group for social science and 107 students in the conventional learning group. The cooperative learning strategies sample used the same respective texts, course syllabi, course objectives and instructors during the Summer research semester. The instructor assigned groups, tasks, roles, and learning assignments.

Instruction for this group was accomplished through small group activities, including discussion, study review, help sessions, along with the usual reading of the text and taking the final examination. The groups contained from 4-5 students. Each group was as diverse as possible, with regard to gender, race. ethnicity, age, and ability. For approximately six weeks, these cooperative learning groups received instruction through small group activities. Each group contained a recorder, whose job it was to record the activities of the group; a time-keeper, whose responsibility was to monitor the time for assignments and to keep the group on task; and a coach, who acted as the leader or director for the group. These roles were rotated weekly. Each student in the group had an opportunity to experience and perform each role at least once during the semester.

The instructor and students provided evaluative feedback to the various group members, in terms of their role performance and achievement. Instruction in the conventional learning strategies classes was provided using the more traditional methods, during the six week semester. These included lecture, large-group

discussion, textbook reading, study-guide assignments, review, and final examination.

Both groups experienced the same final course examination. Four students withdrew (received the W grade) from the cooperative learning sample. None of this group received the I (incomplete grade). The conventional learning strategies had 6 withdraw and 1 received the I grade. This left the sample sizes at 50 for cooperative learning and 100 for the conventional learning group. Grades were collected from the respective instructors. The cooperative learning strategy sample contained 19 A's, 19 B's, 10 C's, 2 D's, 0 F's, 4 W's, and 0 I's. The conventional learning group received 45 A's, 34 B's, 9 C's, 6 D's, 5 F's, 6 W's, and 1 I. For continuity and calculation purposes, each sample was arbitrarily assigned the traditional 4 points for A's, 3 for B's, 2 for C's, 1 for D's, and 0 for F's. No numerical identifiers were assigned to W's or I's. They were not included in the data calculations. Final course grades were then analyzed using a one-tailed *t*-test and comparison between the means of the groups. Results and accompanying data are included in table one.

Table 1

Summary Data: Comparison of Grade Differences Between Experimental and Control Groups

Item	Social Science Cooperative Learning Strategies	Social Science Traditional Learning Methods
Sample size	N_1 = 50	N_2 = 100
Sample mean	= 3.04	= 3.10
Std. deviation	= .86	= 1.13
Degree of freedom (N-1)	= 49	= 99
Standard Level of Significance	.01	
Variance	= .73	= 1.28
Standard error	.21	
Calculated value of *t*	-.29	
Theoretical *t*	2.33	

The data indicated that for the null hypothesis (1) no significant difference existed between students in social science courses which used cooperative learning strategies and those who used more traditional learning strategies, H_0: $\mu_1=\mu_2$, the sample sizes were

50 and 100 respectively. Further, the data revealed that there was no significant difference on final grades between cooperative learning strategies and conventional learning strategies groups. The calculated t was -0.29 at the .01 standard level of significance.

As the calculated t was so small, the null hypothesis is accepted. A larger t is unlikely if H_o is true. It can be seen from the difference in standard deviations for both groups that grades for the cooperative learning strategies group appear less dispersed that those of the traditional learning strategies group. However, the research found no statistically significant difference in grades of cooperative learning strategy social science students and those social science students who experienced more traditional learning strategies. The answer to the research question "is cooperative learning strategy effective in social science courses?" is negative.

Effectiveness of Cooperative Learning Strategies in Sociology

The second research question was "Are cooperative learning strategies effective in entry level sociology

courses? This sample included 20 students in the cooperative learning group for entry level sociology and 18 students in the conventional learning group . The cooperative learning strategy sample used the same respective texts, course syllabi, course objectives and instructors during the Summer research semester. The instructor assigned groups, tasks, roles, and learning assignments.

Instruction for this group was provided through small group activities, including discussion, study review, help sessions, along with the usual reading of the text and taking the final examination. The groups contained from 4-5 students. Each group was as diverse as possible, with regard to gender, race. ethnicity, age, and ability. For approximately six weeks, these cooperative learning groups received instruction through small group activities. Each group contained a recorder, whose job it was to record the activities of the group; a time-keeper, whose responsibility was to monitor the time for assignments and to keep the group on task; and a coach, who acted as the leader or director for the group. These roles were rotated weekly. Each student in the group had an opportunity

to experience and perform each role at least once during the semester.

The instructor and students provided evaluative feedback to the various group members, in terms of such aspects as their role performance and achievement.

The conventional learning strategies classes accomplished instruction using the more traditional methods, during the six week semester. These included lecture, large-group discussion, textbook reading, study-guide assignments, review, and final examination.

Both groups experienced the same final course examination. Four students withdrew (received the W grade) from the cooperative learning sample. None of this group received the I (incomplete grade). The conventional learning strategies had 1 to withdraw and 0 received the I grade. This left the sample sizes at 16 for cooperative learning and 17 for the conventional learning group. Grades were collected from the respective instructors. The cooperative learning strategy sample contained 7 A's, 4 B's, 3 C's, 2 D's, 0 F's, 4 W's, and 0 I's. The conventional learning group received 4 A's, 9 B's, 3 C's, 0 D's, 1 F, 1 W, and 0 I's. For continuity and calculation purposes, each

sample was arbitrarily assigned the traditional 4 points for A's, 3 for B's, 2 for C's, 1 for D's, and 0 for F's. No numerical identifiers were assigned to W's or I's. They were not included in the data calculations. Final course grades were then analyzed using a one-tailed *t*-test and comparison between the means of the groups. Results and accompanying data are introduced in table two.

