

1995

A descriptive analysis of high school teachers' implementation of selected research-based teaching models

Lisa L. Brewer
University of Dayton

Follow this and additional works at: https://ecommons.udayton.edu/graduate_theses

Recommended Citation

Brewer, Lisa L., "A descriptive analysis of high school teachers' implementation of selected research-based teaching models" (1995). *Graduate Theses and Dissertations*. 1733.
https://ecommons.udayton.edu/graduate_theses/1733

This Thesis is brought to you for free and open access by the Theses and Dissertations at eCommons. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of eCommons. For more information, please contact mschlange1@udayton.edu, ecommons@udayton.edu.

A DESCRIPTIVE ANALYSIS
OF HIGH SCHOOL TEACHERS'
IMPLEMENTATION OF SELECTED
RESEARCH-BASED TEACHING MODELS

MASTER'S PROJECT

Submitted to the School of Education
University of Dayton, in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Teaching

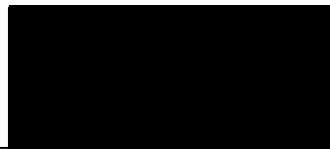
by

Lisa L. Brewer
School of Education
UNIVERSITY OF DAYTON

Dayton, Ohio

November 1995

Approved by:



Official Advisor

TABLE OF CONTENTS

LIST OF TABLES.....	vi
ACKNOWLEDGMENTS.....	viii
DEDICATION.....	x
Chapter:	
I. INTRODUCTION.....	1
This author explains the purpose, the problem statement, the hypotheses, the assumptions, the limitations, and the definitions relating to the study.	
II. PROBLEM.....	5
The author examines both current research and research dating back to 1890 relating to teaching behavior and emphasizes the necessity for change in teaching strategies to affect the daily lives of students in the classroom. Teaching models are presented as an effective tool for increasing student learning. Through a survey, the author seeks to discover which models are currently being used in the classrooms of three suburban high schools.	
III. PROCEDURE.....	22
The author explains the procedures used to develop and conduct the survey, including the subjects of the survey, the setting for the survey, data collection procedures, and design and treatment procedures.	
IV. RESULTS.....	24
The author presents and discusses the results of the survey.	
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS...43	
The author summarizes the results of the survey, and presents some conclusions and recommendations about research on teaching models and teaching behavior.	
APPENDIX A: TEACHING MODELS SURVEY	46
WORKS CONSULTED.....	48

LIST OF TABLES

1.	Frequency Distribution for all High School Teachers Surveyed.....	28
2.	Mean Responses by School.....	29
3.	Mean Responses by Gender.....	30
4.	Mean Responses by Years of Secondary Teaching Experience.....	31
5.	Frequency Distribution: High Schools.....	33
6.	Frequency Distribution: Gender.....	33
7.	Frequency Distribution: Years of Secondary Teaching Experience.....	33
8.	Frequency Distribution: Subject/Teaching Area.....	34
9.	Frequency Distribution: Cooperative Learning.....	35
10.	Frequency Distribution: Direct Instruction.....	35
11.	Frequency Distribution: Advance Organizers.....	36
12.	Frequency Distribution: Role-Playing.....	36
13.	Frequency Distribution: Concept Formation.....	37
14.	Frequency Distribution: Concept Attainment.....	37
15.	Frequency Distribution: Mnemonics.....	38
16.	Frequency Distribution: Inquiry.....	38
17.	Frequency Distribution: Synectics.....	39
18.	Frequency Distribution: Classroom Discussion.....	39
19.	Frequency Distribution: Mastery Learning.....	40
20.	Frequency Distribution: Simulation.....	40

LIST OF TABLES (Continued)

21. Frequencies: Method of Training.....	41
22. Frequencies: Model Preference.....	41
23. Frequencies: Model Interest.....	42

ACKNOWLEDGMENTS

The work I have done on this project began in August 1994. More than one year later, I finished the project and will graduate with a Master of Science degree in Teaching in December 1995. Without the assistance, cooperation, and patience of my professors, my family, and my friends, the project would not have been possible.

Accordingly, I confer special thanks to Dr. Ellis Joseph, Dean of the School of Education, for his faith in the School of Education's graduate students and for funding the project; Dr. Donald J. Frericks, Assistant Dean, for being a mentor and a friend; Dr. Thomas Lasley and Father Massucci, for their assistance with the development of the survey; Mike Rayle, for compiling and analyzing the survey data; Dr. Amsden, for his advice on statistical procedures; Steve Grant and Nell Petry, for their assistance with the development of the thesis proposal; and to all of my professors at the University of Dayton School of Education, whose dedication to the field of education is self-evident.

I give my love and my thanks to my family: Armand F. La Rosa, my fiancé, whose love, generosity, and patience have been a consistent presence in my life, even at times when I did not deserve them; Pearlie P. Brewer, my mother, whose unwavering love and support I could not repay if I lived to be one thousand years old; Porter R. Brewer, my father, who has recently reentered my life and whose love I accept and return without misgiving; Jennifer G. Brewer, my sister, who put her life on hold to care for my son while I finished my graduate studies and constantly inspires me to achieve excellence; Kenneth R. Brewer, my brother, whose generosity and kindness are models for everyone; Tari D. Brewer, my sister-in-law, whose sincerity and concern for others are

a welcome addition to the family. For my family's assistance with this project and for their love, I thank them and I thank God.

Finally, to the principals and teachers of West Carrollton, Walter E. Stebbins, and Alter High Schools, who took the time to administer and complete the survey, I offer my sincere appreciation.

DEDICATION

To my son, David Kenneth La Rosa, Beloved of God: It is appropriate that I dedicate this project to you because you were conceived the very month I began my graduate studies and from the first moments of your existence inside my womb, you have always been the most precious love of my life. In working on this project, you guided me most of all because, as a teacher, I know the importance of the education of children and as a mother, I know that children give meaning to life. Being a mother is the hardest thing I have ever done but also the most wonderful. So, I hope you will forgive my faults and always remember that, above all else, I love you.

INTRODUCTION

In May 1993, I began my graduate studies at the University of Dayton School of Education, working as a graduate assistant in the Office of the Dean. As a graduate assistant, I learned a great deal about both my fellow students--undergraduate and graduate--and the faculty of the School of Education. Students and faculty alike were involved with many projects relating to education. Many undergraduate students attended classes, worked part-time, completed field experiences, and volunteered needed services in the university, public and private schools, churches, and various other organizations. My fellow graduate students were similarly dedicated. Many of them held full-time teaching positions, supervised extracurricular activities, attended night classes, and volunteered tutoring services for at-risk and learning disabled students. Undoubtedly, they were involved in countless other activities as well.

The faculty of the School of Education was the most dedicated of all. In addition to teaching classes both on-campus and at the various off-campus sites, they graded papers and portfolios, supervised tutoring groups, advised students, and conducted workshops. They provided in-service training at area schools, conducted research, wrote scholarly books and essays, and attended meetings. Many of them were at the university when I arrived in the morning and still there when I left in the evening. Knowledgeable, caring, and patient, these educators never failed to interrupt their schedules when approached by students with questions. In this environment, I was filled with optimism. I knew that American schools faced many challenges to meet the needs of an increasingly diverse student body, but I was certain that with such dedicated professionals at the helm, all

would be well.

In May 1994, my optimism increased. I began a course called *Models of Teaching* and learned that there were other concerned educators who had devoted a great deal of their lives to researching practical strategies that would help teachers to meet their students' needs. The possibilities these models offered for improving the manner in which I conveyed subject matter knowledge to my prospective students were impressive and inspiring. Because I remembered well the tedium of the classroom when I was in high school, these models gave me renewed hope for change. I was anxious to begin student teaching.

My first awakening came in conversations with experienced teachers who were pursuing their master's degrees. I had never taught a single class, so I listened intently as they recounted their experiences. I became disheartened. Cynicism colored their tales. Many teachers told me that although they had enjoyed the Models of Teaching course, they sincerely doubted that the models could be practically implemented in their classrooms. I feared that if these teachers had no faith in the models, then they would not devote serious effort in using them. I told myself that their experiences could not possibly be representative of all teachers.

In August 1994, I began writing the proposal for my thesis. I had been so profoundly influenced by the teaching models, I decided that they would be my focus. While conducting preliminary research, I encountered significant evidence which suggested that the teaching practices of American teachers had remained stable for more than one hundred years. I asked myself how, in light of scores of educational research

projects and reforms, this could be true. More important, I recognized that if those practices had remained impervious to change, then the efforts made by the professionals I knew and respected, as well as those of countless others, were useless. I was devastated by this evidence, but the fact remained that if the students were not the recipients of the fruit of their work, then what good was it?

