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IMPROVING CRITICAL THINKING SKILLS USING PAIDEIA SEMINARS IN A SEVENTH GRADE LITERATURE CURRICULUM

bу

Stephanie A. Tarkington

A dissertation submitted in partial fulfillment of the requirements for the degree of

> Doctor of Education University of San Diego 1988

Doctoral Committee:

Robert L. Infantino, Ed.D., Director Edward F. DeRoche, Ph.D. Edward Kujawa, Jr., Ph.D.

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# Improving Critical Thinking Skills Using Paideia Seminars in a Seventh Grade Literature Curriculum

Tarkington, Stephanie A., Ed.D. University of San Diego, 1988 Director: Robert L. Infantino, Ed.D.

There are many programs which purport to teach thinking skills. If thinking skills or reasoning, logic, explaining, judging, and deciding can be taught, are there some ways to teach thinking that are more effective than other ways?

The purpose of this study was to determine the effects of Paideia seminars on the critical thinking skills of seventh grade students. Paideia seminars are discussions held in a seminar format and involve active participation on the part of students and teachers. The format for the Paideia seminars was taken from <u>The Paideia Proposal: An</u> Educational Manifesto (Adler, 1982).

There were four main hypotheses divided into subgroups by gender and ability levels of high, average, and low. The hypotheses addressed the results of the analysis of the pretest and posttest data of experimental and control group students on the Cornell Critical Thinking Test, Level X, and the significance of the mean gain scores.

The results of the quantitative data were inconclusive. The experimental group made significant gains in critical thinking skills in comparison to one control group but not to the second control group. Students in the low ability groups made greater mean gains in critical thinking skills than either the average or high ability group students. The mean gain scores of females in the experimental group were significant when compared to the mean gain scores of males in the experimental group on the Cornell Critical Thinking Test, Level X.

The qualitative data from interviews of the two seminar teachers and the students in the experimental group provided more conclusive evidence of the worth of participation in Paideia seminars. Both the teachers and the students expressed positive attitudes and provided feedback on successful aspects of the seminars.

Teachers of the experimental group students learned the skills necessary to facilitate Paideia seminars which promoted critical thinking skills. The debriefing which followed each seminar experience helped these teachers increase their skills in assessing, organizing, and questioning. Students who participated in the Paideia seminars stated that the experience of reading and discussing a piece of literature helped them to better understand the text, improved their grades in writing assignments, promoted better study and work habits, and increased their willingness to accept the points of view espoused by other students.

### DEDICATION

To my parents Maria and Stanley Cookson I dedicate this dissertation.

By example, you instilled in me

a lifelong love of learning.

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#### ACKNOWLEDGEMENTS

A dissertation is a cooperative venture and adventure (depending on the day!). I welcome this opportunity to acknowledge and thank the many people who made it possible for me to take this learning journey.

The seminar teachers, Frederick D. Balcom and Kim Hamilton Turner, with their energy and vision, provided an environment and the seminar treatment so students would have the opportunity to grow intellectually, socially, and emotionally. I will be forever grateful for the support, ideas, and commitment these two dedicated teachers gave to me, to their students, and to fulfulling the goals of the Paideia Proposal.

My committee director, Dr. Robert Infantino, possesses the art and skills of a master teacher. His leadership through the sometimes confusing dissertation process had all the elements of a great teacher: caring, nurturing, guiding, probing, explaining, and finally, allowing me to make the necessary reasoned decisions. With guidance from Bob, I grew personally and professionally and became more aware of my philosophy and goals as a teacher, administrator, and citizen. I will always be appreciative of the time Bob willingly and sometimes wearily gave to editing and thinking about this dissertation. I owe him a debt of gratitude.

Whenever the question was on statistics, Dr. Edward Kujawa was ready with a recommendation. Since I am more skilled in qualitative analysis than quantitative analysis, Ed Kujawa's advice was not only appreciated but essential for the success of this dissertation. I thank

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him for his suggestions on time management and organization of this dissertation as well.

With his busy schedule, Dean Edward DeRoche consented to add his expertise to my dissertation committee. Dr. DeRoche has a deep interest in the subject of thinking skills and is committed to an equal education for all students. He supports the espoused ideals of the Paideia Proposal and I greatly appreciate his suggestions, insights, and support for me throughout my doctoral program.

Besides the people directly involved with my research study, I would like to thank all my loyal friends who supported me in various ways throughout this doctoral process. Some friends gave me yellow writing pads on my birthday; some wrote me notes instead of telephoning; others helped through study and discussion groups; and still other friends read draft after draft of this dissertation all in an attempt to help me complete this doctoral program. Their support and reasoning was often what kept me going through the frustrating and angry moments. Thank you, friends, for helping me stay on task!

Support for continuing education and professional growth is a credo in the Vista Unified School District where I am a principal. I acknowledge and thank Dr. Gary Olson, immediate past superintendent, Rene Townsend, new superintendent, and Peter McHugh, assistant superintendent, for their continuing support of new instructional methodology and for their vision of an education of equality and equity for all students in the Vista Unified School District.

Last, but not least, I want to thank my husband, Al Tarkington, for

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his love, his encouragement, and his frustrated anger with me which all helped me toward fulfilling my goal to finish this dissertation. It was a long and worthwhile journey for me.

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#### CHAPTER I

#### Introduction

#### Importance of the Subject

Beginning with A Nation At Risk (1983) and including the Report of the California Commission on the Teaching Profession, Who Will Teach Our Children (Commons Report, 1985), John Goodlad's (1984) A Place Called School, and Theodore Sizer's (1984) book on high schools, Horace's Compromise, educators and national state commissions have been looking at education in America and finding it wanting. Hart (1986) stated in an article on thinking skills, "the flood of studies and reports issued in the last three years alone seem to leave no reasonable doubt that our schools are critically inadequate" (p. 45). All of the reports expressed the concern that students were being graduated with less than adequate basic skills. The Commons Report stated "the most fundamental requirement for a democracy is an educated citizenry capable of informed judgment on public issues" (p. 9). It concluded, as Goodlad and Sizer did, that methods would have to change if we wanted students "to develop their ability to think critically and creatively, to solve unexpected problems, to learn how to learn, to obtain and use information, and to express ideas clearly in speech and writing" (p. 10). Goodlad (1984) stated, "one of the most disturbing finds...is the narrow range of

teaching practices used by teachers in our sample. They lectured, monitored seatwork, and engaged in activities requiring only rote learning" (p. 298).

Students' inability to think critically is one of the many issues considered in the recent studies and reports on schools and schooling. Solutions to these myriad problems range from increasing teacher salaries and reducing class sizes to increasing staff development time. Solutions are the order of the day. One such solution to the problems faced by public education is to add the teaching of thinking skills to the curriculum. Numerous programs, theories, and approaches have been designed and postulated. "Right now most programs are underevaluated," stated David Perkins in an interview with Ron Brandt (Brandt, 1986, p. 18).

Evaluation processes have not advanced at the same rate as the plethora of thinking skills programs that are now available to school personnel. Administrators and teachers have been solicited to take advantage of the many programs designed to enhance the higher order thinking skills of their students. Teachers using these programs may not feel qualified to design evaluation systems and have little time for non-instructional tasks. Changes or growth in thinking skills can be difficult to measure and to separate into discrete, easily assessed skills.

Interest in teaching students how to think is not new. Dewey (1916) wrote that learning information without thinking, in a rote manner, is a "mind-crushing load" (p. 179). Rote learning leads the learner to believe falsely that he has learning of value. Methods that

do not include thinking skills "weaken vigor and efficiency of thought" (p. 190). Rote knowledge has no place to grow and expand. It is designed to be sufficient unto itself and not meant to help in continuing intellectual growth and development.

Commissions and studies question how far educational methodologies and approaches have progressed since Dewey (1916) said, "there is not adequate theoretical recognition that all which the school can or need do for pupils, so far as their minds are concerned, is to develop their ability to think" (p. 179). Both developmental psychology and brain research have progressed greatly in the past 60 years, but educational settings and methodologies have remained substantially the same as when Dewey studied schooling.

This research can provide motivation and direction for educational leaders and strategists, curriculum planners, and for future researchers in such areas as learning theory, motivation theory, and practice theory. The acquisition of critical thinking skills at the level possible for each student is an educational goal of merit and possibility. This goal fits like a puzzle piece into the larger framework of the educational picture.

#### Statement of the Issue

One of the ten principles put forth by Carl Rogers (1969) to help ensure learning stated, "learning is facilitated when the student participates responsibly in the learning process" (p. 162). Effective learning is the purpose behind other espoused teaching methods such as

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learn by doing and the experiential approach. People seem to learn more effectively and the learning has more lasting results when people are actively involved in the learning process and can see purpose for the learning (Rogers, 1969).

This principle of learn by doing is echoed by Mortimer Adler in <u>The</u> <u>Paideia Proposal</u> (1982) where he noted that "all genuine learning is active, not passive. It involves the use of the mind not just the memory. It is a process of discovery" (p. 50). Adler noted that "only the student whose mind has been engaged in thinking for itself is an active participant in the learning process that is essential to basic schooling" (p. 32).

Goodlad's (1984) research for <u>A Place Called School</u> was prompted by three purposes. One of those purposes was to impress on schools and communities the value of viewing their local issues, conditions, and needs within the background of the national agendas. The national agendas should be used as indicators not as imperatives.

While setting the stage for local schools and districts to formulate their own personal goals and objectives for school improvement, Goodlad (1984) did include a chapter in his book on how to apply some of his data to local school improvement. One area for improvement suggested by his data was that a "major shortcoming of the schools' subject offerings was the common failure of the learning activities to connect the student with 'the structure and ways of thinking'" (p. 291). Some simple, straightforward methods of increasing the critical thinking skills of teachers and students are the programs

most likely to find successful implementation within our schools. Financial commitment, training, time allocation, and ease of delivery will all influence whether a critical thinking skills program will actually be implemented or just occasionally used by teachers.

Strategic planning is an approach used to help ensure that an organization, like a school district, is able to meet short and long range goals and objectives in an effective and timely manner. Strategic planning involves needs assessments, goal identification, strategy identification, a holistic approach, formative and summative evaluation for the purposes of making decisions, and complete awareness and routine involvement of all members of the organization concerning the goals to be achieved.

#### Purpose of the Study

The purpose of this study is to determine the effects of Paideia seminars on the critical thinking skills of seventh grade students. Paideia seminars are discussions held in a seminar format and involve active participation on the part of students and teachers. The use of the seminar approach is the third in a trilogy of teaching and learning modes that are the heart of The Paideia Proposal (Adler, 1982).

The format for the student seminars is taken directly from Adler's (1982, 1984) suggestions in the Paideia books. The purpose of using a seminar approach is to aid discussions and learning by "drawing on the students' skills of reading, writing, speaking, and listening, and using them to sharpen the ability to think clearly, critically, and

reflectively. It teaches participants how to analyze their own minds as well as the thoughts of others" (Adler, 1982, p. 30).

This study will attempt to determine how much a seminar approach, conducted as part of a literature program as presented in The Paideia Proposal (Adler, 1982), can increase students' critical thinking skills. Briefly, the Paideia Proposal is a framework for a liberal and humanistic course of study that integrates acquiring knowledge through a direct instruction approach in basic skill areas like reading, writing, and mathematics, practicing those skills with a coaching approach from teachers, and, eventually, developing higher order thinking skills by using knowledge and skills creatively, divergently, and with reason in a discussion format. The discussions enable students to use their listening, reading, and speaking skills to develop their thinking skills. The "three different ways the mind can be improved are (1) by the acquisition of knowledge; (2) by the development of intellectual skills; and (3) by the enlargement of understanding, insight and aesthetic appreciation" (Adler, 1982, p. 22). The seminars in literature are designed to facilitate this last area of learning to learn. Adler (1982) stated: "The interrogative or discussion method of teaching to be employed...stimulates the imagination and intellect by awakening the creative and inquisitive powers. In no other way can children's understanding of what they know be improved, and their appreciation of cultural objects be enhanced" (p. 29).

<u>Caught in the Middle: Educational Reform for Young Adolescents in</u> California Public Schools (Middle Grade Task Force, 1987), the report

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from Superintendent Bill Honig's task force on middle level education, repeatedly emphasizes with its twenty-two principles and recommendations, an integrated approach to teaching young adolescents. The report states the importance of equal educational access in order for all students to "develop their intellectual capacities through reasoned thought and to use this ability in arriving at personal decisions about issues which have moral and ethical consequences" (Middle Grade Task Force, 1987, p. 20). Students in the seventh grade are at a unique time in their lives. The school environment proposed for most middle level schools is described as sensitive, well-organized, intellectually stimulating, and meaningful. "The most effective instruction at the middle grade level emphasizes academic integrity while making an emotional connection with students" (Middle Grade Task Force, 1987, p. v). Brain periodization research reported by Epstein and Toepfer (1978), and its subsequent application to middle school students by Toepfer (1981), indicates students in the seventh grade are at a period in their brain development where learning what to do with what they have already learned may be more beneficial and more meaningful than the acquisition of new knowledge. "The teaching of cognitive information should emphasize skills already learned" (Epstein & Toepfer, 1978, p. 660). Therefore the seminars should be conducted to enable students to use reasoning skills, listening skills, organization skills, and speaking skills on an information level that is familiar to them.

The model for this study, The Paideia Proposal: An Educational

<u>Manifesto</u> (Adler, 1982) was selected because of its two precepts: an education of equality and an education of quality for all students. Learning will take place in an honest give and take of ideas and opinions based on careful reading and listening in a seminar format. Discussion will enable students to gain respect for and understanding of their own ideas and the ideas of others.

This study is a small part of a large plan to make schools the most effective they can be in meeting the educational needs of the students that are served. If the results show that students increase their ability to think critically by active involvement in literary analysis through seminar discussions, then the methodology, scope and sequence, and teacher training should be studied through subsequent research into additional programs.

One aim of this research is to impact teachers less with theory and more with effective learning processes and to encourage replication of this study for further insight into what kind of learning experiences result in increased ability in the area of critical thinking. The basically humanitarian goals of the Paideia Group envision a democratic society with equal justice and opportunity for all. Broad application of the third kind of learning presented in <u>The Paideia Proposal</u> (Adler, 1982, p. 22) will help bring these goals to fruition.

#### Hypotheses

The following hypotheses will be tested to determine the effects of a Paideia seminar approach to the teaching of literature on the critical

thinking skills of seventh grade students.

HO<sub>1</sub> There will be no significant difference in the mean gain scores of the experimental group on the Cornell Critical Thinking Test, Level X, or the control groups on the same test.

HO<sub>2a</sub> There will be no significant difference in the total mean gain scores of the experimental group males on the Cornell Critical Thinking Test, Level X, when compared to the total mean gain scores of control group 1 or control group 2 males on the same test.

HO<sub>2b</sub> There will be no significant difference in the mean gain scores of experimental males who scored high on the Cornell Critical Thinking Test, Level X, and males in control group 1 or control group 2 with similar pretest scores.