Table 2

Comparison of Grade Differences Between Experimental and Control Groups

Item	Sociology Cooperative Learning Strategies	Sociology Traditional Learning Methods
Sample size	N_1 = 16	N_2 = 17
Sample mean	= 3.00	= 3.06
Std. deviation	= 1.09	= .68
Degree of freedom	= 15	= 16
Standard Level of Significance	.01	
Variance	= 1.20	= .46
Standard error	.32	
Calculated value of *t*	-.39	
Theoretical *t*	2.46	

The data indicated that for the null hypothesis (1) no significant difference existed between students in entry level sociology courses which used cooperative learning strategies and those who used more traditional learning strategies, H_o: $\mu_1=\mu_2$, the sample sizes were 16 and 17 respectively. Further, the data revealed no significant difference in final grades between

cooperative learning strategies and conventional learning strategies groups. The calculated t was -0.19 at the standard .01 level of significance. This summary data showed that the traditional learning strategies group had less dispersal of grades than those in the cooperative learning strategies group. The difference appears slight, less than a one half grade difference.

As the calculated t was so small, the null hypothesis is accepted. A larger t is unlikely if H_0 is true. The research found no statistically significant difference in grades of cooperative learning strategy social science students and those social science students who experienced more traditional learning strategy. The answer to the research question "Are cooperative learning strategies effective in entry level sociology courses?" is negative.

Effectiveness of Cooperative Learning Strategies in Psychology

The third research question was "Are cooperative learning strategies effective in entry level psychology courses? There were 34 students in the cooperative

learning group for entry level psychology and 14 students in the conventional learning group . The cooperative learning strategy sample used the same respective texts, course syllabi, course objectives and instructors during the Summer research semester. The instructor assigned groups, tasks, roles, and learning assignments.

Instruction for this group was provided through small group activities, including discussion, study review, help sessions, along with the usual reading of the text and taking the final examination. The groups contained from 4-5 students. Each group was as diverse as possible, with regard to gender, race. ethnicity, age, and ability. For approximately six weeks, these cooperative learning groups received instruction through small group activities. Each group contained a recorder, whose job it was to record the activities of the group; a time-keeper, whose responsibility was to monitor the time for assignments and to keep the group on task; and a coach, who acted as the leader or director for the group. These roles were rotated weekly. Each student in the group had an opportunity

to experience and perform each role at least once during the semester.

The instructor and students provided some valuative feedback to the various group members, in terms of such things a their role performance and achievement.

The conventional learning strategies classes accomplished instruction using the more traditional methods, during the six week semester. These included lecture, large-group discussion, textbook reading, study-guide assignments, review, and final examination.

Both groups experienced the same final course examination. No students withdrew (received the W grade) from either sample group. No student in either group received the I (incomplete grade). This left the sample sizes at 34 for cooperative learning and 14 for the conventional learning group. Grades were collected from the respective instructors. The cooperative learning strategy sample contained 10 A's, 16 B's, 8 C's, 0 D's, 0 F's, 0 W's, and 0 I's. The conventional learning group received 8 A's, 3 B's, 1 C, 1 D, 1 F, 0 W's, and 0 I's. For continuity and calculation purposes, each sample was arbitrarily assigned the

traditional 4 points for A's, 3 for B's, 2 for C's, 1 for D's, and 0 for F's. No numerical identifiers were assigned to W's or I's. They were not included in the data calculations. Final course grades were then analyzed using a one-tailed *t*-test and comparison between the means of the groups. Results and accompanying data are introduced in table three.

Table 3

Comparison of Grade Differences Between Experimental and Control Groups

Item	Psychology Cooperative Learning Strategies Cooperative	Psychology Traditional Learning Methods Traditional
Sample size	N_1 = 34	N_2 = 14
Sample mean	= 3.06	= 3.14
Std. deviation	= .73	= 1.29
Degree of freedom (N-1)	= 33	= 13
Standard Level of Significance	= .01	
Variance	.542	1.67
Standard error	.29	
Calculated value of *t*	-.27	
Theoretical *t*	2.4	

The data indicated that for the null hypothesis (1) no difference existed between students in entry level psychology courses which used cooperative learning strategies and those who used more traditional learning strategies, H_0: $\mu_1=\mu_2$, the sample sizes were 34 and 14 respectively. Further, the data revealed that no significant difference existed on final grades between cooperative learning strategies and conventional learning strategies groups. The calculated $\underline{t}$ was -0.27 at the standard .01 level of significance. The data showed that the standard deviation for the traditional learning strategies group was approximately one half of a grade higher than that of the cooperative learning strategies group.

As the calculated $\underline{t}$ was so small, the null hypothesis is accepted. A larger $\underline{t}$ is unlikely if H_0 is true. The research found no statistically significant difference in grades of cooperative learning strategy in entry level psychology courses and entry level psychology students who experienced more traditional learning strategy. The answer to the research question "is cooperative learning strategy effective in social science courses?" is negative.

Summary

The calculated values of t for all groups was such that all three null hypotheses were accepted. In all cases, a larger t was unlikely if H_0 was true. Therefore, all three research questions were answered in the negative as well.

Chapter 5

DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

The typical stereotype of a college classroom has the professor lecturing while the students quietly take notes (Barratt, 1994; Cooper, Prescott, Cook, Smith, Mueck, & Cuseo, 1990; Lewis, 1991; Weissglass, 1993; Young, 1992). This stereotype has not been valid for many years, since there have been labs for science (Basili & Sanford, 1991; Johnson & Kean, 1992; Reif & Morse, 1992); language (Gibson, 1992; Haber, 1994; Klein, 1993; Rosen, 1992; Rousculp & Welsh, 1992; Tebo-Messina, 1993; Young, 1993); computer classes (Hart & Groccia, 1994); discussion or seminar classes (Nattiv, Winitzky, & Drickey, 1992; Petonito, 1991; Wren & Harris-Schmidt, 1991); and workshop classes in which students work on their own project, which are then evaluated by the instructor and student peers (Garland, 1993; Randolph, Robbins, & Gere, 1994; Sun, 1992).