Fortunately, by January 1995, I had completed the proposal and was ready to enter a high school classroom. My cooperating teacher was a godsend. He was willing to let me experiment in his class. When I succeeded, he praised my efforts. When I failed, he asked questions which urged me to probe deeper, always discouraging me against making hasty judgements. With his encouragement, I attempted using some of the models and experienced many successes. The Cooperative Learning and Concept Formation models worked very well. I measured my success in terms of student enthusiasm; it increased significantly when I used these models, even with poetry--a topic generally distasteful to high school students. I found that Direct Instruction failed time and again and left me frustrated and angry with my students. I attempted other models--Concept Attainment, Role-Playing, and Synectics--and failed miserably, but I am certain that I did not implement them properly. The models are not easy to master, but I was convinced that the models did indeed offer tremendous possibilities for improving teaching. I wanted to know if any of the models were being used currently. If so, which ones and under what conditions were they used? I decided to ask.

The purpose of this study is to determine the extent teachers implement selected research-based teaching models, analyzing the survey data to determine if differences

exist. The survey was designed to make comparisons based on the particular school surveyed, the gender of the teachers surveyed, the level of teaching experience of the teachers surveyed, and the individual models included in the survey. Differences in implementation of the survey models will be assumed to exist if the means of the comparison populations differ by five percent (.05 level of significance.)

In order to carry out this study, I designed a survey to measure the extent high school teachers implement selected research-based teaching models. I assume the survey measures what it was designed to measure and that the teachers' answers to the surveys are accurate representations of their classroom practices.

The teaching models included in the survey are not inclusive of all possible research-based teaching models; therefore, the results of the survey reflect the implementation of a limited number of research-based teaching models. Also, the teachers' implementation of the teaching models included in the survey may reflect their personal adaptations of those models. Because I am interested in how teaching model research has influenced teachers' behavior, their personal adaptations of those models are pertinent, but only insofar as their adaptations are based on the designated models. In order to minimize the possibility that teachers would respond inaccurately to the survey, I chose not to include model definitions on the survey.

The teaching models included in the survey, referred to as research-based teaching models, were selected from *Models of Teaching*--a compilation of teaching models based on the works of numerous educational researchers-- by Bruce Joyce, Marsha Weil with Beverly Showers.

PROBLEM

In *Democracy in Education*, John Dewey examines the nature of method and concludes that “method is a statement of the way the subject matter of an experience develops most effectively and fruitfully.” In teaching, method pertains to pedagogy. That is, it pertains to how teachers teach rather than what they teach. Yet, the two are inextricably connected. Attempting to alter one in isolation of the other is necessarily faulty. For Dewey, doing so equaled “the isolation of mind and self from the world of things...[making] instruction and learning formal, mechanical, constrained” (179). The isolation of subject matter and method is a common phenomenon in American schools. According to Larry Cuban in *How Teachers Taught*, educational reformers have neglected method and emphasized subject matter. Through extensive historical investigation, he finds that instructional practices of American teachers have remained stable since 1890 with teacher-centered practices dominating in both elementary and secondary classrooms. Essentially, the daily classroom experiences of American students have remained unchanged for the past century (16-17, 272).

Cuban locates some exceptions. When reforms did alter instructional practices, the changes occurred in “hybrid forms” in elementary classrooms. Instructional practices were most stable in high school classrooms (272-273). In *A Place Called School*, John I. Goodlad finds the same results. He claims that “a narrowing range and variety of pedagogical techniques” characterize the American high school (125). The most significant effect of this lack of variety in pedagogical techniques is that students at the high school level are entering their ripest phase of cognitive functioning (Piaget, *Origins*

356). Yet, when they are most ready to expand their thinking, using all of their acquired cognitive abilities, they encounter the least variety in classroom learning experiences.

Why then have teaching methods remained impervious to scores of educational reforms? In *Schools Without Failure*, William B. Glasser points to the wave of reforms that occurred after the Russian launching of Sputnik in 1957. Americans were second best in the space race and our schools took the blame; American children were not adequately educated in science and mathematics. More than ever, school achievement equaled knowledge of facts. "School children," Glasser notes, "were viewed as empty vessels--vessels to be filled to the brim with information. When the brim was reached, pressure was applied to stuff even more facts and information into the vessels." This emphasis on facts gained even further momentum with the dawn of the computer (33-34). It also supported teacher-centered behavior, for if teachers were to disseminate a quantity of facts, then student participation had to be minimized. But as Glasser also points out, this type of teaching ignores higher cognitive functioning--thinking--while emphasizing lower level functioning--memory (35).

Further, the assimilation of those facts into meaningful concepts necessarily requires a high level of cognitive functioning, and experience plays a key role in that process even when it concerns "the formation of logico-mathematical structures" (Piaget, *Psychology* 155-156). "Adult thought," Piaget explains, "might seem to provide a preestablished model, but the child does not understand adult thought until he has reconstructed it, and thought is itself the result of an evolution carried on by several generations, each of which has gone through childhood" (Piaget, *Psychology* 157).

With teacher-centered behavior dominating American classrooms, several problems emerge in light of Piaget's conclusions. First, students do not understand adult thought, so mere transmittal of adult knowledge is inadequate. Second, the student must reconstruct adult thought, assimilating it with prior knowledge. This action necessarily requires his regular participation in ongoing social interchange (Piaget, *Psychology* 156). Teacher-centered behavior does not facilitate assimilation because it involves primarily simple transmission, prohibits significant social interaction, and discourages conflicting ideas.

B.F. Skinner is also critical of educational reform because it does not alter pedagogy. In *The Technology of Teaching*, he explains that the reform efforts of the 1960's consisted of more funding to build more and better schools, hire more and better teachers, ensure that all students can go to school/college, increase exposure to films/television, and design new curricula. Skinner does not say that these things are not beneficial, only that all of them can be accomplished "without looking at teaching itself" (93). For Skinner, the absence of effective pedagogy forces many teachers to resort to "aversive control" (punitive) measures. Corporal punishment is the most drastic form of aversive control, but it takes other forms as well. Rewarding students by excusing them from assignments, punishing them by assigning additional ones, humiliation, ostracism, and even gentle admonitions such as "pay attention," or "please remember" are all forms of aversive control (95-103). Educators know also that aversive control is ineffective. Truancy and dropout rates attest to it. Yet, these practices persist. As students become bored or fail to find meaning in continuous lectures, teacher-dominated discussions, and seatwork, they

disengage. Unable to motivate students willingly, teachers resort to punitive action out of anger and frustration. Yet, many teachers know the futility of these measures even while practicing them. In *Teachers Talking Out of School*, Catherine Collins and Douglas Frantz examine teachers' disciplinary practices and note that they frequently evolve out of frustration. These teachers use and/or advocate disciplinary methods which include both emotional and physical abuse and yet they are aware that these measures are not ideal (141-160). The frustration in their comments is obvious, but the results of these measures include inaction, vandalism, and counterattack. Finally, Skinner emphasizes that "existing systems with [these] unfortunate by-products cannot be defended as necessary evils until we are sure that other solutions cannot be found" (102).

Teaching and Power

In *The Predictable Failure of Educational Reform*, Seymour B. Sarason describes teacher-centered behavior in terms of its effectiveness in maintaining existing power relationships. In focusing on the creation of national standards for student achievement, teacher competency and school performance, reformers have ignored "the power relationships that inform and control the behavior of everyone in these settings" (6-7). These power relationships result in minimal student participation. Sarason emphasizes long-ignored research on modal classrooms which indicates that teachers ask questions at a rate of 40 to 150 in an average 40-minute class period. In the same class period, students ask only two questions and frequently the same student asks both of those questions. Despite this compelling research, he found no evidence that they had influenced either teacher preparation or classroom practice (87-90). This question-asking

rate is indicative of teacher-centered behavior.

Similar to Cuban's conclusions, Sarason recognizes the inherent inadequacy of decades of curriculum reform that addressed only cursorily "how" teachers would implement the changes. He cites reform efforts of the sixties and seventies to introduce new math, new biology, new physics, new social studies, and host of other new things. As mentioned earlier, Glasser claims that these changes were faulty because they emphasized knowledge of facts too heavily. Sarason does not argue that the curriculum changes were faulty, but rather points out that these teachers were expected to carry out the changes after minimal exposure. Teaching the new curricula was viewed as a "technical or engineering task that could be learned in short order by any biologically intact teacher." Several days in a workshop was assumed to be sufficient (90-91).