HO<sub>2C</sub> There will be no significant difference in the mean gain scores of experimental males who scored average on the Cornell Critical Thinking Test, Level X, and males in control group 1 or control group 2 with similar pretest scores.

HO<sub>2d</sub> There will be no significant difference in the mean gain scores of experimental males who scored low on the Cornell Critical Thinking Test, Level X, when compared with males in control group 1 or control group 2 with similar pretest scores.

HO<sub>3a</sub> There will be no significant difference in the total mean gain scores of experimental group females on the Cornell Critical Thinking Test, Level X, when compared to the total mean gain scores of control group 1 and control group 2 females on the same test.

 $^{\rm HO}{}_{\rm 3b}$  . There will be no significant difference in the total mean

gain scores of experimental females who scored high on the Cornell Critical Thinking Test, Level X, when compared to females in control group 1 or control group 2 with similar pretest scores.

<sup>HO</sup><sub>3C</sub> There will be no significant difference in the mean gain scores of experimental females who scored average on the Cornell Critical Thinking Test, Level X, and females in control group 1 or control group 2 with similar pretest scores.

<sup>HO</sup><sub>3d</sub> There will be no significant difference in the mean gain scores of experimental females who scored low on the Cornell Critical Thinking Test, Level X, when compared with females in control group 1 or control group 2 with similar pretest scores.

HO<sub>4</sub> There will be no significant difference in the mean gain scores of experimental group males on the Cornell Critical Thinking Test, Level X, when compared to experimental group females.

#### Definition of Terms

<u>Critical Thinking</u>: "Critical thinking is the reasonable formulating and assessing of statements. Critical thinking is the process of reasonably deciding what to believe" (Ennis, 1983, p. 2).

<u>Paideia</u>: "From the Greek pais, paidos: the upbringing of a child" (Adler, 1982).

<u>Seminar</u>: (1) The seminar approach is the dialectical method used by Socrates that can be described as "conversations conducted in an orderly manner by the teacher who acts as leader or moderator of the discussion" (Adler, 1984, p. 17). (2) A small group of students engaged

in advanced study and original research under a member of the faculty and meeting regularly to exchange information and hold discussions (Flexner, 1987).

<u>Literature Course</u>: The study of prose and poetry intended to instill greater literary understanding and appreciation and to expose students to a variety of literary styles, options, and variety of purposes for literature.

<u>High Score</u>: A score which is at least one standard deviation above the mean score as listed on the Table of User Norms in the Manual for the Cornell Critical Thinking Test, Level X, page 12.

<u>Average Score</u>: A score which is between one standard deviation above and one standard deviation below the mean score as listed on the Table of User Norms in the Manual for the Cornell Critical Thinking Test, Level X, page 12.

Low Score: A score which is at least one standard deviation below the mean score as listed on the Table of User Norms in the Manual for the Cornell Critical Thinking Test, Level X, page 12.

#### Limitations

 The results of this study are only generalizable to seventh grade students.

2. It is a limitation of this study that teachers of the two control groups cannot be exactly matched to the teachers of the experimental group in number of years teaching, sex, number of years teaching seventh grade literature, amount and type of professional

training, and teaching styles.

3. Measurement error can occur because assessment instruments are not absolutely accurate.

4. It is a limitation of this study that the two teachers of the experimental group were volunteers and were not the result of random selection.

5. The researcher is employed at one of the participating schools and is acquainted with most of the teachers of the experimental and control groups. This may introduce some bias into the investigative process even though the researcher made every effort to be objective.

#### CHAPTER II

#### Review of the Literature

Whenever possible, students should be given every opportunity to advance ideas of their own and to give reasons to support them, as well as opportunities to hear the objections of other students. If this is done in an atmosphere of cooperation and while learning critical analytic terms, students will begin to use critical distinctions when defending their ideas. (Richard Paul, 1984, p. 7)

The review of the literature will be covered under four major areas: (a) the need to teach critical thinking skills; (b) the Paideia proposal and the study of literature; (c) gender issues; and (d) critical thinking skills and the use of discussion in the literature curriculum.

#### The Need to Teach Critical Thinking Skills

The purpose of education and the right of students to an education of value and usefulness continues to make national agendas. The concern is twofold: equality of opportunity to learn for all students, coupled with the greater issue of what will be an education of value. There has

been an emphasis on learning basic skills and concern has focused on the number of students who graduated from high school without being able to read effectively or compute simple mathematical problems. The equity in education conflict often centers on the tendency to teach toward the middle which, in effect, disenfranchises many students at the lower end of the school achievement scale. Researchers and practitioners are agreed that "without deliberate attention to the process of learning how to think, the ideal of learning as a process of growth cannot be realized" (Lazerson, McLaughlin, McPherson & Bailey, 1985, p. 71). Programs which incorporate thinking strategies, even for learning rote material, like <u>Tactics for Thinking</u> (Marzano and Arredondo, 1987), will prepare students to use knowledge to enhance future learning.

The hope of many educators is that both equality and quality of education will be served by the recurrence of interest in the teaching and learning of critical thinking skills. Educational fads come and go with regularity. Perkins (1986) hoped that interest in critical thinking skills is a "fruitful fad" (p. 18). He would agree with Joyce (1985) that too often we try to "reform the school without the emotional and material investments to really change it" (p. 4). Following a school needs assessment, the development of an individual school plan, and adequate staff development, Perkins (1986) strongly recommended that a thinking skills program be assessed while the program is in progress (formative) and again at the end of the program (summative). The number of programs and approaches available to teach critical thinking skills demands a rigorous evaluation to determine the relative strengths and

limitations of selected programs. Bracey (1985) said we need "time to reflect on the information at hand, synthesize it and generate more than a few concepts to explain it and direct further inquiry" (p. 654). Program evaluation will determine if there has been sufficient match between school, student needs, and the selected program. The national reports are directing educators toward excellence. Only after careful consideration of all aspects of emerging issues should schools begin their own renewal efforts.

Educators from Dewey (1916) to Sternberg (1984) equate a person's ability to think critically with greater personal, economic, and political freedom. The ability to make decisions supported by a value system, with critical assessment of issues and opinions, is considered the right and responsibility of every free person. Piaget (1928) saw the emerging need in young children to acquire critical thinking skills when he noted that "only under pressure of arguments and opposition will he seek to justify himself in the eyes of others and thus acquire the habit of watching himself think" (p. 137). In this spirit, Sternberg (1984) advocated teaching thinking skills and stressed building a program that is both psychologically and educationally sound, and one that is socioculturally appropriate (p. 47).

A study by the National Education Association (NEA) (Cornish, 1978) had similar recommendations. A committee composed of successful, well-known individuals from education, business, government, together with 96 high school students looked at future educational needs. The emphasis of their conclusions was multicultural and communication

oriented. Specifically, the first major point stated that "good guidance and better preparation are needed in the skills of human relations, in dealing with uncertainties, and in learning to choose wisely among alternatives" (p. 108). They also noted the "need to make education a continuing, a lifelong process" (p. 110).

In agreement with the lifelong need for thinking and reasoning skills, Paul (1984) divided critical thinking skills into what he called a weak sense or strong sense. It is the strong sense that he hoped would eventually prevail. He was willing to accept program development in the weak sense at the beginning, much as Adler (1984) accepted "approximations and accommodations in implementing the ideal" (p. xi). Paul's strong sense implementation would require an indepth analysis, commitment, and longevity. In the strong sense, "critical thinking skills are understood as a set of integrated macro-logical skills ultimately intrinsic to the character of the person and to insight into one's own cognitive and affective processes" (Paul, p. 5). Before students can hope to attain critical thinking skills in Paul's strong sense definition, educators will have to review educational philosophy, purposes, and goals for students in order to plan appropriately and carefully.

The ability to think about what is known and not just to acquire knowledge in isolation is said to be most valuable through life. "Our students would gain more power by mastery of a few cognitive processes of high transferability rather than by trying to master discrete applications" (Glatthorn, 1980, p. 105). As teachers challenge students

to think, rather than only to regurgitate facts and figures, both teachers and students will become more skilled thinkers. Paul (1984) recommended that teachers assess their own ability to teach critical thinking skills, determine what types and levels of critical thinking are appropriate for the functioning levels of their students, and from this, develop thinking skills approaches for their students.

Studies by Oxman and Michelli (1985) and Wilen (1985) demonstrated an interest in training teachers to enhance their own critical thinking skills in preparation for their raising the levels of critical thinking skills of their students. Numerous studies have constructed paradigms for the teaching of critical thinking skills to teachers so that they could teach critical thinking skills to their students (Crisp, 1968; Evans, 1971; Lawson, 1985; Lysy, 1983). Programs which provide useful strategies to teachers in the area of thinking skills include the Great Books training in interpretive questioning and <u>Tactics for Thinking</u> (Marzano and Arredondo, 1986).

Strong, Silver, and Hanson (1985) suggested that teachers develop strategies "to vary the forms of instruction to help expand their students' styles of thinking" (p. 10). Numerous strategies are available and teachers need to develop the skill in matching strategies to the content objective, the student learning style, and to long range goals. As previously noted, Goodlad (1984) made much the same suggestion following his extensive study of schools. He found that a "prime curricular weakness" was that "the organization and presentation of topics were not clearly connected to the concepts, ideas, and modes

of thought constituting major domains of knowledge" (Goodlad, 1984, p. 358). The didactic method of instruction was the predominant mode used by teachers to instill knowledge. Strong, Silver, and Hanson (1985) and Goodlad (1984) suggested that varying instructional strategies and methods would also vary the kind and degree of learning so that thinking and reasoning could be included. Delivery systems like mastery learning, when coupled with a variety of teaching strategies, can provide an effective environment for practicing thinking skills.

Not only do many researchers espouse the teaching of critical thinking skills, but many support a curriculum progression framework similar to the Paideia Proposal (Adler, 1982). The Paideia Proposal recommends a course of study and a model of learning that is made up of three interrelated stages. The stages are not independent, but build upon and compliment one another. The stages include learning new knowledge, practicing using knowledge, and expanding the skills of using knowledge into development of values and ideals through open discussion. Joyce's (1985) paradigm included these same aspects: "cultivation of the intellect...with the study of values, the mastery of information, and training in the basic subjects" (p. 4).

#### The Paideia Proposal and the Study of Literature

Nićkerson (1984) described schools in trouble when he stated: Our ability to deal effectively with the intellectually demanding problems that we encounter in life is as constrained by the lack of specific knowledge germane to those problems as

it is by the inadequacy of our general reasoning and problem solving skills. Knowledge and thinking ability are interdependent and mutually reinforcing. (p. 35)

This observation is at the heart of the Paideia Proposal (Adler, 1982). The Paideia Group researched, designed, and strongly recommended a three part, but not separate stage, program for learning. The three columns are "interconnected" and

the different modes of learning on the part of students and the different modes of teaching on the part of the teaching staff correspond to the three different ways in which the mind can be improved--(1) by the acquisition of organized knowledge; (2) by the development of intellectual skills; and (3) by the enlargement of understanding, insight, and aesthetic appreciation (p. 22).

<u>The Paideia Proposal</u> (Adler, 1982) supported the acquisition of basic knowledge and continued practice because both are necessary for advancement toward higher order thinking.

Adler (1984) stated that schools tend to assess and measure knowledge acquisition and the degree to which skills have been developed but rarely attempt to measure the third kind of learning. "The third kind is aided by Socratic questioning" (p. 180). The seminar approach is "what they need, and what would serve them most is their ability to use their minds to size up situations, overcome difficulties, solve problems and to employ their understanding of ideas to direct their lives and deal with life's tangled realities" (p. 183).
The kind of learning environment envisioned in the Paideia proposal is compatible with other models of teaching students to think. The model presented by Adler (1984) is "general,...liberal,...and humanistic" (p. 6). Following years of working with teachers in their teaching environment, Joyce (1985) stated, "we must create a school where the study of human thought is a central mission, where the cultivation of the intellect is woven with the study of values, the mastery of information, and training in the basic subjects" (p. 4). One of Goodlad's (1984) findings in his longitudinal and comprehensive look at elementary, middle, and high schools was a mixed message to educators, primarily classroom teachers, about the real, intended goal of schools. Teachers were encouraged to teach the basics but also expected to provide a nurturing, responsive, creative, and thinking environment. Goodlad (1984) said that if we continue to follow the trend toward rote knowledge then "the quality of educating in schools will not have improved...and quite conceivably it could be worse" (p. 19).

The Paideia proposal has received sufficient national attention for it to be included in studies which assess the impact of national reports. In a report on educational policy (Tarry, 1985), the Paideia Proposal recommendations were assessed along with other commission reports in order to compare common recommendations. All seventeen recommendations that were common among the five national and three state reports under consideration were outcome oriented, not process oriented. They included recommendations such as (1) increase the amount of

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5.8

homework, (2) lengthen the number of days in the school year, (3) remove tasks from teachers, and (4) improve student attendance. The spirit of learning to learn was missing and was replaced with expedient solutions.

In contrast to the quick solution orientation of the Tarry (1985) study are the purposes of a study by Ladner (1984) on the humanities. In this study the Paideia Proposal was one of several approaches considered by those who teach the humanities and need to "identify a common ground on which persons can gather to make responsible judgments about the quality of life in light of past traditions and the competing demands of the future" (abstract). A common frame of reference for further discussion and growth rather than a short term solution was sought. This approach to problem solving was supported by Goodlad (1983), Paul (1984) and Passmore (1980). One continuing demand Adler (1982) saw for the future was the ability of people to have the skills to learn through adult life. An education that values understanding knowledge, not just knowledge acquisition, will prepare students for adult learning and the demands of the future.

#### Gender and Thinking Skills

Understanding is a product of both the text and the prior knowledge and viewpoint that the reader brings to it. Men and women may read the same text differently" (Flynn & Schweickart, 1986, p. 3).

Gender is described as "one's psychological sense of one's self as female or male. Chromosomal sex is merely one influence on gender"

(Flynn & Schweickart, 1986, p. 13). Studies on gender tended to focus exclusively on differences. This expectation of differences rather than a more open mind set may affect what aspects of gender are actually scrutinized.

Maccoby and Jacklin (1974) reviewed and analyzed 2000 research efforts which studied various aspects of gender at all age levels. Their book is considered the definitive work on gender and was cited in almost all studies and articles used to review the literature on gender. In summary, Maccoby and Jacklin (1974) found little or no differences in such areas as social skills, degree of suggestibility, self esteem, rote learning, and analytic learning when they synthesized the findings from the 2000 studies.

Their review and analysis found that girls have an advantage over boys after about age 11 in verbal ability, scoring about "one-quarter of a standard deviation higher" (p. 351). Boys tend to excel in mathematical ability and visual-spatial ability especially after age 13. More significant than the differences in verbal ability were the kinds of differences. For teachers, it is more helpful to delineate the methods used by students to perform rather than merely knowing in what content areas students may excel.