Nevertheless, the image has lingered of students doing their work quietly and privately. There were those who suggested that learning on the college level need not be private, however. Alvarez (1993), Brockman

(1994), Bullion-Mears (1993), Cooper, Prescott, Cook, Smith, Mureck, and Cuseo (1990), Davidson (1993), Davis (1993) Kealy and Witmer (1991), Matthews (1991) Peterson (1992) and Young (1992) were among those who thought that cooperative learning strategies just as beneficial in higher education as they had seen at all other levels of education.

The results of this study would not disagree with that suggestion. Considerable evidence has existed in support of cooperative learning as a viable educational strategy for college instruction (Basili & Sanford, 1991; Johnson & Kean, 1992; Klein, 1993; Reif & Morse, 1992; Sun, 1992). Much recent research on cooperative learning has documented the positive effects of having students work together. Among them were Urion and Davidson (1992) who described increase performance among students; student understanding of how small groups work, Freeman (1993); the usefulness of multiple perspectives (Sun, 1992); promoting commuter student involvement (Tinto, Goodsell, & Russo, 1993); higher level thinking skills (Johnson & Kean, 1992); improving confidence level of students (Erickson, 1992); multi-

cultural understanding (Mack, 1993); as well as the elevation of the student voice in the classroom (Bullion-Mears, 1993). Many of these seemed to have occurred. With student comments like "I felt like I knew more," and "I got to know people better in this class," one could acknowledge the positive impact of cooperative learning activity.

The literature has not implied that cooperative learning strategy works better than more traditional learning strategies, particularly in every case. Some (Basili & Sanford, 1991; Dees, 1991; Glidden & Kurfiss, 1990; Starr, 1991; Tyler, 1993; and Urion & Davidson, 1992) have recognized cooperative learning as effective as the traditional lecture, but did not believe it to be more effective. The results of this study would probably confirm that notion.

The fact that the samples were relatively small may have had some impact on the results. The fact that the study was accomplished using Summer term students may have had some impact as well. However, the literature about Summer term students suggests that they are not much different from those who attend during Fall and Spring terms. If anything, Summer term students

tend to be much more mature and of a serious nature (Young, 1989).

Cooperative learning has been found more effective than straight lecture for teaching business communication (Carroll, 1991). Dees (1991) presented results that showed that students who used cooperative learning did just as well as control groups who had. The overwhelming evidence suggests that cooperative learning strategy has been useful, but that no significant differences could be found between those using cooperative learning strategy and those using more traditional learning methods (Courtney, et al., 1992; Phoenix, 1991; and Ward, 1991).

Conclusions

The results of this study did not show a significant difference between the cooperative learning strategies groups and the traditional learning strategies groups. Perhaps cooperative learning strategies may work better in some learning situations at the college level, but no evidence existed to say that it was better than more traditional learning methods. Certainly cooperative learning strategies provide more of an opportunity for students to engage one another, get

to know one another, develop interpersonal and small group skills, and perhaps even enhance higher order thinking skills. However, none of these benefits alone, suggested that it was a better method than more traditional ones. The comments from students involved in this study did not support a conclusion that cooperative learning strategies promoted achievement at a higher level than traditional learning strategies.

It is possible that based on different sample sizes, or other replicated studies, that the numbers would have changed. The alternative hypothesis cannot be supported for any of the three hypotheses. The two learning strategies yield similar achievement outcomes.

Implications

One important implication from this study is that students who use cooperative learning strategies may benefit in a variety of ways, not generally thought of as very important to the learning process. Those of course are the very personal improvement benefits that may not be part of the general learning objectives of a college course. Another implication is that any faculty in-service designed around cooperative learning strategies may not provide significant data

recommending cooperative learning strategy. Third, the conclusions of this study may be valid for Summer term students, or they may only be valid for students who attend Kansas City Kansas Community College.

Another implication might be the need for additional study by others at the college. A final implication would be the need for additional research on a variety of topics related to Summer terms. Even recent literature was scarce and fairly old.

Recommendations

The most logical recommendation to be made is a continued monitoring of student progress and success in the social sciences at Kansas City Kansas Community College. This would allow the collection of additional data which could be treated in follow-up studies. Additionally, follow-up studies are recommended: Specifically, that:

For Implementation

1. This study be reviewed by the vice-president for academic affairs at the college, and shared with the academic deans council.

For Dissemination

2. The results of this study, follow-up studies, and other relevant research findings be reviewed by the vice-president for academic affairs, and the academic deans, in an attempt to give additional direction to their respective curriculums and faculty.
3. Establish a college-wide committee to review the research findings and their implications for Kansas City Kansas Community College, and to issue a set of recommendations and guidelines on the employment of cooperative learning strategy.

For Further Research

4. This study be replicated during the next several semesters, in an attempt to support or refute the conclusions of this study and to provide additional research data to support possible changes to be made in the Kansas City Kansas Community College faculty teaching/learning repetorie.

Summary

Learning as measured by course grades did not show significant differences between the cooperative

learning strategies groups and the conventional learning strategies groups. However, satisfaction with cooperative learning and teaching strategies was evidenced by the comments from students in the cooperative learning strategies groups. There is evidence that the cooperative learning and teaching strategies were well received by students and that they felt good about them.

Cooperative learning and teaching strategies involved students in the learning process, enhanced the learning process and improved teaching quality. However, the level of student achievement, as measured by course grades, did not appear to significantly increase. Overall, cooperative learning and teaching strategies appeared to be an important part of learning.

Bibliography

Aghbar, A., & Alam, M. (1992, March). Teaching the writing process through full dyadic writing. Paper presented at the Annual Meeting of the Teachers of English to Speakers of Other Languages, Vancouver, British Columbia.