Nearly two decades later, Cuban recognizes again the failure of educational researchers to investigate teaching practices, although he notes that "some researchers indirectly stress the power of pedagogy when they describe and analyze effective teachers whose personalities, harnessed to particular styles of instruction, influence students" (284-286). Sarason explains researchers' neglect of teaching practices in terms of a medical analogy. Medical researchers, he explains, start with "how well [they] understand the disease in its naturally occurring context," proceeding to the search for understanding "laboratory findings in that context" (117-118). Educational researchers have failed because they have not followed a similar process, i.e. the tenets of science, claiming that "customary practice in the naturally occurring school context [is] inferior to the practice they [employ] in their equivalent of a research laboratory" (117-118).

The lack of pedagogical concern is nowhere more conspicuous than in the recent report by the Office of Educational Research and Improvement entitled *America's Teachers: Profile of a Profession*. In Chapter Seven of this document, "Instructional Practices," subject matter content divides the chapter into subsections and subordinate subject matter divides the subsections. The focus is on how much time American teachers spend covering the particular subjects. The only information about method that exists in this chapter is a cursory reference to what might be construed by some as Cooperative Learning. That is, some teachers are currently dividing their classes into small groups for instruction (National Center for Education Statistics 91-103). However, the authors of this document say nothing about how that instruction takes place. Teachers could just as easily impart information to small groups in a teacher-centered manner as they could to the whole class. Simple division of students into small groups does not necessitate different teaching methods; Cooperative Learning requires specific sets of conditions to be effective. The reader can only conclude that the title of the chapter is a misnomer.

In *Schoolteacher*, Dan C. Lortie points out that empirical investigations of teaching have been historically rare. Proposed school changes have been ineffective because they have been based on educational research that has little or no empirical value. In light of this fact, Lortie conducted interviews with teachers in five towns in search of "the nature and content of the ethos of the occupation" (vii-viii, 245), and he concluded that "conservatism, individualism, and presentism are significant components in the ethos of American classroom teachers" (212). According to Lortie, the structure of the occupation fosters these attitudes. The hierarchical government in schools where power is

vested in persons who do not belong to the occupation (2), the economic rewards and social standing of teachers which discourage long-term commitment to the classroom (99), and the autonomy of the classroom teacher which discourages teacher interdependence (23) create conservative, individualistic, and present-minded teachers. Each of these three factors supports teacher-centered behavior: conservatism, because its underlying value is resistance to change; individualism, because it is egocentric; and presentism, because it is insensitive to the realm of possibility. Lortie also identifies the failure of teachers to change teaching practices. He remarks that "the contrast with other occupations is impressive," such as farming where fifty years of technological advances have resulted in significant increases in productivity. Yet, teachers "do not claim that they can now teach more in less time" (23). For Lortie, the intractability of teaching practices results from the problems inherent in the structure of the occupation.

The Necessary Precondition

In "Research on Teaching: A Historical and Personal Perspective," Lee S. Shulman attempted to identify the interrelated elements of teaching. In his investigation of teacher knowledge, he found that it was not a matter of whether teachers knew their subject matter or not, but rather that they knew their subjects in different ways. So, his research question changed from "what do good teachers do that distinguishes them from ordinary teachers" to "what do good teachers of history do that distinguishes them from ordinary ones," or "that distinguishes them from good teachers of mathematics." Later, he says that the question should be expanded even further to "what do good teachers of biology for urban minority children do and think?" (23-24). Shulman attempts to identify

the interrelated elements which affect a variety of classroom environments, maintaining the connection between subject matter and pedagogy.

In "Transforming Schools of Education into Schools of Teaching, David D. Dill looks to university schools of education for a remedy. He criticizes those schools because they differ widely from other professional schools such as law, medicine, and business schools which emphasize specialization/expertise. Schools of Education should become Schools of Teaching where prospective teachers become experts in their subject areas. He makes many suggestions for change in university staffing, research efforts, organizational and pedagogical forms, some of which have already been discussed above (224-239). Dill places the focus of the argument on the post-secondary schools. While bringing teachers to greater levels of expertise and to the development of a common knowledge base might be a worthy goal of teacher education schools, it has inherent danger as well.

As Robert Welker points out in *Teacher as Expert*, expertise, even when defined as "a sociological phenomenon rather than simply as a technical or scientific accomplishment," can foster a "client dependency" phenomenon, wherein "the client [student] remains in an unequal and subservient relationship; he has not developed the abilities to serve his own needs" (1, 36). For a doctor, client dependency relationships are beneficial; they preserve and even perpetuate his status. For a teacher, client dependency relationships are destructive; they prevent independent student thinking and, ironically, degrade teacher status.

Moreover, there is evidence which suggests that teachers do not impart to their

students much of what they already know. In *Contradictions of Control*, Linda McNeil found that teachers actively controlled how much of their knowledge they made available in the classroom. She describes this practice as a “negotiation of efficiencies.” That is, teachers “calculated how much of their personal knowledge...to put at risk in the classroom, given the smallness of their financial rewards and professional incentives in relation to the potential for classroom disorder, dissent and conflict” (160). Further, McNeil states that these negotiated efficiencies had two discouraging by-products. First, “it created a client mentality among the students,” in which the students distrusted their own ability to learn as well as teacher knowledge itself. Second, as students became more apathetic, teachers doubted their efficacy (78-79).

Additionally, as Kenneth G. Wilson and Bennett Daviss point out in *Redesigning Education*, teachers often abandon training they receive in schools of education when they receive their first teaching position. Wilson and Daviss claim that this training does not “reach deeply enough to uproot young teachers’ assumptions about how teaching and schooling are properly conducted, assumptions rooted during a student’s own twelve to sixteen years in school” (85). Therefore, the authors argue that the “obvious places to introduce proven new methods of effective teaching and learning that working teachers so often lack are in the in-service workshops, seminars, and training sessions that dot their calendars.” They perceive the necessity of continuing professional growth for all teachers and recognize that teachers learn to teach in the classroom (88-89). Successful implementation of teaching models in the classroom would require dedication to professional growth programs because they are not easily mastered. Teachers and

students alike must have time to practice them to become efficient educators and learners. Direct Instruction, on the other hand, does not require the same commitment to staff development as do other models because this manner of instruction is well-known and can be mastered by teachers individually.

In a pluralistic democracy, classrooms are pluralistic. The range of differences among student populations at any particular school is unique. Consequently, teacher-centered behavior may well be an adaptive behavior. That is, given an environment in which the teacher has no control over the range of experience of her students, the teacher behaves in ways that limit conflict. If the students remain quiet, there is little potential for conflict, and teacher-centered teaching methods are convenient because they are well-known and well-practiced. Recalling Lortie's argument, the occupation itself fosters this behavior.

Yet, conflict pervades the lives of American adolescents, and evidence abounds which indicates their inability to deal with this conflict effectively. Teen pregnancy, drug use, suicide, and violence rates attest to it. And unlike achievement test scores, these by-products are no respecters of class or socio-economic background. The social ills of American society are not absent in our public schools simply because students are young. In fact, their youth further exacerbates problems because they are less likely to effectively cope with them. In *Horace's Compromise*, Theodore R.Sizer explains that "a unifying characteristic of adolescents is their common puberty--the physiological changes engulfing them and the psychic strains that attend these" (40). The many conflicts they face at this point in their lives result in their search for "their own special place" in the world of

reality, the adult world (43). Yet, the places they find can be maladaptive. Fear, withdrawal, and frustration accompany their inexperience, and parents and teachers can be especially influential at this point in their lives (46, 51). Yet, with teacher-centered behavior dominant in American classrooms, there is little reason to expect that they will learn to deal with conflict adequately. Moreover, in Piaget's conception of learning (discussed above), the realm of social interaction and experience is largely non-existent in the classroom. Piaget's process of accommodation requires conflict. That is, the child/student, when faced with conflicting ideas, adjusts prior knowledge to accommodate the new information (*Psychology* 6). Therefore, conflicting ideas represent learning opportunities as well as a source for motivation of student learning.