Girls scored higher than boys on "tasks involving 'high-level' verbal tasks (analogues, comprehension on difficult verbal material, creative writing) as well as 'low-level' measures (fluency)" (p. 351). On the other hand, verbal processes are said to be "involved in the solution of mathematical problems" (p. 352) especially higher order

story problems. Since boys scored higher in mathematical areas after age 13, they are more likely practicing higher level verbal processing in this area of relative strength. While boys and girls score slightly differently on tests of verbal and mathematical skills, evidence is available to show that the reasons for the differences are probably more a function of interest than reasoning ability. Since these earlier studies, the issues of gender equity and gender ability have been sufficiently considered to have created a more enlightened mind set. Females may also be interested in mathematics but discouraged by the system (counselors, teachers, parents) from pursuing higher level math courses.

In reviewing the literature on sex differences in mathematics, Mayer (1983) found that results were often similar but the researcher's conclusions differed. In the studies that found boys' skills at mathematical problem solving becoming increasingly better as they approached their adolescent years, the statistical differences between males and females were small but favored males. Some studies focused on why there were sex differences and other studies simply reported results without citing implications. Many researchers noted differences, but did not take the opportunity to look at the larger issues such as the physical, intellectual, social, and emotional developmental stages of the students in their studies. Are the differences in the scores between males and females so significant that we should be concerned more with gender as the cause than we are with other possible causes for the differences in test scores? Mayer (1983) noted, for example, that

differences in scores on the California Assessment Program (CAP) had a high correlation with the number of years of education of the parents of the students taking the test. "Students who have well-educated parents score an average of 18 percentage points higher than those who have parents with less education...compare these differences to the sex difference of only 2 points" (p. 381).

The Center for the Advancement of Academically Talented Youth was established at Johns Hopkins University in 1979. The task of the Center was to find students of high mathematical, verbal, and/or general ability. One of the purposes of identifying large numbers of talented youth (85,000) was to develop educational opportunities that might not otherwise be provided for these students in their normal educational experience. The Johns Hopkins researchers studied the data on mathematically gifted males and females in the 11-14 year old range. "Many mathematically talented girls seem to have different needs from most mathematically talented boys (Benbow & Stanley, 1983, p. 210). The researchers developed all female math classes which emphasized cooperative problem solving, female career role models in mathematically appealing fields, and rewrote problems to appeal to females. The follow-up study found these seventh grade girls did not persist and succeed through high school in advanced math classes. These researchers postulated that "girls need more encouragement and attention than their male counterparts if they are to succeed" (p. 211). Perhaps females did not so much fail at advanced math as much as they chose to take more appealing courses. Why courses other than math are more appealing to

females is the question to answer.

In another Johns Hopkins study, Fox (George, Cohn, & Stanley, 1979) stated that "the extent to which sex differences in mathematical ability are related to sex differences in spatial-visualization is not yet known" (p. 116). It is clear from Maccoby and Jacklin's (1974) review that males reach greater mathematical heights than females. It is also clear they excel at visual-spatial tasks. What is less clear is why bright, talented females do not continue to excel in mathematical areas. "Whether or not these sex differences in performance on tests of specific abilities are innate or a result of differential learning experiences and socialization, or a combination of the two, is not entirely clear" (George, Cohn, & Stanley, 1979, p. 116). Basow's (1986) position agrees with Fox (George, Cohn, & Stanley, 1979) and Brophy and Good (Wilkinson & Marrett, 1985). These authors described experience and environment as probably accounting for the slight differences in ability between males and females in verbal and mathematical ability.

Research on sex differences finds that males and females indeed act differently. What is not as clear are the reasons males and females act as they do and the degree to which they are different. By focusing almost exclusively on the differences between the sexes, researchers are more apt to have been biased in that direction (Hall, 1984, and Basow, 1986). Basow (1986) was concerned when the premise of gender research focused on differences rather than outcomes. A mind set may surface and the researcher may not be aware of personal bias. Mind sets can be subtle predictors, making the research recommendations suspect and less

useful.

Errors in our thinking about gender affect not only students in the classroom but even the type of studies conducted by researchers. Teachers who are unaware that they promote a stereotypical picture of male and female roles are passing on those stereotypes to generations of students. Researchers, in turn, study boys and girls and reinforce the already biased literature on gender with results confounded by continual support of the gender stereotype.

Stereotypically biased behavior and reactions are not uncommon for teachers (Wilkinson & Marrett, 1985). Basow (1986) illustrated this when she stated "girls tend to be encouraged more than boys to develop interests and skills in the social areas" (p. 38). Many of the differences found between males and females in research studies could possibly be explained by comparing past experiences. Because studies of gender typically focus on differences rather than on similarities or outcomes, the relative importance of the differences may be overemphasized. At the particular time when differences in gender begin to appear in verbal and mathematical areas, the child is also experiencing unprecedented change in physical, intellectual, emotional, and social areas.

The subjects of this present research study are age 12 or 13. They are called transescents because as middle level students they are at an in-between age. These students are leaving childhood behind and moving toward adolescence. A transescent ranges from a "girl who plays with a Barbie doll to a girl who could enter a Miss America contest" and "kids

who guzzle cokes and those who will soon be incurable alcoholics" (Compton, 1978, p. 24). The issue of stereotypes is particularly cogent at this time because middle level students are deciding on values that they will use over a lifetime.

Maccoby and Jacklin (1974) found that sex differences often occurred "in a limited range of situations" and concluded that the "sweeping generalizations embodied in popular beliefs are not warranted" (p. 355). Additionally, they found that "there is no difference in how the two sexes learned. Whether there is a difference in what they find easier to learn is a different question" (p. 62).

While females have historically been considered more verbally precocious than males, the hard evidence is minimal and often contradictory. Sex related differences in verbal skills are very slight (Sherman, 1978). Brophy and Good (Wilkinson & Marrett, 1985) reviewed gender studies up to 1973. They found results similar to Maccoby and Jacklin (1974); that is, there was no sex difference in general intelligence and ability; however boys did not score as highly in reading and language arts as girls scored (p. 117). Brophy and Good (Wilkinson & Marrett, 1985) attributed this slight superiority of females in language arts and reading to cultural and societal reasons.

The typical student role in school was described as mature, orderly, and conforming (Wilkinson & Marrett, 1985, p. 118). Attending, listening, thinking, producing, and cooperating are all necessary daily performance traits. Students are also expected to be friendly, helpful and polite during their daily academic pursuits. This corresponds to how girls are encouraged to act from very early ages. Boys, on the other hand, have more trouble conforming to classroom expectations perhaps because their student role characteristics are not nurtured from infancy.

Pflaum, Pascarella, Boswick, & Auer (Wilkinson & Marrett, 1985) observed that "girls received more cues from teachers than did boys during reading instruction" (p. 131). Also, the better readers received cues from teachers more frequently. When subject matter was specifically isolated, studies found that in reading, elementary school teachers "had more academic contacts and spent more cognitive time with girls than boys but showed the opposite pattern with math" (Leinhardt, Seewald, & Engle, 1979, p. 435).

Basow (1966) stated that culture, environment and level and type of experience are more likely to be the cause of the subtle and slight differences in abilities that researchers find in males and females. Basow (1986) cited Bem's (1981) gender schema theory as support for her position. All societies sex type for the purpose of assuring appropriate sex roles at adulthood (Bem, 1981, p. 354). Bem (1981) also postulated that all children have a learned schema for evaluating, accessing, viewing, and processing information. Part of this schema processes information for sex typing. "A schema is a cognitive structure, a network of associations that organize and guide an individual's perceptions. A schema functions as an anticipatory structure...ready to assimilate incoming information in schema-relevant terms" (p. 355). The obvious advantage of a gender schema is that

children, pre-adolescents, adolescents, and adults have a systematic, consistent, and personal process to help them categorize, evaluate, and make decisions based on criteria that are useful and meaningful to them in their society.

The past 20 years in particular have witnessed attempts by many groups and individuals to make gender schemas more honest and less stereotypic. Males and females are different in many discernible and undiscernible ways. These differences should not be used to prevent or thwart individuals from reaching their full potential in any area of endeavor including all available areas of interest and skill.

The danger in using a gender schema to process information exists when the individual limits options or choices because the options and choices are associated with the opposite sex in their schema. "Sex-typed individuals are seen as differing from other individuals not primarily in terms of how much masculinity or femininity they possess, but in terms of whether or not their self-concepts and behaviors are organized on the basis of gender" (Bem, 1981, p. 356). As with any guideline, a gender schema can be misused and deny the sex-typed individual the very opportunities sought. The disadvantages can be numerous. Researchers have begun to examine potential remedies which might lessen the disenfranchisement of a large segment of the population with regard to historic limitations of career options. Women and minorities are welcoming affirmative action laws to help equalize their opportunities for being hired and for advancement and for admission into such disciplines as veterinary medicine and aeronautics. The

disadvantages of stereotypical career options exist not only for the individuals who systematically limit options, but also for the society which fosters this narrow view of human expression and potential.

Males and females will be treated the same way in the Paideia seminars by the two teachers of the experimental group. The teachers keep an account of who responds during the seminar process and have a system that allows them to know whether the student was a volunteer or had to be called on without a raised hand. There has been no formal inservice for teachers at the experimental group site concerning gender equity, but there is a high degree of awareness of the importance of gender equity and equal access to a quality education for all students by the district administration and all the teachers at this site.

There may be differences in the critical thinking skills of males and females at this age as assessed by the Cornell Critical Thinking Test, Level X. <u>Caught in the Middle</u> (Middle Grade Task Force, 1987) does not differentiate between male and female development. Emphasis is on young adolescent development and "the emergence of the ability to think reflectively--to think about thinking." (p. 13). This study will look at data concerning the critical thinking skills of seventh graders in one experimental and two control groups. The data will be analyzed by gender and by ability levels (high, average, low) and by the scores for the total group (experimental, control 1, control 2).

## Critical Thinking Skills, Seminars, Discussion, and Literature

Passmore (1980), a philosopher, explored critical thinking in an

effort to bring honesty and purpose to education's pursuit of a critical thinking skills curriculum. He referred to a "critical spirit" as the essence of the goal for teaching critical thinking (p. 168). This is a kind of criticism that "cannot be misused" (p. 168). It is criticism that is not authoritarian and not meant to manipulate. Passmore also described "two kinds of oral communication: the 'closed capacity' level...and the 'open' or 'creative' level, where, on the face of it at least, intelligence is not enough--at least the sort of intelligence measured by intelligence tests" (p. 223). Passmore's open level of communication corresponds to the spirit and intent of Paul's (1984) strong sense thinking. He presented a model for English teachers to follow to develop long term and worthwhile skills in students which included English usage in reading, writing, and speaking so that students would expect to deal with practical, vocational, and communication situations for their entire lives (p. 230).

In a specific curriculum approach to literature with tenth grade students, Webb (1982) used "idealized public conversations" to help her students develop patterns of questioning and thinking. It provided an opportunity for her to learn not only what her students were thinking, but also how they developed their thoughts. Prior to this, her approach, while standard and acceptable, resulted in predictable but not thoughtful student responses. With newly gained insight, Webb (1982) could now plan future learning experiences for her students grounded in qualitative data.

Lazerson, et al. (1985) took Webb's (1982) idea of a conversation

one step further and stated that "the conversation is both learning and how we go about learning. It is important because it leads to individual growth and social empowerment through the directed growth of attitudes, skills and knowledge" (p. 73). These researchers stated specific support for an active approach to learning that is directly applicable to the study of literature.

Lipman's <u>Philosophy for Children</u> (1984) identified and sequenced thinking skills into discrete units. The units in <u>Philosophy for</u> <u>Children</u> integrate life situations into stories. Increased transferability is the goal. Stories of children are used at each level of difficulty from grade 5 through grade 8. Students are encouraged to identify with what is happening in the story using a critical thinking vocabulary, and to justify their answers with textual material. <u>Philosophy for Children</u> uses a literature approach to the teaching of critical thinking skills. The stories are designed to be highly motivating. There is criticism that they may be too difficult to read and that the stories and characters may be too middle class and therefore difficult for many students to make identification. But the discovery process that is the essence of the program may be the area of greatest transfer even with the program's detractions.

There has been continuing interest in determining the value of teaching for critical thinking in literature programs. Lawson (1985) included "discussing reasoning patterns and forms of argumentation and encouraging discussion and debate as a way to develop reasoning skills" (abstract) in twelfth grade students. Stringer (1984) also emphasized

the role of discussion in the humanities and stated that to help students to "analyze, imagine and question...would help them create value and meaning in their lives" (abstract). Brocki (1967) focused on teaching literature to urban junior high school students using effective discussion methods. In another study of methodology for teaching English, a classroom discussion method enabled ninth and tenth grade students to score significantly higher in the areas of self-identity and self-acceptance than the control group (Penna, 1975). Skills are enhanced as Carl Rogers (1969) noted "when the teacher is concerned with the facilitation of learning rather than with the function of teaching" (p. 131).

The results of a study by Hansell (1984) supported Stringer's (1984) and Lawson's (1985) premises. Hansell found that not only are middle level students capable of interpretive reading but also that these students tend to respond on the same level as the question that is asked. Of the 41 questions teachers in this study asked, 31 required higher level thinking. "Students' responses related closely to the types of questions asked by the leader, with 45 of 62 responses suggesting high level thinking" (p. 120).

Thompson and Frager (1984) offered five guidelines for teaching critical thinking skills in the content areas. The guidelines are similar to Adler's (1982) and, also, follow clinical teaching rules. Thompson and Frager's (1984) guidelines are: (1) Teaching is more effective when students have a personal interest in the subject; (2) Active and interactive participation suggests that thinking together

most often results in better thinking; (3) Use prior student knowledge and experience; (4) Practice thinking skills in multiple contexts to encourage skill transfer; and (5) Extend comprehensive instruction beyond the 50 minute class period (p. 123). Information is processed by students at their level of "cognitive instruction" (p. 123) so that instruction must be maintained at a high level.

In his review of "obstacles to the development of strong-sense critical thinking skills", Richard Paul (1984, p. 7) defended a dialectical approach and decried the tendency to reduce cognition to a technical level. "The issues [in the social sciences and the humanities] are properly understood as dialectical, as calling for dialogical reasoning, for thinking critically and reciprocally, within opposing points of view" (p. 10).

Paul's (1984) reason for promoting the dialectical approach centered on the life he felt people lead outside of school. There are few neat, well-organized problems and fewer simple problems. His "reasoned judgment" (p. 13) implied able skills of reasoning, argument, problem solving, and decision making are not only a worthwhile goal for all students, but also a necessity for life.

Equality of educational opportunity is a unifying theme through all the areas for this review of the literature: (1) critical thinking skills, (2) the Paideia proposal, (3) gender issues, and (4) teaching strategies in the study of literature. There is agreement that the value for lifelong learning and involvement be instilled in students in order to enhance the quality of the democratic way of life. The

emergence of curriculums in character education testify to the growing concern for a more value laden learning environment. Students with practice in analyzing, questioning, comparing, and discussing will be ready to consider their own values and to make decisions based on thinking rather than simply following others.