Allen, N., Atkinson, D., Morgan, M., Moore, T., & Snow, C. (1987). What experienced collaborators say about collaborative writing. Journal of Business and Technical Communication. 1 (2), 70-90.

Alvarez, L., Finston, D., Gehrke, M., & Morandi, P. (1993). Calculus instruction at new mexico state university through weekly themes and cooperative learning. Primus. 3(1), 83-98.

Andrews, S. (1992, February). Enhancing learning and scholarship in college classroom: The role of learning teams. Paper presented at the Annual Meeting of the American Association of Colleges for Teacher Education, San Antonio, TX.

Artzt, A., & Newman, C. (1990). How to use cooperative learning in the mathematics class. Reston, VA: The National Council of Teachers of Mathematics, Inc.

Backer, P., & Yabu, J. (1994). Hypermedia as an instructional resource. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 158-168). San Francisco: Jossey-Bass.

Ballif, M. (1993, March). Composition: What's love got to do with it? Paper presented at the Annual Meeting of the Conference on College Composition and Communication, San Diego, CA.

Barratt, L. B. (1992). Cooperative learning in the college classroom. Contemporary Education. 63(3), 202-202.

Barkan, E. (1994). Strategies for teaching in a multicultural environment. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 124-132). San Francisco: Jossey-Bass.

Basili, P., & Sanford, J. (1991). Conceptual change strategies and cooperative group work in chemistry. Journal of Research in Science Teaching, 28(4), 293-304.

Beckman, M. (1990). Collaborative learning: Preparation for the workplace and democracy? College Teaching. 38(4), 128-133

Benjamin, L. T. Jr. (1991). Personalization and active learning in the large introductory psychology class. Teaching Psychology. 18(4), 68-74.

Berard, J. (1992). Science experiences: Cooperative learning and the teaching of science. Menlo Park, CA.: Addison-Wesley.

Berg, K. (1993, April). Structured cooperative learning and achievement in a high school mathematics class. Paper presented at the Annual Meeting of the American Educational Research Association, Atlanta, GA.

Blurton, C. (1994). Using the internet for teaching, learning, and research. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 132-141). San Francisco: Jossey-Bass.

Bonwell, C., & Eison, J. (1991). Active learning: Creating excitement in the classroom. Washington, D.C.: Association for the Study of Higher Education.

Brady, S., & Jacobs, S. (1994). Mindful of others: Teaching children to teach. (ERIC Document Reproduction Service No. ED 369 097).

Brockman, E. (1994). "English isn't a team sport, mrs. brockman": A response to Jeremy. English Journal. 83(1), 60-61.

Brown, P., & Long, G. (1992). The use of scripted interaction in a cooperative learning context to probe planning and evaluating during writing. The Volta Review. 95(4), 411-424.

Bruffee, K. (1993). Collaborative learning: Higher education, interdependence, and the authority of knowledge. Baltimore: Johns Hopkins University Press.

Bullion-Mears, A. (1993, December). Developing collaboration and teacher reflection in a college curriculum class. Paper presented at the Annual Meeting of the National Reading Conference, Charleston, SC.

Burnett, R. E. (1990). Benefits of collaborative planning in the business communication classroom. The Bulletin of the Association for Business Communication. 53(2) 9-17.

Caprio, M. (1993). Cooperative learning-the jewel among motivational-teaching techniques. Journal of College Science Teaching. 22(5), 279-281.

Carroll, E. R. (1991). Improved international relationships: A result of group learning. Journal of Business and Technical Communication. 5(3), 282-299.

Comor-Jacobs, A. (1993). Meeting the needs of diverse students in the classroom. (ERIC Document Reproduction Service No. ED 370 630).

Conway, R. (1993). Peer assessment of an individual's contribution to a group project. Assessment and Evaluation in Higher Education. 18(1), 45-56.

Cooper, J., Prescott, S., Cook, L., Smith, L., Mueck, R., & Cuseo, J. (1990). Cooperative learning and college instruction: Effective use of student learning teams. Long Beach, CA.: California State University.

Courtney, D., Courtney, M., & Nicholson, C. (1992, November). The effect of cooperative learning as an instructional practice at the college level. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Knoxville, TN.

Crouch, M., & Fontaine, S. (1994). Student portfolios as an assessment tool. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 202-214). San Francisco: Jossey-Bass.

Cullinan, M., & Landoli, C. (1991). What activities help to improve your writing? Some unsettling student responses. The Bulletin of the Association for Business Communication, 54(4), 8-10.

Davidson, N. (1990). The small-group discovery method in secondary and college level mathematics. In Davidson, N. (Ed.). Cooperative learning in mathematics: A handbook for teachers (pp. 335-361). Menlo Park, CA.: Addison-Wesley.

Davidson, N., & Worsham, T. (1992). Enhancing Thinking through cooperative learning. New York: Teachers College, Columbia University.

Davis, B. (1993). Tools for Teaching. San Francisco: Jossey-Bass Inc., Publishers.

Decyk, B. (1994). Using examples to teach concepts. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 27-38). San Francisco: Jossey-Bass.

Dees, R. (1991). The role of cooperative learning in increasing problem-solving ability in a college remedial course. Journal for Research in Mathematics Education. 22(5), 409-421.

Deutsch, M. (1990). Cooperative learning: Fad or foundation for learning? Phi Delta Kappan, 2, 158-162.

Dunn, D. S., & Toedter, L. J. (1991). The collaborative honors project in psychology: Enhancing student and faculty development. Teaching of Psychology. 18(4), 178-180.

Dursky, J. (1993, March). Emphasizing collaborative experiences in reading/writing courses. Paper

presented at the Annual Midwest Regional Reading and Study Skills Conference, Kansas City, MO.