The Models

Conflict in the classroom does not constitute mayhem. Recognizing that the diversity of American classrooms creates tremendous possibilities for conflict, teachers can structure these environments to prevent the conflict from becoming unmanageable. Teaching models are the tools. They provide carefully constructed techniques which allow students to engage the learning material in multiple ways, developing not only the skills necessary for students to become problem-solvers, but also the confidence to enthusiastically engage learning situations throughout their lives. In *Models of Teaching*, Bruce Joyce, Marsha Weil, and Beverly Showers organize a comprehensive scheme of teaching models, based on the works of several researchers, which addresses a variety of thinking skills. They argue that focusing on any one particular skill constitutes faulty teaching because students must develop a "repertoire" of skills to function effectively in

their worlds. Therefore, both higher-order and lower-order thinking skills require study and practice (109-110).

Joyce, Weil, and Showers illustrate how effective the teaching models can be by pointing to a study conducted by Shlomo Sharan and Hana Shachar (1988), in which economically disadvantaged students exceeded their more advantaged peers when they were taught using the group investigation teaching model rather than by the traditional "whole-class" method (2-3). These results constitute very powerful evidence for the use of models both because the research was field-based and because socio-economic status is one of the leading indicators of academic success in the United States.

Joyce, Weil, and Showers organize the teaching models into the following families: the Social Family, the Information-Processing Family, the Personal Family, and the Behavioral Systems Family. These families of models address the authors' concern that teaching should address a variety of student needs.

The teaching models included in the Social Family are the most effective models for providing the structure necessary for students to interact positively. Joyce, Weil, and Showers maintain that the classroom is a microcosm of the larger society and that there is a naturally generated energy in that environment by its members who seek to create a social order (42). The teaching models survey (Appendix A) designed to carry out this study include two of the Social Family models. They are Cooperative Learning; based on the works of David W. Johnson, Roger T. Johnson, and Robert E. Slavin; and Role-Playing, based on the works of Fannie and George Schaftel, Mark Chesler, and Robert Fox (27-106).

The Cooperative Learning Model, created by David W. Johnson and Roger T. Johnson, is based on the idea that students “reach their learning goals only if the other students in the learning group[s] do so” (Unleash 22). This type of cooperation, as the Johnsons explain, can result in “a promotive interaction pattern characterized by help, assistance, encouragement, and support...which results in higher achievement, greater productivity, more positive attitudes and relationships, and greater psychological health and well-being” (Unleash 23.) The Johnsons further explain, however, that cooperative learning constitutes much “more than putting students in small groups and telling them to get to work. Cooperative learning requires students to believe they sink or swim together (positive interdependence), interact face to face to help each other learn, be individually accountable to learn, have, and use required interpersonal and small group skills, and process how to improve the effectiveness of their group” (Unleash 23). The Johnsons have been involved with research, both laboratory and field-based, on Cooperative Learning for more than twenty years and have published more than 80 studies asserting the effectiveness of the Cooperative Learning model. Moreover, they have designed specific techniques for teachers to use the model effectively.

In “Cooperative Learning and the Cooperative School,” Robert E. Slavin furthers the work of the Johnsons by creating a range of clearly-defined cooperative learning techniques which foster positive interdependence. When implemented properly, Slavin points out that Cooperative Learning can be an effective tool not only in uniting teachers and students in more constructive learning situations, but also in uniting schools, teachers, students, parents and communities (142).

Role-Playing is the second model in the Social Family included in the survey.

Based on the works of Fannie and George Schaftel and of Mark Chesler and Robert Fox, Joyce, Weil, and Showers include the model in the Social Family of their work on teaching models (55). Joyce, Weil, and Showers explain that Role-Playing is primarily of value because of its potential to enlighten students about social learning. In Role-Playing, students learn how to empathize with the thoughts, feelings, and perceptions of others. Although the model also has personal value because it allows students to construct individual meaning from the experience, the authors emphasize its social value because that meaning is constructed only by interaction with social groups. The benefits they claim are that Role-Playing "provides a live sample of human behavior that serves as a vehicle for students to: (1) explore their feelings; (2) gain insight into their attitudes, values, and perceptions; (3) develop their problem-solving skills and attitudes; and (4) explore subject matter in varied ways" (56)

The teaching models in the Information-Processing Family included in the survey are Mnemonics (Jerry Lucas and Harry Lorayne), Synectics (William J. J. Gordon), Inquiry (Richard Suchman), Advance Organizers (David Ausubel), Concept Formation (Hilda Taba), and Concept Attainment (Jerome Bruner). Joyce, Weil, and Showers include these models in this family because they offer pedagogical techniques which can be used to teach different types of thinking (107-241). Further, they emphasize that these models be used in conjunction with each other as well as with models in the other families, and be implemented within specific contexts (107-111). Mnemonics can aid memorization tasks, Synectics can teach students to think creatively, Inquiry assists students in their

ability to reason, Advance Organizers can assist students in the acquisition of large quantities of information, Concept Formation can teach students to think inductively especially with regard to categorization, and Concept Attainment can instruct students about the nature of concepts. These models address a variety of thinking skills which, when practiced regularly by students, help students to increase and refine their ability to learn in a variety of situations (107-241).

The models which Joyce, Weil and Showers include in the Personal Family of teaching models were not included in the survey because they involve the teacher's creation of a nurturing environment in which teachers behave as counselors for students. These models are not clearly defined by the specific techniques required for their implementation. The techniques will vary by teacher and therefore these models did not lend themselves to inclusion in the survey, although they too merit consideration by teachers (259-290).

Finally, the survey models in the Behavioral Systems Family are Mastery Learning, Direct Instruction, and Simulation. These models have their origin in the works of behavioral psychologists such as Pavlov, Thorndike and Watson and Skinner and employ, to differing degrees, developments in behavioral theory such as stimulus control; generalization and discrimination; response repertoires and response substitution; reinforcers and reinforcement schedules; observation, modeling, and practice (291-292). Mastery Learning, formulated by John B. Carroll and Benjamin Bloom, primarily involves Carroll's notion of aptitude and by Bloom's notion of time management adjusted for aptitude. Aptitude, as Carroll defines, is the amount of time required by an particular

student to master a given set of material, rather than by her capacity. Bloom maintains that diagnostic tests can be given to determine which students require additional time to master material and instruction can be adjusted accordingly (299-300).

Direct Instruction, heretofore referred to as teacher-centered instruction, also has a research background asserting its effectiveness. Based on the work of Barak Rosenshine, Direct Instruction can be quite effective, under certain conditions, because it can increase the amount of time students spend engaged with the academic material. But as with the other models, there are techniques teachers can use to better implement this model, especially if it is combined with the use of other models (308-311).

The Classroom Discussion and Simulation models are not included in the families of models, but are models which can be used in conjunction with the others to allow students to discuss and practice what they have learned and can be valuable assessment tools for teachers. Joyce, Weil, and Showers stress throughout their book that these teaching models provide a range of techniques which teachers can learn to incorporate in their daily practices to make their teaching more effective. Single models can be readily incorporated, but the most effective use of the models requires teachers to combine models to best fit the needs of their classrooms.

Finally, Joyce, Weil, and Showers assert that in order for teachers to build the skills necessary to use the models regularly and effectively, schools must foster their study of them. The models cannot be easily mastered. Half-day workshops and sporadic inservice training are insufficient, and comprehensive training programs are required to change the teacher-centered behavior that has dominated American classrooms for over a

century.

For the models Joyce, Weil, and Showers include in *Models of Teaching* as well as many others, the developmental research involved is extensive. However, if the environments in which teachers work do not foster their use, then the work of these researchers is useless. The study that follows was designed to determine which of the above teaching models, if any, are being used in local schools, as well as to develop an understanding of the conditions which foster their use.

PROCEDURE

The author surveyed all teachers at four area high schools: two public schools, Walter E. Stebbins High School and West Carrollton High School; and two Catholic schools, Alter High School and Carroll High School. These schools were selected because their faculty sizes are similar; each school has between 45 and 80 teachers.

Walter E. Stebbins High School has 77 teachers in a school of 938 students and West Carrollton High School has 60 teachers in a school of 840 students. Alter High School has 45 teachers in a school of 685 students and Carroll High School has 50 teachers in a school of 893 students. (Ohio Department of Education, 1993-1994)

Each of the survey schools is located in a largely middle-class, suburban area of Dayton, Ohio.