Gender equity continues to be of concern to classroom teachers. Teachers are better informed about the stereotypically biased attitudes that they could inadvertently be practicing because of the heightened concern for gender equity in all aspects of our lives.

The Paideia proposal has found national support for the concept of a quality education for all students (Paideia Bulletin, 1988). The seminar part of the Paideia Proposal (1982) depends on the participants, the seminar facilitator, and the fundamental issues of the literary work to promote open communication in a risk free environment for the free exchange of ideas. The purpose is for all participants to acquire knowledge of worth and to improve the skill of critical thinking.

Based on this review there is a need to examine and evaluate thinking skills programs. The question no longer is whether the students are in need of higher order thinking skills but rather which thinking skills programs will meet the needs of the particular student audience. This study will evaluate, both quantitatively and qualitatively, the use of seminars to advance students' critical thinking skills. The seminar process will encourage preparedness, organization, oral and written expression, decision making, analysis, evaluation, and reasoning. The test of critical thinking will be

administered to students following seven seminars over a seven month period. The seminars require comprehension, induction, deduction, analysis, evaluation, values clarification, character analysis, and understanding of the significance of historical settings and time frames. This researcher anticipated that the seminar experience will help experimental group students demonstrate significantly greater critical thinking skills than those students who are not exposed to such experiences.

## CHAPTER III

Research Design and Methodolgy

The purpose of this study was to determine the effects of Paideia seminars on the critical thinking skills of seventh grade students. Paideia seminars use discussions in a seminar format and involve active participation on the part of students and teacher.

This study used a quasi-experimental design to determine the effects of using a seminar approach to teaching literature on the critical thinking skills of seventh grade students. This study measured the differences between an experimental group and two control groups on one dependent variable, the score on the Cornell Critical Thinking Test, Level X. Using inferential statistics allowed the researcher to study a small sample as a representation of a larger population and then draw inferences from the small sample to the larger population (Borg & Gall, 1979). In this study the sample of seventh grade students served as a representation of similar populations of seventh grade students. Time, cost, and feasibility were all reasons the researcher selected a sample for the treatment and then drew inferences from the sample to a larger population.

The treatment was a monthly literature seminar held as part of the students' literature class to discuss a selected book or excerpt. The

experimental group participated in at least seven seminars as part of their literature class over a seven month period. The control groups did not participate in seminars as part of their literature class. The Cornell Critical Thinking Test, Level X was administered as a pretest and posttest. In addition, qualitative data were gathered from the researcher's interviews of the two teachers of the experimental group and from a random selection of approximately 15% of the students in the experimental group. Each seminar teacher and the selected students were interviewed separately by the researcher using a schedule of questions designed to solicit information about the seminars from each of their perspectives and experiences. The qualitative data allowed results to be gathered by the researcher on replicating the study, on preferred reading selections, on thinking skills not measured by the test of critical thinking, and on the social and emotional gains made by the students from participation in the Paideia seminars.

## Setting

The setting was two middle schools in a K-12 school district located in north San Diego County, California. The city, the school district, and the schools that were the research settings are represented by a mix of all levels of socio-economic status with a tendency toward the middle class. The classroom setting and climate were similar for all three groups.

#### Sample

The total sample population for this study was drawn from the

seventh grade population at the two school sites. The experimental group and one of the control groups (control group 1) were drawn from Site One. The second control group (control group 2) was drawn from Site Two. Excluded from this total sample population were students who were enrolled in English as a Second Language (ESL) classes, special education classes, Gifted and Talented (GATE) classes, or a behavior modification class.

Students in the experimental group and in control group 1 were randomly assigned to either group by computer scheduling. They had as equal a chance of being assigned to the experimental group as they had of being assigned to the control group. This reduced the possibility that randomization would be violated. Students in control group 2 were randomly selected using a Table of Random Numbers because students at this school are grouped homogeneously for their English core classes.

#### Experimental Group

There were 72 seventh grade students in the experimental group. Eighty students were administered the pretest and took part in the monthly seminars. Seventy-two of those students had a valid usable pretest and posttest and could be included in the study.

## Control Group 1

There were 72 seventh grade students in each of the control groups to match the number in the experimental group. Control group 1 was selected from the remaining twelve seventh grade literature classes taught by the six other seventh grade literature teachers. Control

group 1 consisted of four classes with approximately 30 students in each class from which 72 acceptably matched pretests and posttests were selected and matched for equivalent pretest means with the experimental group. This control group was selected by verifying the equivalency of the group mean of the four classes for this control group with the mean of the experimental group following administration of the pretest of critical thinking. Control group 1 was at the same school as the experimental group.

#### Control Group 2

There were 72 seventh grade students in control group 2. Control group 2 was selected from the other participating middle school in the same school district. The test instrument was administered as a pretest to all seventh grade students at this middle school. Following this pretest of critical thinking, a random sample of a number equal to the size of the experimental group and the other control group was drawn from all of the participating students taking seventh grade literature at this middle school to make up control group 2. The pretest group mean of control group 2 was verified for equivalency to the mean of the experimental group.

#### Teacher Selection

The two teachers for the experimental group were volunteers. Prior to this study the two teachers participated in a three day workshop on the Paideia Proposal, with Mortimer Adler as a presenter at two of the workshops. This Paideia training was available only to twenty-five

educators in San Diego County, and this researcher and the two participating teachers were selected based on an expressed interest and willingness to try the methodology. The training was sponsored by the San Diego County Office of Education. The first day's session was an overview of the entire Paideia program. At the second session, Mortimer Adler led the group in a sample seminar. The final session consisted of a visitation to an elementary school using the Paideia program.

The teachers for control group 1 were determined following administration of the pretest. Control group 1 was selected by verifying the equivalency of the group mean of four classes on the pretest with the group mean of the experimental group on the same pretest of critical thinking.

Control group 2 was selected at random from all of the seventh grade students at the participating middle school who took the pretest and the posttest of critical thinking. All six of the participating teachers for control group 2 were represented when the random sample was completed.

Teachers of the experimental and control groups at both sites were monitored by classroom visitations and teacher conferences to determine methods and modes of instruction, what instructional materials were utilized, and curriculum content covered. None of the seventh grade language arts teachers involved with the control groups at either school used seminars to discuss literary works.

## Scheduling the Seminars

At both participating middle schools, seventh grade students are enrolled in three periods of a language arts core which meets daily. The language arts core consists of one period each of English, literature, and social studies. At Adler's suggestion (Paideia workshop) and for the purposes of this study, two teachers were used to conduct the monthly Paideia seminars. The seminars were held for two period blocks during the language arts core with both teachers facilitating each seminar for one class and then for the other.

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#### Instrumentation

The Cornell Critical Thinking Test, Level X, was used as both a pretest and a posttest of critical thinking skills. It is categorized as a general critical thinking test in <u>Developing Minds</u> (Costa, 1985). The test has 76 multiple choice questions about a story called <u>Exploring in Nicoma</u>. The test was developed by Robert Ennis in 1961 and was updated by him in 1982. The test assesses induction, credibility, observation, deduction and assumption identification. The first table of Ennis (1983) lists the test items which are related to the aspects of critical thinking assessed by the Cornell Critical Thinking Test, Level X (p. 3). Also, the manual states:

Although aspects of critical thinking are listed separately, there is considerable overlap and interdependence among them in the actual process of critical thinking. This interdependence is reflected in the tests, in particular in

the assignment of many items to more than one aspect. (p. 3) The test has no time limit but most students finish in 60 minutes.

The pretest was administered to students in the experimental group and to all other seventh grade students in regular literature classes at the two middle schools in the study. The results of the pretest allowed the researcher to select control groups that had mean scores which were equivalent to the mean scores of the experimental group. Control group 1 was formed by randomly selecting four classes and verifying the equivalency of their combined mean with the mean of the experimental group. Control group 2 was formed by randomly selecting the same number of students as in the experimental group and verifying the equivalency of their group mean with the mean of the experimental group.

The posttest was administered to the experimental and two control groups in the spring of 1987. The experimental group treatment took place over a seven month period so test contamination did not invalidate the posttest scores. The results therefore are more generalizable, and less the result of the fact that the posttest was taken so close to the pretest.

Posttest results were used to compare the mean gain scores between the experimental group and the control groups on the dependent variable, the Cornell Critical Thinking Test, Level X.

#### Treatment of the Subjects

The teachers of the experimental group used Paideia seminars as part of the study of literature while the teachers of the control groups

did not use this seminar mode. The procedure was as follows:

1. The format followed for conducting the seminars was taken from Mortimer Adler's directions (1984, p. 26). Members of the experimental group participated in a seminar to discuss the reading selection during the literature portion of their language arts core. Simple rules were established for the seminars: (a) listen when others speak; (b) raise your hand to speak; (c) participation in the discussion is a requirement; and (d) there are no right or wrong answers to the question posed, only opinions. Students must be able to explain and cite from the text of the selection, support for their answers and opinions.

2. Teachers as seminar facilitators posed an initial question on the board and each student responded in writing with a sentence. These answers were read aloud by all participants and served as the beginning of the discussion.

3. The teachers had several questions ready for use in case none arose through the discussion.

4. Seminars were held once a month using a supplementary reading. The reading selection was read both aloud in class and as homework prior to the seminar.

5. The two teachers of the experimental group experimented with the length, size and time of the seminars. The teachers included feedback from students in their evaluation of each seminar. The different sessions included seminars with the whole class of approximately 30 students and then with one half the class. The teachers tried one hour seminars and two hour seminars. They also

varied the combinations of class size and length. The majority of seminars had approximately 30 students and were held for two class periods or approximately 90 minutes.

## Preparation for Seminars

The two teachers of the experimental group did some of the following activities to prepare students to participate actively in the monthly seminars. An appropriate reading was selected, one which was a literary selection and not simply factual. It had to have areas for discussion, debate, and analysis. The readings were selected in September for the entire seven months of seminars with thought toward a planned scope and sequence. The selections could be changed depending on the interests and skills of the students or the timeliness of a topic. The reading was read aloud in class by the students and the teacher to be sure each student had the initial opportunity to hear a correct reading since errors are quickly imprinted but hard to erase. As students experienced positive feedback rather than criticism for their oral reading they were more likely to look forward to participating in this first reading. Students took the selection home to read with parents and to increase their knowledge of the story contents and its issues. Some stories required a second reading in class because they were particularly difficult. The seminar teachers met to decide basic questions to be asked about the story. This process took up to two weeks with the seminar being held the following week. The two teachers of the experimental group decided that the process successfully accommodated one seminar a month.

## Method of Analysis

The Cornell Critical Thinking Test, Level X, was used to collect data. The Cornell was used as a pretest and a posttest. Students in the experimental group took part in the seminars as the treatment. They participated in a total of seven seminars in their literature class over a seven month period. The students in the control groups participated in literature classes without the seminar treatment.

A one-way analysis of variance (ANOVA) was used to compare the mean gain scores of the experimental group and each of the control groups on the dependent variable, the Cornell Critical Thinking Test, Level X. A two-way analysis of variance was used to compare whether the mean gain scores of the experimental group and each of the control groups differ by gender or by high, average, or low scores. Males and females were further divided into high, average, and low ability groups by the score they received on the pretest of the Cornell Critical Thinking Test. A chi square analysis was used to verify the equivalency of the groups so that a gender or ability group would not be overrepresented in this study.

The analysis of variance "allows us to simultaneously test the equality of all means while maintaining the Type I error rate at the established alpha level for the entire set of comparisons" (Hinkle, Wiersma, & Jurs, 1979, p. 244). A Type I error is made when the null hypothesis is rejected when it should be accepted.

The level of significance, the alpha level, was set at .05. This

is the "probability level below which we reject the null hypothesis" (Hinkle, Wiersma, & Jurs, 1979, p. 156). It means that there are 5 out of 100 chances that the null hypothesis will be rejected when it is actually true (Huck, Cormier, & Bounds, 1974, p. 45).

The data were analyzed by first comparing mean gain scores of the experimental group and the control groups separately. Data were also analyzed by comparing the mean gain scores of males and females in each of the three groups designated by their pretest scores on the Cornell as high, average, or low. These sub-analyses compared: experimental group males who scored high, average, or low on the Cornell pretest with control group males who had similar scores on the Cornell; experimental group females who scored high, average, or low on the Cornell pretest with control group females who had similar scores on the Cornell pretest with control group females who had similar scores on the Cornell pretest females.

If any of the resulting statistics were significant at the .05 level then the Tukey method or  $\underline{t}$  tests were computed to determine where the difference was found. The Tukey and  $\underline{t}$  tests distinguished between the groups in which differences were found.

The initial statistical analysis is for the purpose of answering the first and main hypothesis: is there a statistically significant difference when the experimental group is compared to control group 1 or control group 2 following the treatment, and if so, where are the significant differences? The data were further analyzed for significant differences in the mean gain scores of the experimental group and the

separate control groups, by gender and ability level on the dependent variable, the Cornell. The statistical analysis was done using the Statistical Package for the Social Sciences (SPSS).

### Qualitative Analysis

"Many social scientists believe that human behavior is significantly influenced by the settings in which it occurs" (Hamilton, MacDonald & King, 1977, p. 193). This study of critical thinking skills generated useful qualitative as well as quantitative data. Information about the natural setting and the perceptions and feelings of the participants can assist future researchers attempting to replicate the study, and enabled this researcher to have a more complete understanding of the quantitative data.

Tesch (1984) stated that increasingly "efforts are being made in various scholarly communities to devise ways in which information that cannot be captured in numbers can be translated into knowledge" (p. 1). The purpose of adding a qualitative analysis to the quantitative analysis of this study was (a) to provide additional information about the seminar process from the planning stage through the seminars, and (b) to help in interpretation of the quantitative data.

An exact description of the seminar planning process is included in this chapter (p. 36). A list of the reading selections used during the entire seven month study is included in the order the selections were read (Appendix E). Some of the seminars were tape recorded in order to check for accuracy in reporting qualitative data. A list of the

questions used by the teachers to begin each seminar is also included (Appendix E).

The interview schedule was developed by the researcher in conjunction with her committee. Fifteen percent of the students from the experimental group were randomly selected and interviewed. The student interview questionnaire had five questions (Appendix G). The students were interviewed for the purpose of better understanding how they felt the seminars helped them understand the reading selection, how the seminars affected their thinking in other subjects, and whether they felt the seminars were worthwhile and how they were beneficial. The two teachers of the experimental group were interviewed for the purpose of finding out what effects the planning and facilitating of the seminars had on the preparation and execution of their other teaching assignments, in what ways they found their seminar students grew in the areas of critical thinking and social awareness, and whether the seminar approach had any effect on the students in the teachers' other classes. The data can provide interested educators with information sufficient to replicate the seminar process. The underlying purpose of including the qualitative analysis was to increase the knowledge base on what affects critical thinking skills and which teaching and learning strategies should be encouraged in schools to increase the critical thinking skills of students.