Elder, J. (1991). Team-spirited classrooms. New York Times. 140 (48563).

Entwidte, N. (1990). Student learning and classroom environment. In Jones, N., & Frederickson, N. (eds.). Refocusing educational psychology. London: The Falmer Press.

Erickson, M. (1992). Developing student confidence to evaluate writing. The Quarterly of the National Writing Project and the Center for the Study of Writing. 14(1), 7-9.

Farmer, T. (1991). Breaking away from the lecture mode in calculus. Primus. 1(4), 347-351.

Felder, R. M. (1991). It goes without saying. Chemical Engineering Education. 25(3), 132-133.

Feyerherm, A. E., & Mohrman, S. A. (1992, August). Creating meaning in diversity: Leadership in new product development teams. Paper presented at the Annual Meeting of the Academy of Management. Las Vegas, NV.

Fogarty, R., & Bellance, J. (1992). The new school "lecture": Cooperative interaction that engage student thinking. In Davidson, N., & Worsham, T. (eds.). Higher order thinking skills in cooperative learning environments. New York: Teacher College, Columbia University.

Frankfort-Nachmias, C. & Nachmias, D. (1992). Research methods in the social sciences, 4th ed. New York: St. Martin's Press.

Freeman, B. (1993). The importance of participant role in cooperative learning. Writing Papers in Educational Linguistics. 9(1), 1-20.

Fuller, J. (Ed.), (1993). OATYC Journal, 1993-94. Ohio Association of Two-year Colleges, Akron, OH.

Gaillet, L. (1992, March). A foreshadowing of modern theories and practices of collaborative learning: The work of scattered rhetorician george jardine. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, Cincinnati, OH.

Gamson, Z. (1994, September/October). Collaborative learning comes of age. Change, pp. 44-49

Garland, M. (1993). The mathematics workshop model: An interview with Uri Treisman. Journal of Developmental Education. 16(3), 14-16, 18, 20, 22.

Geske, J. (1992). Overcoming the drawbacks of the large lecture class. College Teaching. 40(4), 151-154.

Gibson, S. (1992, November). Faculty and student communities: The interactive contexts of teachers and learners. Paper presented at the Annual Meeting of the National Council of Teachers of English, Lovesville, KY.

Glidden, J., & Kurfiss, J. (1990). Small-group discussion in philosophy 101. College Teaching. 38(1), 3-8.

Goldstein, G. (1993). Using a group workshop to encourage collaborative learning in an undergraduate counseling course. Teaching of Psychology. 20(2), 108-110.

Goodsell, A., Maher, M., Tinto, V., Smith, B., & MacGregor, J. (1992). Collaborative learning: A sourcebook for higher education. University Park, PA.: The National Center on Postsecondary Teaching, Learning, and Assessment.

Gore, R. (1993, May). Freshman Composition for the learning disabled. Paper presented at the Annual International Conference of the National Institute for Staff and Organizational Development on Teaching Excellence and Conference of Administrators, Austin, TX.

Griffith, K. (1992, March). A community of composition theorists and researchers: collaborative research and theory building in an advanced composition course. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, Cincinnati, OH.

Guenter, C. (1994). Fostering creativity through problem solving. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 39-47). San Francisco: Jossey-Bass.

Gunter, M., Estes, T., & Schwab, J. (1990). Instruction: A models approach. Boston: Allyn and Bacon.

Gura, K. (1992). Liberal arts mathematics: Probability and calculus. Primus. 2(2), 155-164.

Haber, M. (1994). Strategies of collaborative writing and intellectual enrichment. Journalism Educator. 48(4), 47-53.

Halpern, D. (Ed), (1994). Changing college classrooms: New teaching and teaching strategies for an increasingly complex world. San Francisco: Jossey-Bass Publishers.

Hansen, C. (1994). Questioning techniques for the active classroom. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 58-69). San Francisco: Jossey-Bass.

Harris, J. (1993, November). Elements of contracting, individualization, and cooperative learning in a community college history classroom. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, New Orleans, LA.

Hart, F., & Groccia, J. (1994, February). An integrated, cooperative learning oriented freshman civil engineering course: Computer analysis in civil engineering. Paper presented at the Freshman Year Experience Conference, Columbia, SC.

Hawkes, P. (1991). Collaborative learning and american literature. College Teaching. 39(4), 140-144.

Healey, M. (1992). Curriculum development and enterprise: group work, resource-based teaching and the incorporation of transferable skills into a first year practical course. Journal of Geography in Higher Education. 16(1), 7-20.

Hegarty, V. (1995). In valley falls she's miss hegarty-in atchison she's ms. mayor. KNEA Issues. 12(6), 1-4.

Hess, M. (1993, March). Creating a collaborative context for critical thinking in composition. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, San Diego, CA.

Hilke, E. V. (1990). Cooperative learning. Bloomington, IN.: Phi Delta Kappa Educational Foundation.

Hill, S., & Hill, T. (1990). The collaborative classroom: A guide to co-operative learning. Portsmouth, NH.: Heinemann.

Hindle, B. (1993). The project putting student-controlled, small-group work and transferable skills at the core of a geography course. Journal of Geography in Higher Education. 17(1), 11-20.

Hufford, T. L. (1991). Increasing academic performance in an introductory biology course. BioScience. 41(2), 107-108.

Johnson, D., & Johnson, F. (1987). Joining together: group theory and group skills. Englewood Cliffs; NJ.: Prentice-Hall.

Johnson, D. W., Johnson, R. T., & Holubec, E. (1990). Circles of learning: Cooperation in the classroom. Edina, MN.: Interaction Books.