To carry out this study, the writer designed a Leikert-type survey (Appendix A) based on current research about teaching models (Joyce, Weil, & Showers). The twelve item survey limits respondents to one of six responses: three or more times per week, one-two times per week, one-two times per month, one-two times per year, never, or not familiar with the model. The respondents recorded their classroom use of the survey models by marking an "x" in the column of the appropriate choice for each row. No response to any particular survey item was assigned no weight for scoring purposes and eliminated from the populations compared to prevent distortion of results. The respondents also answered various demographical questions as well as three explanatory questions about their knowledge of the survey models.

The survey was administered in January 1995 at each of the four schools by

their respective principals who were contacted by phone and letter prior to receipt of the surveys. The researcher disseminated the surveys in January 1995 and collected them in February 1995. To help insure the validity of the responses, no substantive questions about the survey were answered.

Scoring was accomplished by assigning a numerical value to each response (1=3 or more times per week, 2=1-2 times per week, 3=1-2 times per month, 4=1-2 times per year, 5=never, and 6=not familiar with the model.) The respondents marked their responses to each survey item on the survey itself by placing an "x" in the column of the appropriate choice. The data was then transferred, by the researcher, to DOS-ASCII format using WordPerfect 6.1 software for analysis by the VAX computer at the University of Dayton. The results are included and discussed in Chapter IV.

RESULTS

The researcher received completed surveys from all schools surveyed except Carroll High School. Therefore, the inter-school comparisons are limited by the missing surveys for one of the Catholic schools. From the surveys received, the researcher constructed frequency distributions for all of the survey responses. Originally, the researcher intended to use the test of Chi-Square for all intergroup comparisons because of its value for small sample sizes. However, the distribution of the frequency data yielded, in several comparisons, expected counts of less than 5 in 89% of the comparison cells. Groupings of these cells could not be made without distorting the survey results. Therefore, different statistical tests were used for each of the comparison groups due to the peculiarities of their respective frequency distribution data. From the frequency distribution data, the researcher used a T-Test for gender comparisons, the Analysis of Variance test and Tukey's Studentized Range Test (controls type I experimental errors) for inter-school comparisons, and the General Linear Models test and Tukey's Studentized Range Test for experience level comparisons. Each of these tests is appropriate for the sample size and the nature of the frequency distribution data. The researcher determined statistical significance at the .05 level.

For all teachers surveyed, the author presents frequency distribution and mean responses (See Table 1). For all hypothesis groups, the author presents mean responses and corresponding populations using like tables (See Tables 2-4). For all survey questions, the author presents frequency data (See Tables 5-23). Tables 1-4 are constructed in the same manner as the survey and represent data gathered from the Leikert

portion of the survey . Tables 5-23 are constructed in the same manner as the survey and represent data gathered from all survey questions.

The researcher found three statistically significant comparisons among the three schools: Alter High School respondents reported using the Classroom Discussion model with statistically significant lower frequency than Walter E. Stebbins High School respondents and Alter High School respondents reported using the Inquiry model with statistically significant lower frequency than both Walter E. Stebbins High School and West Carrollton High School respondents. The mean responses for the implementation of all other survey models showed no statistically significant variations.

The researcher found no statistically significant comparisons among gender groups.

The researcher found only one statistically significant result among experience group comparisons. Teachers with 0-5 years of experience reported using the Direct Instruction model with statistically significant lower frequency than teachers with 21-25 years of experience.

Comparisons based on subject/teaching area (Table 8) were not possible due to sample size.

Based on mean frequency data (Table 1), all teachers reported using the models in the following order (from highest frequency to lowest frequency): Direct Instruction, Classroom Discussion, Inquiry, Cooperative Learning, Mastery Learning, Simulation, Concept Formation, Role-Playing, Concept Attainment, Mnemonics, Advance Organizers, and Synectics. Similarly, within each of the respective schools, teachers reported using

the models in comparable orders (from highest to lowest frequency); at Walter E. Stebbins High School: Direct Instruction, Classroom Discussion, Inquiry, Cooperative Learning, Simulation, Mastery Learning, Concept Formation, Role-Playing, Concept Attainment, Mnemonics, Advance Organizers, and Synectics; at West Carrollton High School: Direct Instruction, Classroom Discussion, Inquiry, Mastery Learning, Cooperative Learning, Concept Formation, Simulation, Role-Playing, Concept Attainment, Advance Organizers, Mnemonics, and Synectics; and at Alter High School: Direct Instruction, Classroom Discussion, Cooperative Learning, Inquiry, Mastery Learning, Simulation, Concept Formation, Role-Playing, Concept Attainment, Mnemonics, Advance Organizers, and Synectics. Conversely, all teachers reported interest in models (Table 23) in nearly opposite order: Synectics, Advance Organizers, Mnemonics, Concept Attainment, Concept Formation, Mastery Learning, Cooperative Learning, Simulation, Inquiry, Role-Playing, Direct Instruction, and Classroom Discussion. Among gender and experience level comparisons, similar orders of model usage remain constant (Tables 3-4).

Tables 5-8 show the composition of the survey population by gender, years of secondary teaching experience, high school, and subject/teaching area. Subject/teaching area comparisons could not be made due to population size; larger samples are required.

Tables 9-20 show the respective frequencies with which all teachers responded to each of the Leikert-type survey items. The Direct Instruction model (Table 10) is the only model in which 100% of the respondents were distributed between the highest frequency categories; hence, the mean responses of all hypothesis groups approach 1.

Table 21 reveals the methods of training teachers felt were most influential on the

models they used most frequently. Workshops and self-study were identified most frequently, followed by undergraduate instruction, graduate instruction, inservice training, and post-graduate instruction. However, at best, only 35% of respondents identified any of the categories available as influencing their teaching behavior.

Table 22 reveals the reasons teachers identify as justification for the models they use most frequently. They use the models they do because (in order of frequency of response): they allow them to cover required material most effectively, they allow them to quickly assess student learning, they help them to control the students, they are approved by educators they respect, they satisfy individual requirements (survey category: Other), and they are comparable to methods used by their peers. The respondents who selected the category, Other, claimed that their methods allowed for greater student retention, greater student involvement, and satisfaction of diverse student needs.

TABLE 1

FREQUENCY DISTRIBUTION
FOR ALL HIGH SCHOOL TEACHERS SURVEYED
(N=92; Frequency Missing=2)

Teaching Models	3 or more times/ week	1-2 times/ week	1-2 times/ month	1-2 times /year	Never	Not Familiar With the Model	No Response	Mean Response
Cooperative Learning	23	33	17	15	1	2	1	2.3846154
Direct Instruction	77	15	0	0	0	0	0	1.1630435
Advance Organizers	10	8	13	1	5	48	7	4.4941176
Role-Playing	5	9	22	27	27	0	2	3.6888889
Concept Formation	21	23	11	2	0	32	3	3.3707865
Concept Attainment	16	21	9	0	1	41	4	3.8181818
Mnemonics	5	9	21	7	7	38	5	4.3333333
Inquiry	37	21	12	6	3	8	5	2.3218391
Synectics	2	2	2	1	3	76	6	5.6627907
Classroom Discussion	58	21	10	2	0	0	1	1.5164835
Mastery Learning	24	17	18	6	6	18	3	3.0786517
Simulation	16	14	28	17	8	7	2	3.0888889

TABLE 2

MEAN RESPONSES BY SCHOOL
FOR ALL TEACHERS SURVEYED

Teaching Models	Walter E. Stebbins High School	N Size of Respondents	West Carrollton High School	N Size of Respondents	Alter High School	N Size of Respondents
Cooperative Learning	2.1851852	54	2.5294118	17	2.8000000	20
Direct Instruction	1.2181818	55	1.0000000	17	1.1500000	20
Advance Organizers	4.5769231	52	3.5625000	16	5.1176471	17
Role-Playing	3.6851852	54	3.5000000	16	3.8500000	20
Concept Formation	3.3018868	53	3.0588235	17	3.8421053	19
Concept Attainment	3.7547170	53	3.56250000	16	4.2105263	19
Mnemonics	4.0784314	51	4.2352941	17	5.1052632	19
Inquiry	2.0400000	50	2.0000000	17	3.3000000	20
Synectics	5.5192308	52	5.8000000	15	5.9473684	19
Classroom Discussion	1.3148148	54	1.5882353	17	2.0000000	20
Mastery Learning	3.1886792	53	2.2352941	17	3.5263158	19
Simulation	2.8888889	54	3.1176471	17	3.6315789	19