One role of principals is to interpret and enforce the policies of the school district regarding the state quality criteria and model curriculum standards. Providing opportunities for students and teachers to become

involved in innovative yet well established instructional practices is important for meeting that responsibility. Teachers at all grade levels have been involved in writing the quality criteria and model curriculum standards which support a variety of teaching techniques to be used in the classroom. The principal should be informed about practices that are on the cutting edge of the educational profession in order to evaluate the qualities, value, and underlying assumptions of the practices. Principals and teachers can assess each suggested program, instructional strategy, or deviation from current practice against the school mission for appropriateness for the middle school curriculum.

Institutions of higher education provide a milieu in which ideas and instructional practices can thrive and develop. Are the ideas new or recycled? Has the instructional strategy been used for decades under a. different name? Colleges and universities should provide opportunities and an environment for exploring the best possible techniques for helping students to learn and realize their highest potential. It seems to me that universities need to be places where the finest practices are espoused and where there is no such thing as a bad idea, only ideas. Through discussion and listening, each student at the university will develop the values and practices they will use as teachers.

### CHAPTER IV

## ANALYSIS OF DATA

#### Introduction

The purpose of this study was to determine the effects of Paideia seminars on the critical thinking skills of seventh grade students. The experimental group received the seminar treatment and was compared to two control groups from separate schools with pretest means equivalent to the experimental group. The three groups were then compared within and between groups by gender and level on their pretest scores (low, average, high) on the Cornell Critical Thinking Test, Level X, using an analysis of variance (ANOVA), chi square analysis, and the Tukey a posteriori procedure.

This chapter is divided into four sections. The first section describes the sample population. The second section includes information on the research design and methodology. The third part contains an analysis of data as they relate to the four hypotheses. The last section is an analysis of the qualitative data gathered through interviews of the teachers and students involved in the seminars.

This chapter will lay a foundation for considering future research in critical thinking as it relates to curriculum delivery systems and

to the related issues of gender and critical thinking skills. From the information in the review of the literature in Chapter II, few would doubt the value for individuals at all levels to have the corresponding ability to think critically in both intellectual and practical areas. Basow (1966), Pflaure (Wilkenson, 1985), Bem (1981), and Flynn and Schweickart (1986) are just a few of the many researchers cited in Chapter II who feel that gender alone is not responsible for who is proficient in either mathematics or literature. The analysis of the data provides information on both the area of critical thinking and the issue of gender in the acquisition of critical thinking skills in literature.

## Description of the Sample Population

The total sample population was drawn from the entire seventh grade population at two school sites in the same school district. Both schools are middle schools with a 6-7-8 grade configuration with approximately 1300 students attending each school. Every student entering seventh grade at the middle school with the experimental group had an equal chance of being scheduled into the language arts classes of the two teachers of the experimental group. Students in the Special Education and Gifted and Talented Education (GATE) classes were excluded. Students in the experimental group and control group 1 were randomly assigned to their language arts core classes using a computer scheduling program while control group 2 students were scheduled into language arts core classes according to performance level in reading. The students randomly assigned into the classes taught by the two

seminar teachers became the experimental group. Control group 1 was randomly selected from the remaining language arts core classes at this same school site and verified for equivalent means. Students in control group 2 were selected using a Table of Random Numbers from the students who had usable pretests and posttests at the other school site. Control group 2 was also verified for equivalent means on the pretest of critical thinking.

The administration and staffs of the two middle schools strive to support and implement the twenty-two principles of middle level education recommended by the middle grade task force in Caught in the Middle: Educational Reform for Young Adolescents in California Public Schools, (Middle Grade Task Force, 1987) in the areas of curriculum and instruction, student potential, learning environments, teaching, administration, and leadership. The principals of the two middle schools meet weekly to discuss curriculum and critical issues, to share ideas, and to assess programs in progress. The Associate Superintendent of Instruction encourages and supports the notion that the two middle schools will be as alike as possible in all areas. The demographic information on the California Assessment Program (CAP) for 1986 described the composition of the two schools as alike in ethnic makeup and educational background of the parents. Figure 1 and Figure 2 show the demographic information as presented in the CAP manual, subgroup results, page 14. English language fluency (Figure 1) is similar for both schools with 92% of the students attending the school with the experimental group and control group 1 (School A) speaking only

# Figure 1

# Distribution of Students by English Language Fluency for Both Participating Middle Schools

ستشتاه ويجرب والمشارك المراجعات المتعال المستند المحتان المتحال فتحصينا فالالا مطاطرا المتعاديا فالمتعادي المتعاديا ال					
Level of fluency	Schoo	D1 A	Scho	o1 B	
	N	%	N	%	
English only	354	92	365	89	
Fluent English plus 2nd language	17	4	29	7	
Limited English plus 2nd language	12	3	16	4	
Non-English speaking	2		11		
Total Responses	385	99	421	100	

School A = school with experimental and control 1 students.

School B = school with control 2 students.

# Figure 2

# Distribution of Students by Level of Parent Education for Both Participating Middle Schools

Level of education	School	A	School	B	
	N	%	N	%	
Advanced degree	30	8	59	14	
College degree	90	23	115	28	
Some college	107	28	101	25	
High school graduate	104	27	82	20	
Nonhigh school graduate	37	10	45	11	
Total Responses	368	96	402	98	

School A = school with experimental and control 1 students.

School B = school with control 2 students.

English, and 89% of the students at School B, with control group 2 students, speaking only English. (Note. Limited English speaking and non-English speaking (LES/NES) students were not included as part of the study). The educational level attained by parents at the two middle schools was also similar (Figure 2). At School A (experimental and C1) 23% of the parents graduated from college as compared to 28% at School B (C2).

## Treatment of the Subjects

Students in the experimental group took part in Paideia seminars in their literature class once a month for seven months. One seminar each month for seven months was selected as appropriate and realistic following discussion with the teachers of the experimental group and recalling Mortimer Adler's recommendations from the workshop attended by the experimental teachers during the previous spring. Dr. Adler said that proper preparation for involvement in seminars is time consuming for both teachers and students as is the follow-up coaching of writing. While he did not specify one seminar a month for middle level students, Dr. Adler suggested that teachers be conservative when making plans for beginning Paideia seminars. He described the seminars as "rigorous." Paideia seminars require teacher planning time, a thorough reading of the selection by the students, question preparation, and two hour blocks of time for each monthly seminar group. Each seminar was conducted by both of the experimental group teachers following the format recommended by Adler (1984).
It is often difficult to both lead and moderate, to ask leading questions and to watch closely in what direction the conversation is going. For that reason the ideal seminar should have two leaders, or moderators, one of whom will talk

while the other listens and vice versa (Adler, 1984, p. 18). Preparation included first reading the selection aloud in class, then reading it again for homework and, for a particularly difficult selection, reading it again in class. This process took place in each literature class. Both teachers came together for each seminar which lasted from one to two hours. The seminars begin with a single question about some aspect of the story, written on the board so all may respond. Students write their responses and the seminar starts with all students reading aloud their individual answers to this question. A writing assignment about the reading selection follows each seminar.

The seminars and the writing assignment have the purpose of promoting the improvement of critical thinking skills through, first, the discussion of ideas, values, and issues, and second, through the coaching of writing related to the issues and ideas of the particular reading selection. Students are required to participate actively in the seminars, to be prepared to defend their statements with textual support, to listen to and refer to the remarks of other students taking part in the seminar, and then to write comprehensively about an important and relevant issue or value from the story.

Through actively participating in the exchange and growth of ideas, the participants develop thinking and reasoning abilities, communication

skills, and respect for the diversity of ideas which contribute to a worthwhile discussion. Didactic teaching, so common, as Goodlad (1984) pointed out, is still a purposeful part of the goal of increasing students' use of higher order thinking skills. Teachers can use this didactic mode to supply valuable information on authors' backgrounds, historical timelines, and geographic realities in order to enhance the reader's understanding and enjoyment of a selection.

#### Student Background Information

All of the seventh grade students at the two participating middle schools were administered the Cornell Critical Thinking Test, Level X, as a pretest. Pretest scores were compared to assure equivalent groups at the onset of the study. The pretest scores for the experimental group (35.76), control group 1 (35.24), and control group 2 (34.60) were examined (Table 1) and no significant difference was found (Table 2).

As reflected in Table 2, the analysis of variance shows no significant difference (F = .47, p > .05) existed among the three groups at the beginning of the study and prior to the seminar treatment with the experimental group. Students in the experimental group and control group 1 were randomly scheduled by computer into the seventh grade language arts cores. Therefore, as stated earlier, every student entering seventh grade at the school with the experimental group had an equal chance of being scheduled into the language arts classes of the two teachers of the experimental group. Students in control group 2 at the second middle school were randomly selected from all of the seventh grade language arts cores with the exception of one core, whose teacher

# Pretest Scores of the Experimental and Control Groups on the Cornell Critical Thinking Test, Level X

Group	Mean	N	
Experimental	35.76	72	
Control 1	35.24	72	
Control 2	34.60	72	

# Table 2

Analysis of Variance of the Pretest Scores of the Entire Sample Population on the Cornell Critical Thinking Test, Level X

Source	Sum of	df	Mean	 F
	squares		square	
Between groups	49.15	2	24.57	•469*
Within groups	11149.18	213	52.34	
Total	11198.32	215	52.09	

\* <u>p</u> >.05.

chose not to participate in the testing for critical thinking. The 72 students in control group 2 were selected using a table of random numbers to insure randomization of the sample. The analysis of variance (Table 2) verifies the equivalency of the means of the three groups prior to the Paideia seminar treatment.

Figure 3 shows the distribution of student scores on the 1986-87 California Assessment Program (CAP) survey of Academic Skills for the content areas of reading and written expression for the two participating schools. This comparison illustrates the similiarities of the populations of the two schools in curricular areas relevant to the oral and written communication areas of the Paideia proposal. School A represents the middle school with the experimental and control 1 groups and school B represents the middle school with control group 2. School A had 25% of the students taking the CAP test score below Quartile 1 in reading and 21% in this same low quartile in written expression. School B had similar results with 23% scoring below quartile 1 in reading and 22% scoring below in written expression.

There is in Figure 3 a similar percentage of students scoring in the upper quartile from both schools. At school A, 28% of the students scored above Quartile 3 in both reading and written expression. The percentages were similar for school B with 30% of the students scoring above Quartile 3 in both tests.

The percentages of students in the other two quartile ranges also indicate a similar student distribution. The students at these two middle schools are performing equivalently in two areas which are

Figure 3

Distribution of Student Scores on the California Assessment

Program (CAP) in Reading and Written Expression for the Two

Participating Middle Schools

Content	Year	Bel	low	Betw	veen	Betwe	een	Abo	ove
area		Quart	tile 1	Quai	rtile	Quart	tile	Quart	tile 3
				1 8	8 2	2 &	3		
		A	В	A	В	A	В	A	В
Reading	85-86	25%	23%	24%	21%	23%	26%	28%	30%
Written									
expression	85-86	21%	22%	26%	21%	25%	26%	28%	30%

A = school with experimental and control 1 students

B = school with control 2 students

integral to this critical thinking study, reading and written expression.

Looking further at the population distribution of the students in this study, Table 3 presents a distribution and chi square analysis by the ability groups of low, average, and high scorers on the Cornell pretest across the three groups of experimental, control group 1 and control group 2 students. As suggested in the test manual (Ennis, Millman, & Tomko, p. 32, 1983), the Cornell is appropriate for use in

Distribution and Chi Square of the Experimental and Control Group Students by Ability Levels on the Cornell Critical Thinking Test,

<u>Level X</u>

Group	Low	Average	High	Row Total
experimental	19.4%	61.1%	19.4%	33.3%
	(14)	(44)	(14)	(72)
Control 1	12.5%	66.7%	20.8%	33.3%
	(9)	(48)	(15)	(72)
Control 2	20.8%	68.1%	11.1%	33.3%
	(15)	(49)	(8)	(72)
Column total	17.6%	65.3%	17.1%	100.00%
	(38)	(141)	(37)	(216)

<u>Note</u>. <u>n</u> for each group = 72. Chi square = 4.235, df = 4, p. > .05. <u>Note</u>. <u>n</u> for total sample = 216.

Note. () = number in each group.

the research and evaluation of instructional approaches and group differences. In the section on Definition of Terms (Chapter 1), low, average, and high scores are defined as they relate to the number of standard deviations above or below the mean score. Low scoring students are thus identified by a score of 28 or below on the pretest of the Cornell. Average scoring students had a score between 29 and 42 while students identified as high on the Cornell had a score of 43 or greater. The maximum score for the Cornell, Level X, is 74. There is no significant difference among the groups following the pretest (chi square = 4.25, df = 4, p. > .05). The percentages for the experimental, control 1, and control 2 groups compared across all three ability levels showed the 19.4 percent for the low experimental students was not significantly different when compared to the low control 1 students (12.5%) or the low control 2 students (20.8%).

The percentage of the average groups are also similar with 61% of the experimental group, 66.7% of control group 1 students, and 68.1% of control group 2 students scoring in the average range. High scoring students are 19.4%, 20.8%, and 11.1% respectively for the experimental, control group 1, and control group 2. There is a difference of 9.7% between the high control group 1 (20.8%) and the high control group 2 (11.1%). This difference is not statistically significant as indicated by the chi square (chi square = 4.25, df = 4, p. > .05). There is an equivalent distribution of students within the high, average, and low cells (Table 3).

Table 4 represents the distribution by sex for all three groups. Considering that gender is an issue discussed in Chapter 3, it is important to note there is no statistical difference in the distribution by gender (chi square = 0.92, df = 2, p. >.05) for the three groups. There are 52.8% females and 47.2% males in the experimental group, 52.8% females and 47.2% males in control group 1, and 45.8% females and 54.2%

## Distribution and Chi Square of the Experimental and Control

Groups by Gender

Group	Female	Male F	Row Total
Experimental	52.8%	47.2%	33.3%
	(38)	(34)	(72)
Control 1	52.8%	47.2%	33.3%
	(38)	(34)	(72)
Control 2	45.8%	54.2%	33.3%
	(33)	(39)	(72)
Column total	50.5%	49.5%	100.00%
	(109)	(107)	(216)

<u>Note</u>. <u>n</u> for each group = 72. Chi square = 0.92, df = 2, p >.05. <u>Note</u>. <u>n</u> for total sample = 216.

males in control group 2. This distribution is the result of random selection.