Johnson, D. W., Johnson, R. T., & Smith, K. A. (1992). Cooperative learning: Increasing college

faculty instructional productivity. (ERIC Document Reproduction Service No. ED 343 465)

Johnson, J., & Kean, E. (1992). Improving science teaching in multicultural settings: A qualitative study. Journal of Science Education and Technology. 1(4), 275-287.

Junn, E. (1994). Experiential approaches to enhancing cultural awareness. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 92-104). San Francisco: Jossey-Bass.

Kagan, S. (1988). Cooperative learning resources for teachers. San Juan Capistrano, CA.: Resources for Teachers.

Kagan, S. (1989). The structured approach to cooperative learning. Educational Leadership. 47(3), 14.

Karre, I. (1993). Busy, noisy, and powerfully effective: Using cooperative learning in the college classroom. Colorado: University of Northern Colorado.

Kealy, R. P., & Witmer, K. D., Jr. (1991). Cooperative learning in higher education: An alternative approach to collegiate instruction. (Eric Document Reproduction Service No. ED 345672).

Keller, C. W. (1993). Using book reviews for cooperative learning. College Teaching. 41(1), 26-28.

Kelvin, A. (1993). Increasing student participation in the learning process. Higher Education. 26(4), 449-469.

King, A. (1990). Enhancing peer interaction and learning in the classroom through reciprocal questioning. american Educational Research Journal. 27(4), 664-687.

Kirch, A. (1991, November). Strategies for success: Cooperative learning groups in writing class-

es. Paper presented at the Conference of the North Texas Community/Junior College Consortium, Dallas, TX.

Klein, C. (1993). More than a required skill in today's curriculum: Critical thinking and collaborative learning in foreign languages. Mid-Atlantic Journal of Foreign Language Pedagogy. 12(7), 91-96.

Kotter, J. (1990). A force for change: How leadership differs from management. New York: Free Press.

Kuh, A., Schuh, J., Whitt, E., & Associates. (1991). Involving colleges. San Francisco: Jossey-Bass.

LaCarrubba, A. (1993). A comparative study of the academic achievement of primary students when learning science through the directed reading activity or cooperative learning approach. Unpublished master's thesis, Kean College of New Jersey.

Larson, L. (1993, December) The two classroom cultures: Challenge to instructors. The Teaching Professor. 7(10), 3-4.

Lewis, R. (1991). Creative teaching and learning in a statics class. Engineering Education. Jan/Feb, 15-18.

Lyons, P. (1992). Thirty-five lesson formats: A sourcebook of instructional alternatives. Englewood Cliffs, NJ.: Educational Technology Press.

Lyons, P. (1993). Leadership education across the curriculum. (ERIC Document Reproduction Service No. ED 352 873)

Mack, T. (1993, April). Acquiring a multicultural perspective through the use of collaborative pairs. Paper presented at the Annual Meeting of the College English Association, Charlotte, NC.

MacLeod, S. (1992). Ideas in practice: Writing the book on fractions. Journal of Developmental Education. 16(2), 26-28, 38.

Marchant, G. J. (1991, April). Small group goal structures and college student interactions. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Marshall, R., & Tucker, M. (1992). Thinking for a living. New York: Basic Books.

Matthews, S. M. (1991). Group problem solving in the college mathematics classroom. Primus. 1(4), 430-442.

McKeachie, W. J. (1990). Research on college teaching: The historical background. Journal of Educational Psychology. 82(2), 189-200.

McKee, S. J, & Day, A. L. (1992). The social studies methods course: a collaborative approach. Social Education. 56(3), 183-184.

McKinney, K., & Graham-Buxton, M. (1993). The use of collaborative learning groups in the large class: Is it possible? Teaching Sociology. 21(4), 403-408.

Mealey, D. L., & Hart, T. R. (1992). Coping with test anxiety. College Teaching. 40(4), 147-150.

Mello, J. A. (1993). Improving individual member accountability in small work group settings. Journal of Management Education. 17(2), 253-259.

Mesch, D. (1991). The jigsaw techniques: A way to establish individual accountability in group work. Journal of Management Education. 15(3), 355-358.

Meyer, M. D. (1990, April). Vocabulary in context: Effective reading-writing instruction. Paper presented at the New York College Learning Skills Association Annual Symposium, Ellenville, NY.

Meyer, M. D. (1994). Vocabulary acquisition: A new instructional method in the college developmental reading-writing classroom. (ERIC Document Reproduction Service No. ED 370 079)

Meyers, C., & Jones, T. (1993). Promoting active learning: Strategies for the college classroom. San Francisco: Jossey-Bass Publishers.

Michailsen, L. (1991). From the editor. Journal of Management Education. 15(3) 275.

Miller, R. (1994). Software ethics: Teaching by example. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 169-179). San Francisco: Jossey-Bass.

Millis, B. (1990, July). Helping faculty build learning communities through cooperative groups. Paper presented at the International Cooperative Learning Conference, Baltimore, MD.

Mink, J. S. (1992, March). Communities and collaboration: An alternative research assignment for literature courses. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, Cincinnati, OH.

Mullin, J. (1993, March/April). When what we say isn't what we do: Learning to collaborate all over again. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, San Diego, CA.

Murray, J. I. (1993, May). A holistic, collaborative approach to teaching assessment and instructional development. Paper presented at the Annual International Meeting of the National Institute for Staff and Organizational Development on Teaching Excellence and the Conference of Administrators, Austin, TX.

Murray, J. P., & Murray, J. I. (1992). How do i lecture thee? College Teaching. 40(3), 109-113.

Naittiv, A., Winitzky, N., & Drickey, R. (1992). Using cooperative learning with preservice elementary and secondary education students. Journal of Teacher Education. 42(3), 216-225.

Nettles, M. T. (1991). Assessing progress in minority access and achievement in American higher education. Education Commission of the States.