TABLE 3

MEAN RESPONSES BY GENDER
FOR ALL TEACHERS SURVEYED

Teaching Models	Female Teachers	N Size of Respondents	Male Teachers	N Size of Respondents
Cooperative Learning	2.28846154	52	2.51282051	39
Direct Instruction	1.15094340	53	1.17948718	39
Advance Organizers	4.20833333	48	4.86486486	37
Role-Playing	3.66666667	51	3.71794872	39
Concept Formation	3.52941176	51	3.15789474	38
Concept Attainment	3.94000000	50	3.65789474	38
Mnemonics	4.08163265	49	4.65789474	38
Inquiry	2.38000000	50	2.24324324	37
Synectics	5.79591837	49	5.48648649	37
Classroom Discussion	1.53846154	52	1.48717949	39
Mastery Learning	1.53846154	51	3.36842105	38
Simulation	3.05769231	52	3.13157895	38

TABLE 4

MEAN RESPONSES BY YEARS OF TEACHING
EXPERIENCE FOR ALL TEACHERS SURVEYED

Teaching Models	0-5 Years of Teaching Experience	N Size of Respondents	6-10 Years of Teaching Experience	N Size of Respondents	11-15 Years of Teaching Experience	N Size of Respondents
Cooperative Learning	2.1904762	21	2.2727273	11	2.8461538	13
Direct Instruction	1.3333333	21	1.0909091	11	1.0000000	13
Advance Organizers	4.3500000	20	3.5555556	9	5.0833333	12
Role-Playing	3.4761905	21	3.9000000	10	3.5833333	12
Concept Formation	3.8095238	21	3.4545455	11	3.2727273	11
Concept Attainment	4.2000000	20	3.5454545	11	4.1666667	12
Mnemonics	4.0000000	21	3.3636364	11	5.1818182	11
Inquiry	2.5500000	20	2.5454545	11	2.5833333	12
Synectics	5.5714286	21	5.5454545	11	5.9090909	11
Classroom Discussion	1.4761905	21	1.7272727	11	1.5384615	13
Mastery Learning	3.8095238	21	2.4000000	10	2.5000000	12
Simulation	2.8095238	21	2.8181818	11	2.6666667	12

TABLE 4 (Continued)

**MEAN RESPONSES BY YEARS OF TEACHING
EXPERIENCE FOR ALL TEACHERS SURVEYED**

Teaching Models	16-20 Years of Teaching Experience	N Size of Respondents	21-25 Years of Teaching Experience	N Size of Respondents	26+ Years of Teaching Experience	N Size of Respondents
Cooperative Learning	2.5000000	10	2.5882353	17	2.1052632	19
Direct Instruction	1.2000000	10	1.0000000	18	1.2631579	19
Advance Organizers	4.6000000	10	4.7058824	17	4.4705882	17
Role-Playing	3.5000000	10	3.7777778	18	3.8947368	19
Concept Formation	3.0000000	10	3.0000000	18	3.4444444	18
Concept Attainment	3.5555556	9	3.8333333	18	3.4444444	18
Mnemonics	4.4444444	9	4.8823529	17	4.2222222	18
Inquiry	2.1000000	10	2.5625000	16	1.6666667	18
Synectics	5.5555556	9	5.4117647	17	6.0000000	17
Classroom Discussion	1.7000000	10	1.5882353	17	1.2631579	19
Mastery Learning	2.5000000	10	2.5555556	18	3.8333333	18
Simulation	3.4000000	10	3.4444444	18	3.3333333	18

TABLE 5
FREQUENCY DISTRIBUTION:
HIGH SCHOOLS

School	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Stebbins	55	59.8	55	59.8
West Carrollton	17	18.5	72	78.3
Alter	20	21.7	92	100.0

TABLE 6
FREQUENCY DISTRIBUTION:
GENDER

Gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent
FEMALE	53	57.6	53	57.6
MALE	39	42.4	92	100.0

TABLE 7
FREQUENCY DISTRIBUTION:
YEARS OF SECONDARY TEACHING EXPERIENCE

Years of Experience	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0-5 YEARS	21	22.8	21	22.8
6-10 YEARS	11	12.0	32	34.8
11-15 YEARS	13	14.1	45	48.9
16-20 YEARS	10	10.9	55	59.8
21-25 YEARS	18	19.6	73	79.3
26+ YEARS	19	20.7	92	100.0

TABLE 8
FREQUENCY DISTRIBUTION:
SUBJECT/TEACHING AREA

Teaching Area	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	7	7.6	7.	7.6
Art	3	3.3	10	10.9
Business	9	9.8	19	20.7
Comp. Science	2	2.2	21	22.8
English	12	13.0	33	35.9
For. Language	5	5.4	38	41.3
Health/Phys Ed	1	1.1	39	42.4
Home Econ.	2	2.2	41	44.6
Mathematics	11	12.0	52	56.5
Music	2	2.2	54	58.7
Science	12	13.0	66	71.7
Social Science	9	9.8	75	81.5
Special Ed.	7	7.6	82	89.1
Theology	2	2.2	84	91.3
Vocational	8	8.7	92	100.0

TABLE 9
FREQUENCY DISTRIBUTION:
COOPERATIVE LEARNING

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	1	1.1	1	1.1
3 or more times/week	23	25.0	24	23.1
1-2 times/week	33	35.9	57	62.0
1-2 times/month	17	18.5	74	80.4
1-2 times/year	15	16.3	89	96.7
Never	1	1.1	90	97.8
Not Familiar With Model	2	2.2	92	100.0

TABLE 10
FREQUENCY DISTRIBUTION:
DIRECT INSTRUCTION

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
3 or more times/week	77	83.7	77	83.7
1-2 times/week	15	16.3	92	100.0

TABLE 11
FREQUENCY DISTRIBUTION:
ADVANCE ORGANIZERS

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	7	7.6	7	7.6
3 or more times/week	10	10.9	17	18.5
1-2 times/week	8	8.7	25	27.2
1.2 times/month	13	14.1	38	41.3
1-2 times/ year	1	1.1	39	42.4
Never	5	5.4	44	47.8
Not Familiar With Model	48	52.2	92	100.0

TABLE 12
FREQUENCY DISTRIBUTION:
ROLE-PLAYING

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	2	2.2	2	2.2
3 or more times/week	5	5.4	7	7.6
1-2 times/week	9	9.8	16	17.4
1.2 times/month	22	23.9	38	41.3
1-2 times/ year	27	29.3	65	70.7
Never	27	29.3	92	100.0
Not Familiar With Model	---	---	---	---

TABLE 13
FREQUENCY DISTRIBUTION:
CONCEPT FORMATION

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	3	3.3	3	3.3
3 or more times/week	21	22.8	24	26.1
1-2 times/week	23	25.0	47	51.1
1.2 times/month	11	12.0	58	63.0
1-2 times/ year	2	2.2	60	65.2
Never	---	---	---	---
Not Familiar With Model	32	34.8	92	100.0

TABLE 14
FREQUENCY DISTRIBUTION:
CONCEPT ATTAINMENT

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	4	4.3	4	4.3
3 or more times/week	16	17.4	20	21.7
1-2 times/week	21	22.8	41	44.6
1.2 times/month	9	9.8	50	54.3
1-2 times/ year	---	---	---	---
Never	1	1.1	51	55.4
Not Familiar With Model	41	44.6	92	100.0

TABLE 15
FREQUENCY DISTRIBUTION:
MNEMONICS

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	5	5.4	5	5.4
3 or more times/week	5	5.4	10	10.9
1-2 times/week	9	9.8	19	20.7
1.2 times/month	21	22.8	40	43.5
1-2 times/ year	7	7.6	47	51.1
Never	7	7.6	54	58.7
Not Familiar With Model	38	41.3	92	100.0

TABLE 16
FREQUENCY DISTRIBUTION:
INQUIRY

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	5	5.4	5	5.4
3 or more times/week	37	40.2	42	45.7
1-2 times/week	21	22.8	63	68.5
1.2 times/month	12	13.0	75	81.5
1-2 times/ year	6	6.5	81	88.0
Never	3	3.3	84	91.3
Not Familiar With Model	8	8.7	92	100.0

TABLE 17
FREQUENCY DISTRIBUTION:
SYNECTICS

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	6	6.5	6	6.5
3 or more times/week	2	2.2	8	8.7
1-2 times/week	2	2.2	10	10.9
1.2 times/month	2	2.2	12	13.0
1-2 times/ year	1	1.1	13	14.1
Never	3	3.3	16	17.4
Not Familiar With Model	76	82.6	92	100.0