The final demographic information concerns both gender and ability levels (Table 5). This table provides a look at the ability groups combined with gender to see if there are more males or females in one

Distribution	and	Chi	Square	by	Gender	for	the	High,	Average,	and	Low
Ability Leve	ls or	the	Pretes	t c	of Criti	ical	Thi	nkina			

Gender	Low	Av	erage	Н	igh	Row Total	I
Female	16.5%		62.4%		2 <b>1.</b> 1%	50.5%	
	(18)		(68)		(23)	(109)	
Male	18.7%		68.2%		13.1%	49.5%	
	(20)		(73)		(14)	(107)	
Column total	17.6%	١	65.3%		17.11%	100.009	6
	(38)		(141)		(37)	(216)	

<u>Note</u>. <u>n</u> for total sample = 216. Chi square = 2.45, df = 2, p. >.05. <u>Note</u>. () = number in each ability level.

ability group than another. The chi square shows that no statistical difference existed at the beginning of the study for the gender distribution and ability grouping (chi square = 2.45, df = 2, p. >.05). This means that neither males nor females in this study were over represented in any of the ability groups. There are 16.5% females and 18.7% males in the low ability group, 62.4% females and 68.2% males in the average group, and 21.1% of the females and 13.1% of the males in the high ability group. The difference of 8% between the high scoring males and females in not statistically significant.

#### Analysis of the Hypotheses

Data were collected to test the assumptions of the hypotheses of this study to determine the effects of Paideia seminars on the critical thinking skills of seventh grade students. The results of the pretest and posttest data comparisons follow each hypothesis. The number of the total sample population for this study was 216 students, with an equal number of 72 in each of the three groups. The Cornell Critical Thinking Test, Level X, was used as a pretest and again as a posttest seven months later. The analysis is based on mean gain scores achieved by students in all three groups, experimental, control 1, and control 2.

#### Hypothesis 1

There will be no significant difference in the mean gain scores of the experimental group on the Cornell Critical Thinking Test, Level X, and the control groups on the same test.

One analysis for this hypothesis (Table 6) shows a comparison of each of the three groups on their pretest, posttest, mean gain score, and the standard deviation for each score. Following the seven month Paideia seminar treatment for the experimental group, the posttest of critical thinking shows the mean gain for the experimental group and control group 1 to be similar and the mean gain for control group 2 to be lower than the other two. The experimental group has a pretest mean of 35.76, a posttest mean of 40.64, for a mean gain of 4.88. Control group 1 has a pretest mean of 35.24, a posttest mean of 39.71, for a mean gain score of 4.48. Control group 2, the students at the second

Pretest, Posttest, Mean Gains, and Standard Deviations for the Experimental and Control Groups on the Cornell

	Experimental	Control 1	Control 2
Pretest	35.76	35.24	34.60
Posttest	40.64	39.71	35.28
Mean gain	4.88	4.48	0.68
Standard deviation	7.87	7.12	10.15

<u>Note</u>. n = 72 in each group.

middle school, has a pretest mean of 34.60, a posttest mean of 35.28, for a mean gain score of 0.68.

A look at the standard deviations for the three groups indicates there is a difference found through this analysis among the three groups. The standard deviation for the experimental group is 7.87; for control group 1, 7.12; and for control group 2, 10.15. There is more variability to the scores for control group 2 indicated by the wider spread in the standard deviation.

The analysis of variance (Table 7) of the mean gain scores for the experimental, control 1, and control 2 groups shows there is a significant difference somewhere between the three groups (F = 5.36,

Analysis of Variance of the Mean Gain Scores of the Experimental and Control Groups on the Cornell Critical Thinking Test, Level X

Source	Sum of	df	Mean	F	F
	squares		square		Probability
Between groups	771.18	2	385.59	5.36**	.0053
Within groups	15,311.47	213	71.88		
Total	16,082.65	215			

\* <u>p</u> < .05. \*\*<u>p</u> < .01.

p <.05). This means that at least one of the three groups differs significantly from the other two groups.

To determine where the difference occurs, a Tukey a posteriori procedure was calculated. The results of the Tukey on the gain scores are seen in Table 8. The experimental group and control group 1 made statistically greater gains than control group 2. The gains made by the experimental group and control group 1, which are at the same middle school, are similar. The experimental group's mean gain of 4.88 and

Tukey A Posteriori Procedure Comparing the Mean Gain Scores

Group	Mean	Control 2	Control 1	Experimental
		0.68	4.47	4.88
Control 2	0.68			
Control 1	4.47	*		
Experimental	4.88	*		

of	the	Exper	imental	and	Control	Groups
_					the second s	ويستعد والمحادث ومحادث والمحادث والمحادث والمحادث والمحادث والمحاد والمحادث ومحادث ومدائ ومحادث ومحادث ومدالمحادث ومحادث ومدالمحادث ومدالمحادث ومدالمحا ومدالمحا ومدالمحادث ومدالمحادث ومدالمحادث ومدالمحادث ومدالمحاد ومدالمح ومدالمحاد ومدالمحادث ومدالمحاد ومدالمحاد ومدالمحا ومدالمحا ومدالمحا ومدالمحا ومدالمحا ومدالمحا

\* <u>p</u> < .05.

control group 1's mean gain of 4.48 are both statistically greater than the gain of 0.68 made by control group 2 students.

The null hypothesis is accepted when comparing the experimental group to control group 1 as indicated by the results of the Tukey a posteriori procedure. There is no statistical difference in their mean gain scores. However, the null hypothesis is rejected when comparing the experimental group to control group 2 since the experimental group made a statistically greater mean gain.

#### Hypothesis 2a

There will be no significant difference in the total mean gain scores of the experimental group males on the Cornell Critical Thinking Test, Level X, when compared to the total mean gain scores of Control Group 1 or Control Group 2 males.

In the second hypothesis, male students in the experimental group are compared to male students in each of the two control groups separately. The differences in the scores of male students are further calculated by ability level of low, average, and high on the pretest of critical thinking.

Table 9 provides an overview of how each group of males performed across ability groups. Control group 1 males exceeded the gains made by the other two groups with a mean gain total of 6.29, as compared to the experimental group's total mean gain of 2.68 and control group 2's total mean gain for males of 0.54.

As can be seen by the analysis of variance, there is a significant gain made somewhere among the three male groups of experimental, control group 1, and control group 2 (F = 6.84, p <.05) and also somewhere among the three ability groups (F = 11.10, p <.05) (Table 10).

There are significant differences in the gain scores both between and within groups for males in at least one of the groups, experimental, control 1, or control 2. A Tukey a posteriori procedure (Table 11) is used to determine and summarize where the statistical differences

Description of the Mean Gain Scores of Experimental and Control Group Males by Ability Levels of High, Average, and Low

Group	Low	Average	High	Mean
	gain score	gain score	gain score	gain total
Experimental	4.50	3.19	-2.40	2.68
	(8)	(21)	(5)	(34)
Control 1	17.50	5.23	2.00	6.29
	(4)	(26)	(4)	(34)
Control 2	9.75	-1.62	-3.00	0.54
	(8)	(26)	(5)	

Note.  $\underline{n} = 107$  males.

between the groups as indicated by the analysis of variance (Table 10) can be found. The Tukey compares each of the three groups and the results of this procedure can be seen in Table 11. The summary (Table 11) shows that the control group 1 males with a mean gain of 6.29 scored significantly better than either the experimental males with a mean gain of 2.68 or control 2 males with a mean gain of 0.54. (p < .05).

The null hypothesis is rejected for Hypothesis 2a based on the results of the analysis of variance and the Tukey a posteriori procedure showing the mean gain score for control group 1 males is significantly

# Analysis of Variance of the Mean Gain Scores of Males in the

Experimental and Control Groups

Source	Sum of	df	Mean	F	F
	squares		square		probability
Main Effects	1,838.96	4	459.74	8.30**	.000
Between Groups	758.53	2	379.26	6.84**	.002
Within Groups	1,230.39	2	615.19	11.10**	.000

\*<u>p</u> <.05. \*\*<u>p</u> <.01.

# Table 11

# Tukey A Posteriori Procedure Comparing Males in the

Experimental and Control Groups

Group	Mean	Control 2	Experimental	Control 1
		0.54	2.68	6.29
Control 2	0.54	<u> </u>	<u></u>	*
Experimental	2.68			*
Control 1	6.29			
		······································		

\* <u>p</u> <.05.

greater than the mean scores for either the experimental group or control group 2 males.

#### Hypothesis 2b

There will be no significant difference in the mean gain scores of the experimental males who scored high on the Cornell Critical Thinking Test, Level X, when compared to high Control Group 1 or Control Group 2 males.

A comparison of the mean gain scores of experimental males in the high ability level with the mean gain scores of control group 1 and control group 2 males is seen in Table 12. A Tukey a posteriori procedure is used to determine where the differences indicated by the analysis of variance (Table 10) are to be found. The comparison (Table 12) indicates no significant difference when comparing high experimental males (-2.40) to high control 1 males (2.00) and to high control 2 males (-3.00). The differences of 0.60 and 4.40 are not statistically significant.

The null hypothesis 2b is accepted for high experimental males when compared to high control 1 or control 2 males on the test of critical thinking. The hypothesis is accepted based on the results of the analysis of variance and the Tukey procedure showing no significant difference in the mean gain scores.

Tukey A Posteriori Procedure Comparing High Experimental Males with High Control 1 and Control 2 Males

Group	Mean gain	Difference	Significance
High experimental	-2.40	4 40	
High control 1	2.00	4.40	
High experimental	-2.40	0.60	
High control 2	-3.00	0.00	

# Hypothesis 2c

There will be no significant difference in the mean gain scores of experimental males who scored average on the Cornell Critical Thinking Test, Level X, and males in Control Group 1 or Control Group 2 with similar pretest scores.

Experimental males in the average ability level are compared separately to average males in control group 1 and control group 2 (Table 13). There is no statistical difference in the mean gain scores of average experimental males (3.19) when compared to either control group 1 males (5.23) or to control group 2 males (-1.62). The differences of 2.04 and 4.81 are not statistically significant.

• • •

Tukey A Posteriori Procedure Comparing Average Experimental

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Group	Mean gain	Difference	Significance
Average experimental	3.19	2.04	
Average control 1	5.23	2.04	
Average experimental	3.19	A 01	
Average control 2	-1.62	4•81	

. .. .

The null hypothesis 2c is accepted based on the results of the Tukey procedure (Table 13) showing no significant difference. Gains made by experimental males in the average ability group are not significantly greater than gains in the mean scores of average males in control group 1 or control group 2.

# Hypothesis 2d

There will be no significant difference in the mean gain scores of experimental males who scored low on the Cornell Critical Thinking Test, Level X, when compared with males in Control Group 1 or Control Group 2 with similar pretest scores. Table 14 shows the comparisons of low experimental males to low control group 1 males and to low control group 2 males. There is a significant difference (13.00) between the mean gain scores of low experimental males (4.5) and low control 1 males (17.50). There is not a significant difference (5.25) between the low experimental males (4.5) and the low control group 2 males (9.75).

The null hypothesis 2d is rejected based on the results of the Tukey procedure (Table 14) showing a significant difference between the scores of low experimental males and low control 1 males. The direction of the significant difference (13.00) between the two groups was unexpected. It was expected that the experimental males, who received the Paideia seminar treatment, would make the greater gains on the test of critical thinking.

Table 14

# Tukey A Posteriori Procedure Comparing Low Experimental Males with Low Control 1 and Control 2 Males

Group	Mean gain	Difference	Significance	
Low experimental	4.50	12.00		
Low control 1	17.50	13.00	~~	
Low experimental	4.50	5.25		
Low control 2	9.75			

\*\* <u>p</u> < .01

#### Hypothesis 3a

There will be no significant difference in the total mean gain scores of experimental group females on the Cornell Critical Thinking Test, Level X, when compared to the total mean gain scores of Control Group 1 or Control Group 2 females on the same test.

The third hypothesis looks at how experimental females compared in their mean gain scores to the females in control group 1 and control group 2. The females are further considered within the three ability level groups of high, average, and low to determine if any of these groups of females made significantly greater gains than the other.

In Table 15 the experimental group, control group 1, and control group 2 females are viewed across all three ability levels. Tablulating the mean gain results in this way helps in visualizing the gains made by the separate ability levels for each group. A look at the mean gain scores across groups shows the experimental females with an overall mean gain score of 6.84. The mean gain score level for all control group 1 females is 2.84, and for control group 2 females, the mean gain is 0.85.

The analysis of variance shows a significant difference exists somewhere among the experimental and control groups (F = 8.56, p < .05) and among the three ability groups (F = 16.95, p. < .05) (Table 16). At least one of these groups within and between each category made a significant gain in the mean score.

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Description of the Mean Gain Scores of High, Average, and

Group	Low	Average	High	Mean gain total	
Experimental	13.00	7.35	1.44	6.84	
	(6)	(23)	(9)	(38)	
Control 1	8.40	3.23	-0.45	2.84	
	(5)	(22)	(11)	(38)	
Control 2	10.43	0.17	-16.33	0.85	
	(7)	(23)	(3)	(33)	
Mean gain	10.72	3.59	-1.78		
total	(18)	(68)	(23)		

.

#### Low Females in the Experimental and Control Groups

<u>Note</u>.  $\underline{n}$  = 109 females

#### Table 16

# Analysis of Variance of the Mean Gain Scores of Females in the Experimental and Control Groups

Source	Sum of	df	Mean	F
	squares		square	
Main Effects	2505.82	4	626.46	11.57**
Between Groups	926.49	2	463.25	8.56**
Within Groups	1834.85	2	917.42	16.95**

\* <u>p</u> = <.05. \*\* <u>p</u> < .01.

The Tukey a posteriori procedure shows that the experimental group females made a significant gain compared to control group 1 and control group 2 females (Table 17). Experimental females' mean gain score of 6.84 is statistically significant over control group 1 females' mean gain score of 2.84 and control group 2 females' mean gain score of 0.85 (p < .05).

The null hypothesis is rejected for hypothesis 3a based on the results showing the experimental females made statistically greater gains than control 1 and control 2 females.

Table 17

Tukey A Posteriori Procedure Comparing the Mean Gain Scores of Females in the Experimental and Control Groups

Group	Mean	Control 2	Control 1	Experimental
	0.85	2.84	6.84	
Control 2	0.85			*
Control 1	2.84			*
Experimental	6.84			

\* <u>p</u> <.05.

#### Hypothesis 3b

There will be no significant difference in the mean gain scores of experimental females who scored high on the Cornell Critical Thinking Test, Level X, when compared to females in Control Group 1 or Control Group 2 with similar pretest scores.

While the Tukey procedure displayed in Table 17 indicates a significant total mean gain for experimental females when compared separately to both control group 1 and control group 2 females, there is only one significant gain when females are compared by ability level of high, average, and low. When comparing high experimental females (1.44) to high control 1 females (0.45), the difference of 1.89 is not significant (Table 18). There is a significant difference (17.77) when

Table 18

# Tukey A Posteriori Procedure Comparing High Experimental Females with High Control 1 and Control 2 Females

Group	Mean gain	Difference	Significance
High experimental High control 1	1.44 -0.45	1.89	
High experimental	1.44	17 77	**
High control 2	-16.33	1/•//	

\*\* <u>p</u> < .01

high experimental females (1.44) are compared to high control 2 females who had a loss in their mean score of -16.33. The difference is statistically significant due to the loss in the mean score of control 2 females and not because the high experimental females made a large gain.