Ney, J. W. (1991). Collaborative learning in university grammar courses. Innovative Higher Education. 15(2), 153-165.

Nomisha, D. A., & Suskind, D. (1993, November). The effectiveness of child-centered (piggybacking) approach to early childhood teacher education. Paper presented at the Annual Conference of the National Association of Early Childhood Teacher Education, Anaheim, CA.

Nummedal, S. (1994). How classroom assessment can improve teaching and learning. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 190-202). San Francisco: Jossey-Bass.

O'Banion, T., & Associates. (1994). Teaching and learning in the community college. Washington, D.C.: The American Association of Community and Junior Colleges.

Olson, M. W. (Ed.), (1990). Opening the door to classroom research. Newark, DE.: IRA.

O'Malley, C. & Scanlon, E. (1990). Computer-supported collaborative learning: Problem solving and distance education. Computers and Education. 15(1-3), 127-136.

Osborne, N. S., & Wyman, A. (1991). BI Vignettes: The forest and the trees: A modest proposal on bibliographical burnout. Research Strategies. 9(2), 101-103.

Overlock, T. (1994). Comparison of effectiveness of collaborative learning methods and traditional methods in physics classes at northern naine technical college. (ERIC Document Reproduction Service No. ED 367 394)

Parnell, D. (1990). Dateline 2000: The new higher education agenda. Washington, D.C.: The American Association of Community and Junior Colleges.

Perham, A. (1992, November). Collaborative journals: A forum for encouragement and exploration. Paper presented at the Annual Meeting of the National Council of Teachers of English, Louisville, KY.

Peters, W., & Stuessy, C. (1991, January). Motivational patterns in non-science majors related to learning physics. Paper presented at the Annual Meeting of the Southwest Educational Research Association, San Antonio, TX.

Petonito, G. (1991). Fostering peer learning in the college classroom. teaching Sociology. 19(4), 498-501.

Peterson, S. E. (1992). College students' attributions for performance on cooperative tasks. Contemporary Educational Psychology. 17(2), 114-124.

Phoenix, C. (1991). A four-strategy approach used to teach remedial mathematics in a freshman year program. Community Review. 21(7), 45-52.

Pierce, K., & Giles, C. (Eds.), (1992). Cycles of meaning: Exploring the potential of talk in learning communities. Portsmouth, NH.: Heinemann.

Randolph, R., Robbins, S., & Gere, A. (1994). Writing across institutional boundaries: A k-12 and university collaboration. English Journal. 83(3), 68-74.

Ratcliff, J. (1994). Assessment's role in strengthening the core curriculum. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 215-227). San Francisco: Jossey-Bass.

Rau, W., & Heyl, B. S. (1990). Humanizing the college classroom: Collaborative learning and social organization among students. Teaching Sociology. 18(2), 141-155.

Reif, R. J., & Morse, G. M. (1992). Restructuring the science classroom. Technological Horizons in Education Journal. 19(9), 69-72.

Romer, K., & Whipple, W. (1991). Collaboration across the power line. College Teaching. 39(4), 66-70.

Rosen, L. (1992, March). Valuing the collaborative, language-centered classroom: What theorists and teachers tell us. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, Cincinnati, OH.

Rousculp, T., & Welsh, J. (1992). Balance in student-centered pedagogy. Writing Instructor. 12(1), 3-4.

Sandell, R. (1991). The liberating relevance of feminist pedagogy. Studies in Art Education. 32(3), 178-187.

Savitz, F., & Yoder, R. (1993, March). Cooperative learning and social studies education: The intersection of theory and practice at neumann college. Paper presented at the Middle States Regional Social Studies Conference, Bethesda, MD.

Schamel, D., & Ayres, M. P. (1993). The minds-on approach: Student creativity and personal involvement in the undergraduate science laboratory. Journal of College Science Teaching. 21(4), 226-229.

Schmitz, B. (1992). Promoting diversity in college classrooms: Innovative responses for the curriculum, faculty, and institutions. New Directions for Teaching and Learning. 52(6), 61-69.

Schon, D. (1991). The reflective turn. New York: Columbia University Teachers College Press.

Schwartz, R. H. (1992). Revitalizing liberal arts mathematics. Mathematics and Computer Education. 26(3), 272-277.

Scott, E. (1992, November). When peers are not equal: The writing center as a discourse community. Paper presented at the Annual Meeting of the National Council of Teachers of English, Louisville, KY.

Semrau, P., & Boyer, B. (1994). Enhancing learning with interactive video. In D. F. Halpern (Ed.), Changing college classrooms: New teaching and learning strategies for an increasingly complex world. (pp. 142-157). San Francisco: Jossey-Bass.

Sharan, S. (Ed.), (1990). Cooperative learning: theory and research. New York: Praeger.

Sharan, Y., & Sharan, S. (1992). Expanding cooperative learning through group investigation. New York: Teachers College Press.

Sherman, L. W. (1990, July). A cooperative pedagogical strategy for teaching developmental theories through writing: Dyadic confrontations. Paper presented at the International Convention on Cooperative Learning, Baltimore, MD.

Siegfried, J., Getz, M., & Anderson, K. (1995). The snail's pace of innovation in higher education. The Chronicle of Higher Education, 41(36), A56.

Sills, C. K. (1992). Arguing from first-hand evidence. Journal of Basic Writing. 11(2), 103-110.

Slavin, R. E. (1991). Using student team learning. Baltimore, MD.: The Johns Hopkins Team Learning Project, Center for Research on Elementary and Middle Schools, Johns Hopkins University.

Slavin, R. E. (1990). Cooperative learning: Theory, research, and practice. Boston: Allyn and Bacon.

Slavin, R. E. (1989). Research on cooperative learning: Consensus and controversy. Educational Leadership. 47(4), 52-54.