TABLE 18
FREQUENCY DISTRIBUTION:
CLASSROOM DISCUSSION

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	1	1.1	1	1.1
3 or more times/week	58	63.0	59	64.1
1-2 times/week	21	22.8	80	87.0
1.2 times/month	10	10.9	90	97.8
1-2 times/ year	2	2.2	92	100.0
Never	---	---	---	---
Not Familiar With Model	---	---	---	---

TABLE 19
FREQUENCY DISTRIBUTION:
MASTERY LEARNING

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	3	3.3	3	3.3
3 or more times/week	24	26.1	27	29.3
1-2 times/week	17	18.5	44	47.8
1.2 times/month	18	19.6	62	67.4
1-2 times/ year	6	6.5	68	73.9
Never	6	6.5	74	80.4
Not Familiar With Model	18	19.6	92	100.0

TABLE 20
FREQUENCY DISTRIBUTION:
SIMULATION

Response	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	3	2.2	2	2.2
3 or more times/week	16	17.4	18	19.6
1-2 times/week	14	15.2	32	34.8
1.2 times/month	28	30.4	60	65.2
1-2 times/ year	17	18.5	77	83.7
Never	8	8.7	85	92.4
Not Familiar With Model	7	7.6	92	100.0

TABLE 21
FREQUENCIES:
METHOD OF TRAINING

Response	Frequency	Percent
Inservice Training	20	21.7
Workshops	33	35.9
Self-Study	30	32.6
Undergraduate Instruction	22	23.9
Graduate Instruction	22	23.9
Post-Graduate Instruction	7	7.6
Other	0	0

TABLE 22
FREQUENCIES:
MODEL PREFERENCE

The model I use most frequently...	Frequency	Percent
Helps me to control the students.	34	37.0
Allows me to cover required material most effectively.	80	87.0
Is comparable to methods used by my peers.	15	16.3
Is approved by educators I respect.	19	20.7
Allows me to quickly assess student learning.	53	57.6
Other.	16	17.4

TABLE 23
FREQUENCIES:
MODEL INTEREST

I would like to know more about the following models:	Frequency	Percent
Cooperative Learning	13	14.1
Direct Instruction	2	2.2
Advance Organizers	28	30.4
Role-Playing	5	5.4
Concept Formation	21	22.8
Concept Attainment	21	22.8
Mnemonics	26	28.3
Inquiry	5	5.4
Synectics	46	50.0
Classroom Discussion	1	1.1
Mastery Learning	14	15.2
Simulation	8	8.7

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The researcher began this project to determine the extent teachers implement selected research-based teaching models. As discussed in Chapter II, a long history of research supports the use of these models in the classroom. However, the survey results overwhelmingly support the persistence of Direct Instruction as the primary teaching method of the teachers at the three schools surveyed. These results are consistent with the findings of Larry Cuban about American high schools for the years 1890-1990 in *How Teachers Taught*, --evidence on which the bulk of this project is founded.

In an effort to identify specific conditions under which particular models may have flourished, the researcher compared teachers' behavior based on institution type (public or Catholic), gender, and experience level of teachers surveyed. No consistent correlations emerged among these comparison groups. While variations did occur at statistically significant levels, they did not remain constant across all comparison groups. For example, while teachers with 0-5 years of experience did report using the Direct Instruction model with statistically significant lower frequency than teachers with 21-25 years of teaching experience, they did not use it with less frequency than teachers with 26 or more years of teaching experience. Similarly, inter-school comparisons did not remain constant with respect to more than one particular model for all three schools. Therefore, the comparison groups analyzed--school, gender, and years of secondary teaching experience--were not significant factors affecting model use or lack of use.

The procedures used to analyze the data involving the hypothesis groups were the T-Test, Analysis of Variance, the General Linear Models test, and Tukey's Studentized

Range Test. Statistical significance was determined at the .05 level.

Further research on teaching models must recognize the constancy of teacher-centered instructional practices. In the classroom, teachers adapt in ways which reinforce those practices. Altering that behavior is not a simple task. Researchers must go into American classrooms to work cooperatively with students and teachers to prove the validity of their work. Unless teachers can reach a point in their development where use of the models is a natural and accessible action, current as well as future research is in jeopardy. The teachers surveyed did indicate with some frequency their use of the Inquiry and Cooperative Learning models, which may well be fruitful avenues for further research. For the models which teachers used infrequently, never, or were not familiar with, researchers have extensive work yet to do (See Tables 9-20).

Finally, teacher training does not appear to significantly influence teaching methods. Only 35.9% of respondents identified workshops as being influential in their teaching methods, which was the highest response rate recorded for all training areas including undergraduate and graduate instruction (See Table 21). Their reasons for using the models they do vary, but the two most popular responses indicate concerns about time constraints present in the classroom (See Table 22). Concerns about time constraints imposed by the existing structures coupled with ineffective or insufficient training may well indicate significant reasons for the dominance of Direct Instruction. Further research on models should emphasize these realities. Teachers did show interest in models in an inverse relationship to the models they most frequently employ indicating both awareness and eagerness about the possibilities for teaching (See Table 23). This fact indicates that

teachers themselves desire this knowledge and are aware that they lack it. If their current teacher training is not providing this knowledge, then it is reasonable that further research should focus on how to utilize training programs for models instruction.

APPENDIX A **TEACHING MODELS SURVEY**

GENDER: ☐ FEMALE
☐ MALE

YEARS OF SECONDARY TEACHING EXPERIENCE: ☐ 0-5 YEARS
☐ 6-10 YEARS
☐ 11-15 YEARS
☐ 16-20 YEARS
☐ 21-25 YEARS
☐ 26+ YEARS

SCHOOL: _____

SUBJECT/TEACHING AREA: _____

INSTRUCTIONS: Please mark an "x" in the column of the choice which most accurately reflects the amount of time you have used each teaching model.

Models of Teaching	3 or more times/week	1-2 times/week	1-2 times/month	1-2 times/year	Never	Not Familiar with Model
Cooperative Learning						
Direct Instruction						
Advance Organizers						
Role-Playing						
Concept Formation						
Concept Attainment						
Mnemonics						
Inquiry						
Synectics						
Classroom Discussion						
Mastery Learning						
Simulation						

Please answer the following:

For the models you reported using, which method of training was most influential?

_____ Inservice Training

_____ Undergraduate Instruction

_____ Workshops

_____ Graduate Instruction

_____ Self-Study

_____ Post-Graduate Instruction

_____ Other. Please Specify: _____

For the model you use most frequently, why do you prefer it? Please check all that apply.

The model I use most frequently...

_____ helps me to control the students.

_____ allows me to cover required material most effectively.

_____ is comparable to methods used by my peers.

_____ is approved by educators I respect.

_____ allows me to quickly assess student learning.

_____ Other. Please Specify: _____

Which of the models would you like to know more about? (Check any two)

_____ Cooperative Learning

_____ Concept Formation

_____ Synectics

_____ Direct Instruction

_____ Concept Attainment

_____ Classroom
Discussion

_____ Advance Organizers

_____ Mnemonics

_____ Mastery
Learning

_____ Role-Playing

_____ Inquiry

_____ Simulation

Thank You for your participation.