The null hypothesis 3b is rejected based on the results of the Tukey procedure showing a significant difference between the gains of high experimental females and high control 2 females. There is no significant difference between the mean gain scores of high experimental females and high control 1 females.

#### Hypothesis 3c

There will be no significant difference in the mean gain scores of experimental females who scored average on the Cornell Critical Thinking Test, Level X, and females in Control Group 1 or Control Group 2 with similar pretest scores.

There are no significant differences when average experimental females (7.35) are compared to average control 1 females (3.23) or average control 2 females (0.17) (Table 19). The respective differences of 5.12 and 7.52 are not significant differences. The null hypothesis

# Tukey A Posteriori Procedure Comparing Average Experimental

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Mean gain	Difference	Significance
ental 7.35	 F 1A	
1 3.23	5.12	
ental 7.35	7 50	
2 0.17	7.52	
	Mean gain ental 7.35 1 3.23 ental 7.35 2 0.17	Mean gain Difference   Intal 7.35   1 3.23   Intal 7.35   I 7.52   2 0.17

3c is accepted based on the results of the Tukey procedure showing no statistical significance in the mean gain scores of average experimental females when compared to average control 1 and control 2 females.

#### Hypothesis 3d

There will be no significant difference in the mean gain scores of experimental females who scored low on the Cornell Critical Thinking Test, Level X, when compared with females in Control Group 1 or Control Group 2 with similar pretest scores. In comparing the differences in mean gain scores of the low female ability groups, no significant differences are noted (Table 20). Low experimental females (13.00) did not gain significantly (4.60) over low control 1 females (8.40). The difference of 2.57 is not significant when low experimental females (13.00) are compared to low control 2 females (10.43).

The null hypothesis 3d is accepted for low experimental females based on the results of the Tukey procedure showing no significant differences in mean gain scores when compared to low females in either control group 1 and control group 2.

Table 20

# Tukey A Posteriori Procedure Comparing Low Experimental

Females With Low Control 1 and Control 2 Females

Group	Mean gain	Difference	Significance
Low experimental	13.00	4.60	
Low control 1	8.40	4.60	
Low experimental	13.00	0.57	
Low control 2	10.43	2.5/	

#### Hypothesis 4

There will be no significant difference in the mean gain scores of experimental group males on the Cornell Critical Thinking Test, Level X, and the mean gain scores of experimental group females on the same test.

In this final hypothesis, males and females from the experimental group are compared to each other. Gender issues are found in the literature but definitive data are difficult because of the many opportunities for confounding variables. The teachers of the experimental group were both very aware of the possibility that more females would be verbal participants and respondents than would the male students. Habits developed through the first six years of school are difficult to change. Every attempt was made by the seminar teachers to actively involve all students. The teachers were equally sensitive to a student's right not to respond in the risk free situation of the seminars. Students were called upon to answer who did not raise their hands, but negative comments were not made by the seminar teachers if no answer was forthcoming.

The analysis of variance (Table 21) shows there was not a significant gain made by the experimental males (F = 1.62, p > .05). The scores of the experimental males did not gain sufficiently between the pretest and posttest to be significant.

A significant gain is seen in the analysis of variance for the

Analysis of Variance of the Mean Gain Scores of Experimental Males on the Cornell Critical Thinking Test, Level X

Source	Sum of	df	Mean	F	F
	squares		square		probability
Between groups	161.00	2	80.50	1.62	.2146
Within groups	1542.44	31	49.76		
Total	1702.44	33			

<u>p</u> = > .05

Table 22

Analysis of Variance of the Mean Gain Scores of Experimental Females on the Cornell Critical Thinking Test, Level X

Source	Sum of	df	Mean	F	F
Between groups	495,61	2	247.91	4.61*	
Within groups	1883.44	35	53.81	4001	.0100
Total	2379.05	37			

\*<u>p</u> = <.05.

experimental females (Table 22). This table shows that as a whole group, the experimental females made a statistically significant gain between pretest and posttest (F = 4.61, p < .05).

The difference between the mean gain score of the experimental males (2.68) and the mean gain score of the experimental females (6.84) is compared for significance. The <u>t</u> test indicates that the difference of 4.16 is statistically significant (t = 2.29, p < .05) (Table 23). Therefore, the null hypothesis is rejected based on the results of the t test showing that the gain for the experimental females is statistically greater than the gain for the experimental males.

Table 23

Group	N	Mean gain	Standard deviation	df	<u>t</u> value
Males	34	2.68	7.18	70	2.29*
Females	38	6.84	8.02		

T Test Comparing Experimental Males to Experimental Females

\*<u>p</u> < .05

#### Qualitative Analysis

#### Introduction to Qualitative Analysis

The two teachers of the experimental group and a random selection of eleven (15%) of the experimental group students were interviewed by the researcher to provide further insight into the effects of the Paideia seminars on critical thinking skills and on other skill areas. While the test of critical thinking assesses the growth made by the students in one area, critical thinking, the interviews will provide teacher and student information to help structure future seminars, to gain insights into the literary preferences and concerns of pre-adolescents, to determine how Paideia seminars help improve critical thinking skills, and to describe the seminar process for other teachers.

Each interviewee was questioned separately and each session was tape recorded for accuracy and comprehension. Recording the interview allowed the researcher to concentrate on listening in order to seek clarification, respond to the level of enthusiasm of the interviewee, and to make the teacher or student comfortable while they responded to the questions.

#### Interviews of Teachers of the Experimental Group

The purposes for interviewing the two teachers of the experimental group were to find out how these two teachers perceived the seminar process within their curricular framework and how and in what ways as teachers they felt the seminars affected their students. Another purpose for the interviews was to examine the seminar process sufficiently so that other teachers could easily replicate and begin Paideia seminars in their classrooms. The interview questions focused on planning, time commitments, finances, curriculum coordination, evaluation, and relationships (Appendix F). The answers given by the two teachers had many similarities, no disagreements, and several practical suggestions. The two teachers were eager to share suggestions, concerns, and recommendations in an effort to encourage other teachers to try Paideia seminars, to increase the writing assignments afforded students, and to evaluate this intense method of increasing critical thinking skills in students.

Answers to each question are shared in a narrative form with elaboration for clarification and understanding. The seminars and the process of setting up the seminars were formatively evaluated following each seminar by the two seminar teachers. The researcher was able to take part in these evaluation sessions on an intermittent basis. The debriefings following each seminar were open and frank with much risk-taking on the part of the two teachers and this researcher. We discussed such things as whether their questioning style had been too value laden or directive, whether the questions asked sought a balance of lower and higher order thinking skills, and if the questions were developmentally appropriate and well organized for this age group. The two seminar teachers were able to evaluate each seminar from several perspectives. Student preparedness, story comprehension, degree and level of involvement, level of critical thinking and peer relations are some of the areas they evaluated following each seminar. Students gave feedback to the teachers concerning the reading selections by their

level of understanding, the amount and kind of their participation, and the conclusions they reached concerning the issue of the story. The teachers also asked the students, after each seminar, how they liked each story.

Each interview question will be considered separately. The two teachers' answers will be used as the discussion focus with added remarks from the interviewer/researcher for clarity or history. Question One - What kind of planning was required for you to implement the seminars?

Both teachers reported that it is essential to prepare before each individual seminar and to preplan the seminars for the entire year. The planning for this 1986-87 research study actually began in the Spring of 1986 so that everything would be in place for the beginning of the school year in September, 1986.

The master schedule was set up to provide the same conference and lunch periods for the two seminar teachers. It was also decided that the two periods should be together for a two period block of time equal to 90 minutes. The seminar teachers needed several days to plan a seminar which is one reason they planned only one seminar per month. The decision to prepare one Paideia seminar a month proved to be a wise decision because each seminar required considerable prior preparation. There was also follow-up time spent on the coaching of writing. It was necessary for the teachers to meet several times to generate seminar questions, decide on group make-up for each seminar, seminar focus, and to handle any special incidentals like a particular student need or problem.

The two teachers of the experimental students met several times before school opened in September. These meetings were used to decide on the reading selections for the year, to discuss a variety of seminar formats and times, to decide on the number of students in each seminar and the follow-up assignments. The reading selections for the year can be found in Appendix E. All the reading selections had to be read by the two teachers prior to classroom use to determine age appropriateness, topic variety, length, and also, to avoid choosing a reading selection that is reserved for a different grade level.

After the stories were selected, the teachers next scheduled seminar dates for the entire year. The seminars were scheduled to be held on one day for one class and the next day for the other class. Conflicts such as national and local holidays, professional growth days, teacher inservices, and student activities had to be considered in the selection of dates for each monthly seminar. The seminar teachers hoped to build in success from every angle. Each seminar required the teachers to generate questions about the story for purposes of discussion. Even though many of the reading selections were taken from the Junior Great Books list, both teachers preferred the questions they wrote together rather than those suggested by Junior Great Books. The teachers reported feeling that they were more "tuned-into" this age group than the Junior Great Book committee writers since they, as teachers, were currently working directly with pre-adolescents. Both seminar teachers have taught middle level students for at least 5 years.

While the preplanning time was important, it was equally important

for the two teachers to debrief each other immediately following each monthly seminar. During these debriefing sessions they would use the notes and notations each had made during the actual seminar. Students' answers were recalled and analyzed; the length of the seminar was evaluated; the degree of story comprehension determined; the amount of student listening, sharing, and referencing noted; and the degree to which and how often students would cite the text in support of their statements and conclusions were listed and discussed.

# Question Two - What kind of help is required to implement the Paideia seminars?

This question helped examine several factors. The first area the teachers reported on was administrative assistance. It was essential that the master schedule allow for optimum seminar planning time, so the school administrators provided common, back to back, daily conference and lunch periods for a total of 90 minutes each day for the two seminar teachers. The principal also provided a substitute teacher for class coverage during the two days of seminars each month.

The seminar dates and intervals were set in advance, and if modifications occurred following an evaluation of a seminar, then the teachers would notify the principal well in advance so class coverage could be coordinated for the next seminar. Both teachers felt they had strong administrator support and understanding and stressed how important this support is for the success of the Paideia seminar plan. The administrator can play many roles and one of the roles the teachers found useful was as a sounding board and a semi-detached observer whose

interaction with the students was mostly outside the classroom, during the seminars, and during walkarounds of classrooms. The principal added suggestions to the teachers' evaluation of the seminars.

The next area discussed by the two teachers was financial assistance which they felt had a definite tie to administrative support. Money was provided to purchase the Junior Great Books selections in Level 6 and Level 7. All of the seventh grade language arts teachers at the same middle school site as the experimental group received a one day training in the Junior Great Books interpretive reading process. The two seminar teachers received further training in the Paideia seminar process from Mortimer Adler in a workshop sponsored by the San Diego County Office of Education. This Paideia seminar training was available to only 25 San Diego County educators. Selection criteria was based on teachers' willingness to put the Paideia seminars into practice in their classroom settings. Following the workshop, both teachers felt they needed more training from Adler than they received in this three day training.

Another financial issue was the copying of the monthly reading selection for every student. The teachers have a master copy for each reading selection which includes numbered paragraphs for easy reference during reading and discussion. All students received a copy of the monthly reading selection, three hole punched for placement in their subject binder. The students were encouraged to underline, to write in the margins, to highlight, and to refer to specific parts during the seminars. Having their own copy was essential to an effective reading and discussion of a story.
Parental support was another area discussed in question two. One seminar teacher felt parental support was high and cited some reasons for this conclusion: (1) notes from parents on the reading selections the students took home, (2) the presence of about 12 parents at a mini seminar the two teachers facilitated as a demonstration for parents at a Parent Conference Day, and (3) comments from parents about how much their child looked forward to seminar day. The teachers reported that the absence rate for these classes was lowest on seminar days. One student recorded a couple of the seminars for her parents to hear at home. The second teacher received "positive feedback" from parents but wished more parents would have been involved.

The seminar teachers used the planning process to serve many functions. They reported that planning prepared them to question students at appropriate levels and to ask a variety of types of questions. Questions elicited concrete recall, inferences, suppositions, textual references, challenges, ignorance, and familiarity to name a few categories. Selections of all seminar dates prior to the opening of school effectively meant the seminar teachers were ready and committed to a year long program. The principal was convinced there would be follow through by these teachers and therefore scheduled, with confidence, substitute teachers sufficently in advance. Other teachers on staff at this middle school, members of the Board of Trustees, the Director of Curriculum, and interested people in the community, including parents, were invited and were able to attend to observe the seminars. Having the dates and times set well in advance of each

seminar made planning for an observation much easier and increased the likelihood of visitors. Visitors to the Paideia seminars included a member of the Board of Trustees, all three administrators from the school site, several teachers, one counselor, the district Director of Curriculum, the Associate Superintendent of Instruction, and several parents. Chairs were made available at the back and sides of the room for visitors so there would be a minimum of disturbance if they entered while the seminar was in progress. Most visitors came to listen to the students and since the visitors were not noisy the students soon forgot them.

Planning was a cooperative effort with shared and delegated responsibilities. The two seminar teachers would trade off on copying the reading selections for the students, on which room would be utilized for the monthly seminar, and which teacher would begin the questioning for a particular seminar. Organized people always want to be more organized the "next time" and these teachers are no exception. They expect to be better prepared next time and to profit from any miscalculations.

# Question Three - How did the seminars affect your relationship with your students?

The overwhelming feeling of both teachers was that they "felt closer to (their) students this year than ever before." Some of the learning theory and techniques they followed during the seminars helped bring about that closeness. Students were actively involved in their own learning within the seminar process. The students developed

ownership for the stories since they had their own copies which they marked with their own thoughts and questions. Liking the story was not as strong an issue with the students as is often the case with longer novels. Readings were relatively short, with a new selection each month, and the topics were varied. More important to the students than liking the story was being prepared to discuss the story. Since each reading selection was read at least once out loud in class, students could feel confident in having a minimum level of understanding. Success breeds success and this process gave students confidence in rereading the story at home and then increased the likelihood of understanding the questions asked by the teachers on seminar day.

The tendency of teachers to talk to or lecture students rather than to involve students more actively in the learning process is avoided in the seminars. One teacher reported doing less "talking at" students and more "talking with" students because of the seminar training and experience. Both teachers said their students knew that they (the teachers) valued students' opinions and that both teachers complimented the students on their increased ability to discuss a piece of literature.

Listening to students enabled the two teachers to learn a lot about their students. By listening and providing a forum for sharing ideas, the teachers were able to increase student confidence, analytical skills, willingness to share in a nonjudgmental atmosphere, tolerance, and reasoning skills. Teachers and students were on a more equal level, each with a desire to explore ideas rather than to find the "right"

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answer. The teachers facilitated the seminars but had to rely on contextual information to support what they proposed just as the students had to support their statements. The rules of a seminar apply equally to all. The seminar teachers felt closer to this group of students because they learned so much about them through very intense interaction. The seminars involved mutual respect, understanding, and careful listening. In such a seminar, for perhaps the first time, students learn that teachers do not have all the answers. A student could legitimately explain and justify a differing opinion with credibility and expect agreement or debate from a teacher, not an explanation of the teacher's preferred answer.