Slavin, R. E. (1987). Cooperative learning: Student teams. Washington, DC.: National Education Association.

Slavin, R. E. (1993). When does cooperative learning increase student achievement? Psychological Bulletin. 94(8), 429-445.

Soukup, D. (1992). Application of cooperative learning strategies in counselor education. (ERIC Document Reproduction Service No. ED 347 458)

Starr, B. C. (1991). Linking students and classes: strategies for improving learning and thinking. Community/Junior College Quarterly of Research and Practice. 15(4), 427-438.

Strother, D. B. (1990). Cooperative learning: Fad or foundation for learning? Phi Delta Kappan. 72(2), 158.

Sun, L. (1992, March). Teachers of teachers: Enacting collaborative techniques in the training of secondary school teachers. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, Cincinnati, OH.

Tebo-Messina, M. (1993). Collaborative learning: How well does it work? Writing on the Edge. 4(2), 63-79.

Thacker, J. (1990). Working through groups in the classroom. In Jones, n, & Frederickson, N. (Eds.-). Refocusing educational psychology. London: The Falmer Press.

Tiberius, R. G., & Billson, J. M. (1991). The social context of teaching and learning. In New Directions for teaching and learning. San Francisco: Jossey-Bass.

Tietze, M. (1992). A core curriculum in geometry. Mathematics Teacher. 85(4), 300-303.

Tinto, V., & Goodsell-Love, A. (1993). A longitudinal study of freshmen interest groups at the university of washington. San Francisco: Jossey-Bass.

Tinto, V., Goodsell-Love, A., & Russo, P. (1993). Building community. Liberal Education. 79(4), 16-21.

Tlusty, R., McIntyre, S., & Eierman, R. (1993, April). Cooperative learning in a college chemistry course. Paper presented to the Annual Meeting of the American Educational Research Association, Atlanta, GA.

Tritt, D. (1993). Teaching an undergraduate lecture/research course in health psychology. Teaching of Psychology. 20(1), 21-28.

Tyler, D. A. (1993, May). At risk non-traditional community college students. Paper presented at the Annual International Conference of the National Institute for Staff and Organizational Development on Teaching Excellence and Conference of Administrators, Austin, TX.

Urion, D. K., & Davidson, N. A. (1992). Student achievement in small-group instruction versus teacher-centered instruction in mathematics. Primus. 2(3), 257-264.

Van Voorhis, J. L. (1991, July). Instruction in teacher education: A descriptive study of cooperative learning. Paper presented at the International Convention on Cooperative Learning, Utrecht, Netherlands.

Wagoner, R. (1992, April). Enhancing teaching effectiveness using experimental techniques: Model development and empirical evaluation. Paper presented at the Annual Meeting of the Midwest Region of the Academy of Management, St. Charles, IL.

Ward, L. R. (1991). Cooperative learning: Its effect on rote-memorization. (ERIC Document Reproduction Service No. ED 329 996)

Weimer, M. (1990). Improving college teaching: Strategies for developing instructional effectiveness. San Francisco: Jossey-Bass Publishers.

Weissglass, J. (1993). Small-group learning. The American Mathematical Monthly. 100(7), 662-668.

Weissglass, J. (1976). Small groups: An alternative to the lecture method. College Mathematics Journal. 7(3), 15-20.

Wesp, R. (1992). Conducting introductory psychology activity modules as a requirement in advanced undergraduate courses. Teaching of Psychology. 19(4), 219-220.

Wood, J. B. (1992, October). The application of computer technology and cooperative learning in developmental algebra at the community college. Paper presented at the Annual Computer Conference of the League for Innovation in the Community College, Orlando, FL.

Wren, C, & Harris-Schmidt, G. (1991). Collaborative learning in higher education and in schools: A two-tiered approach. Teacher Education and Special Education, 14(4), 263-271.

Young, A. (1992). College culture and the challenge of collaboration. Writing Center Journal. 13(1), 3-15.

Young, R. J. (1992). The good old summertime in public two-year colleges. Community Catalyst. 19(2), 9-15.

Young, R. J. (1989). Summer sessions in public two-year colleges. (ERIC Document Reproduction Service No. ED 304 202)

Young, R. J., & McDougall, W. P. (1991). Summer sessions in college and universities: Perspectives, practices, problems, and prospects. (ERIC Document Reproduction Service No. ED 370 493)

APPENDIX

Comments From Students Who Experienced
Cooperative Learning Strategy, Summer 1995

All students did not care to make comments about the cooperative learning experience. Below are the comments of those who did.

1. Too many students not prepared.(7)
2. Some students were riding the coattails of others.(12)
3. Some group members are bringing my grade down.(7)
4. The discussion in groups was good.(42)
5. Group activities are good for the most part.(22)
6. Group-work helpful in understanding the material. (37)
7. Didn't like it.(5)
8. Liked the interaction. (30)
9. I felt that I knew more. (14)

BIOGRAPHICAL SKETCH OF STUDENT

Charles E. Wilson, 49, is on the teaching faculty at Kansas City Kansas Community College in Kansas City, Kansas. He has been employed for more than three years and teaches in the area of social science. Prior to this tenure, he taught at Donnelly College in Kansas City, Kansas for twelve years.

Wilson, has completed a masters degree in education, and another in divinity. His bachelors is in history and political science. He has worked as a social worker, minister, counselor, and teacher. He has lived and worked in Oklahoma, Missouri, and Kansas. He has traveled extensively throughout the United States, and has experienced at least four foreign visits, including Russia, Hungary, Portugal and Spain.

Wilson is the oldest of two males who grew up in Oklahoma. His parents still live and work in Muskogee, Oklahoma. He has spent much of his life working with a variety of programs and projects designed to help people help themselves. Nearing age 50, his achieving a doctorate has also been a special quest.