Works Consulted

- Ainscow, Mel. "Effective Schools for All: An Alternative Approach to Special Needs in Education." *Effective Schools for All*. Ed. Mel Ainscow. London: David Fulton, Publishers, 1991. 1-19.
- Armstrong, Thomas. *Multiple intelligences in the classroom*. Alexandria, VA: Association of Supervision and Curriculum Development, 1994.
- Ausubel, D.P. "The Use of Advance Organizers in the Learning and Retention of Meaningful Verbal Material." *Journal of Educational Psychology* 51 (1960): 267-272.
- Bolman, Lee G. and Terrence E. Deal. *Becoming a Teacher Leader: From Isolation to Collaboration*. Thousand Oaks, CA: Corwin Press, 1994.
- Bruner, J., J.J. Goodnow, and G.A. Austin. *A Study of Thinking*. New York: Science Editions Inc., 1967.
- Collins, Catherine, and Douglas Frantz. *Teachers Talking Out of School*. Boston: Little, Brown and Company, 1993.
- Clark, Leonard H. and Irving S. Starr. *Secondary and Middle School Teaching Methods*. New York: Macmillan Publishing Company, 1991.
- Cuban, Larry. *How Teachers Taught*. New York: Teachers College Press, 1993.
- Dewey, J. *Democracy in Education*. New York: Macmillan, Inc., 1916.
- Dill, David, and Associates. *What Teachers Need to Know: The Knowledge, Skills, and Values Essential to Good Teaching*. San Francisco: Jossey-Bass Publishers, 1990.
- Dunkin, M.J., and B.J. Biddle. *The Study of Teaching*. New York: Holt, Rinehart, &

- Winston, 1974.
- Gage, N.L. *The Scientific Basis of the Art of Teaching*. New York: Teachers College Press, 1978.
- Gagne, R. *The Conditions of Learning*. New York: Holt, Rinehart, & Winston, 1965.
- Glasser, W. *Schools Without Failure*. New York: Harper and Row, 1969.
- Goodlad, John I. *A Place Called School: Prospects for the Future*. New York: McGraw-Hill Book Company, 1984.
- Gordon, W. J. J. *Synergetics*. New York: Harper & Row, 1961.
- Guetzkow, H., et al. *Simulation in International Relations*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1963.
- Hamachek, Don. *Psychology in Teaching, Learning, and Growth*. Boston: Allyn and Bacon, 1990.
- Heaton, Ruth M., and Magdalene Lampert. "Learning to Hear New Voices: Inventing a New Pedagogy of Teacher Education." Eds. D.K. Cohen, M.W. McLaughlin, and J.E. Talbert. *Teaching for Understanding: Challenges for Policy and Practice*. San Francisco: Jossey-Bass Publishers, 1993. 43-83.
- Hergenhahn, B.R., and Matthew H. Olson. *An Introduction to Theories of Learning*. Englewood Cliffs, NJ: Prentice-Hall, 1993.
- Hunt, D. E. *Matching Models in Education*. Toronto: Ontario Institute for Studies in Education, 1971.
- Johansen, John H., Harold W. Collins, and James H. Johnson. *American Education: An Introduction to Teaching*. Dubuque: Wm. C. Brown Company, 1982.

- Johnson, D. W., and R.T. Johnson. *Cooperation and Competition: Theory and Research*. Edina, MN: Interaction Book Company, 1990.
- . *Learning Together and Alone: Cooperative, Competitive, and Individualistic Learning*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1986.
- . "Unleash the Power of Cooperative Learning." *The School Administrator* Mar. 1988: 21-24.
- Johnson, D.W., R.T. Johnson, and Edythe Johnson Holubec. *Circles of Learning: Cooperation in the Classroom*. Edina, MN: Interaction Book Company, 1986.
- Joyce, B. R., and B. Harootunian. *The Structure of Teaching*. Chicago: Science Research Associates, 1967.
- Joyce, B. R., R.H. Hersh, and M. McKibbin. *The Structure of School Improvement*. New York: Longman, Inc., 1983.
- Joyce, B. R., and B. Showers. *Power in Staff Development Through Research on Training*. Washington: Association for Supervision and Curriculum Development, 1983.
- . *Student Achievement Through Staff Development*. White Plains: Longman, Inc., 1988.
- Joyce, B. R., and M. Weil. *Models of Teaching*. Needham Heights, MA: Allyn and Bacon, 1992.
- Levin, M. E., and J.R. Levin. "Scientific Mnemonics: Methods for Maximizing More Than Memory." *American Educational Research Journal* 27 (1990): 301-321.
- Lorayne, H., and J. Lucas. *The Memory Book*. New York: Ballantine Books, 1966.

- Lortie, D. C. *Schoolteacher*. Chicago: The University of Chicago Press, 1975.
- Louis, K. S., and M. B. Miles. *Improving the Urban High School*. New York: Teachers College Press, 1990.
- Mahoney, M., and C. Thorensen. "Behavioral Self-Control: Power to the Person."
Educational Researcher 1 (1972) : 5-7.
- Marzano, R. J. *A Different Kind of Classroom: Teaching With Dimensions of Learning*.
Alexandria, VA: Association of Supervision and Curriculum Development, 1992.
- Maslow, A. *Toward a Psychology of Being*. New York: Van Nostrand, 1962.
- McNeil, Linda. *Contradictions of Control: School Structure and School Knowledge*.
New York: Routledge, 1988.
- National Council of States on Inservice Education (1980). *Providing leadership for staff
development and inservice education*. Syracuse, NY: Syracuse University School of
Education.
- Ohio State. Ohio Department of Education. *Ohio Educational Directory*. Columbus,
OH: State of Ohio, 1993.
- Oliver, D., and J.P. Shaver. *Cases and Controversy: A Guide to Teaching the Public
Issues Series*. Middletown, CT: American Education Publishers, 1971.
- . *Teaching Public Issues in the High School*. Boston: Houghton Mifflin Company,
1966.
- Pauly, Edward. *The Classroom Crucible: What Really Works, What Doesn't, and Why*.
New York: Basic Books, 1991.
- Piaget, J. *The Child's Conception of the World*. Atlantic Highlands, NJ: Humanities

- Press, Inc., 1960.
- . *The Origins of Intelligence in Children*. New York: International University Press, 1952.
- Piaget, J., and B. Inhelder. *The Psychology of the Child*. New York: Basic Books, 1969.
- Pressley, M., J. R. Levin, and H.D. Delaney. "Mnemonic Keyword Method." *Review of Educational Research* 52.1 (1982) : 61-91.
- Robinson, Sharon P. "Forging a New Agenda for Educational Research." *Phi Delta Kappan* 77.1 (1993): 15-16.
- Rhine, W. Ray ed. *Making Schools More Effective*. New York: Academic Press, 1981.
- Rogers, C. *Freedom to Learn for the Eighties*. Columbus: Charles E. Merrill, 1982.
- . *On Becoming a Person*. Boston: Houghton Mifflin Company, 1961.
- Sarason, Seymour B. *The Predictable Failure of Educational Reform*. San Francisco: Jossey-Bass Publishers, 1990.
- Schwab, J. *Biological Sciences Curriculum Study: Biology teachers' handbook*. New York: John Wiley and Sons, Inc., 1965.
- Seymour, Daniel, and Terry Seymour. *America's Best Classrooms: How Award-Winning Teachers Are Shaping Our Children's Futures*. Princeton: Peterson's Guides, 1992.
- Shafel, F., and G. Shafel. *Role Playing in the Curriculum*. Englewood Cliffs, NJ: Prentice-Hall, 1982.
- Shulman, Lee S. "Research on Teaching: A Historical and Personal Perspective." *Effective and Responsible Teaching*. Eds. Frank K. Oser, Andreas Dick, and

- Jean-Luc Patry. San Francisco: Jossey-Bass Publishers, 1992.
- Sizer, Theodore R. *Horace's Compromise: The Dilemma of the American High School*. Boston: Houghton-Mifflin, 1984.
- . *Horace's School: Redesigning the American High School*. Boston: Houghton-Mifflin, 1992.
- Skinner, B. F. *The Technology of Teaching*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1968.
- Slavin, R. E. *Cooperative Learning*. New York: Longman, Inc., 1983.
- . "Cooperative Learning and the Cooperative School." *Educational Leadership* Nov. 1987: 7-13.
- Suchman, R. J. *The elementary school training program in scientific inquiry*. Report to the U. S. Office of Education, Project Title VII. Urbana: University of Illinois, 1962.
- Taba, H. *Teaching Strategies and Cognitive Functioning in Elementary School Children*. (Cooperative Research Project 2404.) San Francisco: San Francisco State College, 1966.
- Tennyson, R. D. & Cocchiarella, M. "An Empirically Based Instructional Design Theory for Teaching Concepts." *Review of Educational Research* 56 (1986) : 40-71.
- Thelen, H. *Classroom Grouping for Teachability*. New York: John Wiley and Sons, Inc., 1967.
- . *Dynamics of Groups at Work*. Chicago: University of Chicago Press, 1954.
- . *Education and the Human Quest*. New York: Harper and Row, 1960.
- United States. U.S. Department of Education Office of Educational Research and

R002635183

Improvement. *America's Teachers: Profile of Profession*. Washington, D.C.:

National Center for Education Statistics, 1993.

Welker, Robert. *The Teacher As Expert: A Theoretical and Historical Examination*.

Albany: State University of New York Press, 1992.

White, S., and B. White. *Childhood: Pathways of Discovery*. New York: Harper and

Row, 1980.

Wilson, Kenneth G. and Bennett Daviss. *Redesigning Education*. New York: Henry Holt

and Company, 1994.