# Question 4: Did the seminars affect student relationships with each other and in what ways?

Seating arrangements, behavioral requirements, and the seminar process were planned to eliminate barriers. Every aspect of the teachers' planning is designed to increase the likelihood of student interaction and involvement. Since the story is read aloud in class, less able readers pick up unknown words, story facts, and fluency and begin immediately to formulate hypotheses about the story, its characters, and possible outcomes. Students are seated in a circle because looking at each other is more conducive to involvement, discussion, and listening than sitting in rows with their backs to each other. Both teachers noted that students who regularly did poorly on paper and pencil tasks, including homework and tests, "did great in seminars." Doing great means that the student actively participated by answering or posing questions, cited text as support for a position, referred to other student comments either in support or in opposition, and expressed strong opinions about the story issues, characters' behavior and the author's intent or purpose in writing the story. These students were often the ones who held other students and teachers accountable for opinions expressed during the seminars and who generated further discussion by their comments.

The group of students who were generally considered less successful at school tasks based on their report cards, test scores, returned homework, and various daily paper and pencil tasks, were actually taking part in a learning environment that was an effective way for them to give feedback based on their real understanding, knowledge, and frame of reference. Goodlad (1984) found most teachers in his study following "a narrow range of teaching practices" (p. 298). This meant that teachers in Goodlad's (1984) study rarely had students act out an historical sequence, discuss or debate a major issue or literary theme in a seminar, explain concepts to younger students in order to further internalize the learning for themselves while helping another, or dynamically integrate art and music into other content areas like social studies.

Both seminar teachers felt that students came to value other students' opinions because the opinion was based on something concrete, the reading of the text. This puts students in a decision making and evaluating mode. They developed as listeners, speakers, and opinion makers.

# Question 5 - Have the skills you developed as a seminar facilitator changed your teaching style and if so, in what ways?

The teachers reported being "less an answer giver" and a "know it all" as evidence of change in their teaching styles while providing new ways to facilitate increased active learning. Instead of immediately supplying answers, these two teachers began to open questions up to the larger group, the entire class. Probing questions, prompts and hints, and rewording a problem were all methods cited as used more often or added to the teachers' instructional repertoire. These teachers supplied fewer right answers and encouraged more discussion, and this they said generated more ideas from students. "Students were more willing to risk" in this type of learning environment.

The seminars were followed up with a writing assignment related to the original seminar questions for each reading selection. Because of the critical thinking aspect of the seminars, the teachers looked at writing as something to "be improved" and grades became less important. Students became aware through the seminar process that their teacher was not necessarily looking for the one right answer. The seminar questions were designed and intended to be thought-provoking. In writing assignments, therefore, it became more likely that students would at least vary their answers from the usual safe comments. They wrote with a variety of styles and ideas. Both teachers felt this willingness on the part of the students to do more comparing, contrasting, and reasoning was a direct outcome of the teachers' willingness to look deeper into the students' writing than the surface grammar.

# <u>Question 6 - What evidence do you have that the seminar approach</u> affected your students' ability to think critically?

The major evidence cited by both teachers indicating that students were improving their ability to think critically was in the area of writing. Writing assignments related to the reading selection followed each seminar. The seminar teachers felt that the written assignments following the seminars improved during the seven months of the study. A writing sample was saved from the beginning of the study for reference. The seminar teachers could use this writing sample for comparison with subsequent writing assignments. Grammar, spelling, and sentence structure were areas continually assessed in this way, as was the students' depth of understanding of the current seminar story, topic development, or character analysis. During the seminars, students would anticipate the opportunity to express their thoughts supported with facts, realizing that their assignments would soon be to write about the story. The students would prepare and think in writing terms even as they read the selections, made notations in the margin, and responded during the seminars. Students could begin to see issues, important events, dilemmas, and choices as they occurred in the story. Discovering areas for interest or concern within a story, students knew they would be given the opportunity to address the concern or interest either verbally during the seminar or in writing.

Both teachers also cited students becoming better listeners and questioners as evidence of improved critical thinking skills. Both these skills, listening and questioning, are important to taking in

information and thinking about it for making decisions and judgments, and for expanding knowledge. One teacher stated that students used "more supporting evidence in their arguments, were less emotional, and fully involved but not irrational."

During the seminars, the two teachers would take notes or make a graph or diagram. These were used to organize the information about the seminar in ways that would be useful in making decisions about the current seminar and future seminars. The teachers would record the types of student responses they heard, which students volunteered, the degree of difficulty of the questions based on the students' responses, and the amount and kind of student interaction that occurred. These observations would be used during the debriefing following each seminar. Some students would be addressing a question on a very concrete level while other students would be off on a more abstract level.

Taking notes on how their students responded and progressed allowed the seminar teachers to refer to past performances when judging the success of the current seminar. They considered both willingness to participate and performance ability when making judgments. There were a variety of concerns addressed in the teachers' notes. Some examples of what the two teachers might make a note of are (1) the number of voluntary responses for each student, (2) students who asked questions, (3) students who rarely volunteered and who did not have an appropriate answer if called upon, (4) students who rarely volunteered but always had an appropriate answer when called upon, (5) students who cited text, (6) students who referred to another student's response, and (7)

students who always raised their hands but whose responses were not clearly stated.

There are many reasons why a student would actively participate in a discussion on any given day. The teachers' seminar notes allow them to check for patterns or exceptions. The objective is actively to involve all the students in the discussion and the notes made it possible to check for changes in a student's preparation or reasoning skills. It is important that taking notes does not interfere with the seminar teacher's ability to evaluate both the comprehension of the class during a seminar and to hear specific responses. Notes were cryptic, check marks, or brief phrases so the teacher would not lose what students were saying or make the notations the end product. <u>Question 7 - What advice would you give to someone who planned to</u> implement Paideia seminars with students?

Enthusiastically, the two seminar teachers gave advice to teachers wanting to implement Paideia seminars. Their ideas and suggestions burst forth, advising first and foremost, do it! After their strong recommendation to learn by doing for interested teachers and not be reluctant to start without a perfect program or skills, they had some specific advice to guide adventuresome, interested teachers.

Their strongest recommendation was to do the Paideia seminars in cooperation with another teacher. The entire process of selecting stories, dates, writing questions, conducting seminars, and debriefing can be done by a single teacher. A collaborative effort makes it a richer experience for teachers and students. Two collaborating teachers

could represent two different and distinct styles and points of view. These two seminar teachers suggested this difference was very helpful during seminars. It helped to have more than one frame of reference when seeking insight about issues in the stories. The experimental group students were always particularly delighted when the two teachers facilitating the seminar would disagree on the interpretation or meaning of a passage. The students listened, laughed, and learned intuitively about the value of and respect for diverse opinions through these exchanges with their two seminar teachers. Students learned to look at a story from different angles, to respect another opinion without necessarily agreeing with it, and to disagree with a friend and remain friends.

The issue of disagreeing with a friend or classmate is important for middle level students to begin to understand because their peer relations are perhaps the most important part of their lives at this age. While <u>Caught in the Middle</u> (Middle Grade Task Force, 1987) describes middle grade students as "easily offended and...sensitive to criticism..." it also notes that this age child is "egocentric; argues to convince others; and exhibits independent and critical thought" (p. 144, 147). Adult models who can disagree and remain friends send a powerful message to impressionable pre-adolescents. "Adult values are largely shaped conceptually during adolescence" (Middle Grade Task Force, 1987, p. 148).

One of the seminar teachers said that teachers must be willing to share and explore ideas if their goal is for students to share and

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explore ideas. Teaming with another teacher for seminars requires cooperation, understanding, and a commitment from the two teachers and their site administration.

During the workshop on Paideia seminars sponsored by the San Diego County Office of Education, Mortimer Adler recommended the use of two facilitators for a seminar as most effective and cited several reasons. Facilitating a 90 minute seminar is usually very fatiguing; a lag can occur and the other facilitator can breathe new life into a discussion, and the teacher who is not the primary facilitator at the moment is freer to observe student behavior.

Debriefing with a colleague on a shared task is rewarding for the facilitators, and the students usually profit in future seminars. Debriefing the seminars means reviewing student story comprehension based on the students' comments, level of interest in the story, and depth of understanding of main issues and characters. Teachers discuss what they would do differently based on mutual sharing, student recommendations, and generally analyzing the seminar for strengths and areas for improvement. Debriefing can be done alone but is potentially more effective and honest if it is a shared experience. The goal is to facilitate critical thinking through the best seminars possible.

There were several recommendations for teachers interested in starting seminars. The seminar teachers felt training in the Junior Great Books interpretive reading and questioning method was "helpful but not critical." As mentioned earlier, both seminar teachers would have liked more time with Mortimer Adler simply for asking him questions.

There are always questions left unanswered when a new approach is undertaken and Paideia seminars fall directly into that category.

These two teachers tried half class seminars thinking they would be easier than the whole class of approximately 30 students. This did not prove to be the case. The smaller seminar groups meant fewer ideas shared and fewer volunteers, so that volunteers began to feel isolated from their peers and did not want to respond further or else they dominated the seminar because others gave up risking when someone else so obviously has the "right" answer.

The two teachers recommended selecting readings with several levels of meaning. Seventh grade students can be at different levels of intellectual development. Some students understand and discuss issues at a concrete level while other students in the same seminar are capable of applying more abstract reasoning. It is important to ask questions which allow students at all developmental stages to be involved and progress toward higher thinking skills. Students are used to teachers asking for the one right answer and are rightfully suspicious of a format that professes to want their opinion based on what they think something means. The teachers suggested using stories with several minor issues as well as a major issue enabling both narrow and global perspectives of a variety of issues and concerns.

It is important to prepare seminar questions that will elicit more than one word responses. Collaborating teachers can brainstorm questions together to avoid this trap. There is a tendency for teachers to be directive (Goodlad, 1984, p. 298). Both seminar teachers found

this was a handicap both in formulating the seminar questions and facilitating the seminars. These teachers observed during their instruction with students that they were more directive in all the subjects they taught than they had realized. Gradually the skill of writing multiple level and multiple interest questions became more natural and easier.

#### Summary of the Teacher Interviews

The emotion that surfaced early and stayed throughout the interviews with the two Paideia seminar teachers was excitement. It is more than enthusiasm. It is excitement for the unknown of the next seminar, for shared inquiry, and for the realization that students who have been unsuccessful or unmotivated to perform previously have been given a way to think and respond that is the "right way to respond." These teachers have structured and provided a learning environment where learners at all levels, including the teacher, can experience success, growth, and excitement through learning.

#### Interviews of students who participated in Paideia seminars

In order to obtain additional qualitative data, the researcher conducted interviews of students who participated in the Paideia seminars over the seven month period. A random sample was obtained by selecting every eighth child until eleven students were selected. This was approximately 15% of the total sample of 72 experimental students. These 11 students were asked the same five questions (see Appendix G) which were designed to find out likes and dislikes, points of view based on the seminar experience, critical analysis, and information that would

help the two seminar teachers and future teachers to offer the best possible seminar program. The first three questions asked for an initial yes or no response and then clarification or expansion of the response. Questions 4 and 5 required the students to generate ideas from their own experience and to give answers based on their new knowledge from the seminars.

It seemed especially appropriate to add this qualitative information allowing the students to express feelings, experiences, and suggestions considering the nature of the study. The seminar process is itself practice in expressing a point of view based on experiences found in the text and from personal life. The students did not know what the questions were in advance and responded to the questions spontaneously. Each student was interviewed separately and their answers were recorded to insure accuracy of reporting.

Student responses to each question were reviewed separately in order to share remarks and suggestions fully. Tables 24 through 28 are specifically designed to impart qualitative information to the reader while attempting to encapsulate the students' comments for ease of reading. With the data organized in this way, it was possible to observe an individual pattern of response or get an overall sense of how the students gained from the Paideia seminar experience. Every attempt was made to keep responses as close to the original as possible.

The random sample was composed of five male and six female students from the experimental group. The two seminar teachers said that the random sample of students was about evenly weighted as to students who

were actively involved and those who participated minimally during the seminars. Active participation meant voluntarily responding verbally to a question or statement during a seminar. Some students could be counted on to participate while others were expected to be quieter based on the students' past participation during the Paideia seminars.

The first question asked the students if the seminars were helpful in any way and if yes, in what ways were they helpful. Ten of the eleven students said yes, the seminars were helpful to them, and one said "sort of" (Table 24). The researcher did not count that as a yes or no but noted that the student did say the seminars were helpful to a better understanding of the story. The explanations that followed the yes responses fell into two main categories. The majority of the 11 students said the seminars enabled them to profit from sharing ideas and that this discussion, listening, and sharing ideas helped them to better understand the stories. The sharing of ideas and story comprehension were subjects these students knew something about. The students could discuss the seminar using appropriate terminology to describe what they had learned from the seminar discussion process. They had the ability to consider their own learning at an abstract level.

The results of the second question were split. The question asked students if the Paideia seminars changed the way they looked at

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### Table 24

### Student Inteview Question 1

Question 1: Were the seminars helpful to you in any way, and if so, in what ways?

Student	Overall	Sharing ideas	Better understanding
1	yes	Х	x
2	yes	Х	x
3	yes		x
4	yes	X	x
5	yes	x	X
6	yes	x	X
7	yes		X
8	yes	x	X
9	sort of		X
10	yes	x	X
11	yes	x	X

assignments in other classes, and if so, in what way (Table 25). Six students felt they were not affected in other classes by the seminar experience. The comments from the five students who experienced a change centered primarily on the relationship of reading and discussion to awareness and comprehension of subject matter. They mentioned history and science in particular ("I take notes in science more now.")

#### Table 25

#### Student Interview Question 2

Question 2: Did the seminars change the way you looked at assignments in other classes and if so, in what way?

Student	Yes	No	Comments/Reasons
1		Х	
2	x		helped me imagine more and extend thinking
3	x		helped me realize the need to read more than once
4		x	
5		Х	
6	x		I thought more about a reading
7	x		I raised my grades
8		X	
9	x		
10	X		realized how important discussion is to understanding
11		Х	I take notes in science more now

The seminars "helped me realize the need to read (a story) more than once" and I "realized how important discussion is to understanding" were representative comments. The positive effect of reading for understanding was recognized and appreciated. They used terms like "imagine more" and "extend thinking" when referring to the seminar process of reading followed by discussion.

While the responses to Question 2 suggest a majority of the experimental students did not perceive the seminars as having a direct influence or impact on their other courses, some comments indicate that changes did occur. These changes emphasized the process of reading a selection more than once to increase understanding, the value and usefulness of taking notes, and the increased thinking that occurs when the Paideia seminar process is followed.

Question 3 is one that also required an initial yes or no response (Table 26). This question focused on change in students' writing grades. Nine of the 11 students said they did better in writing since participating in the seminars. The seminars were always followed by a writing assignment about the current seminar story. The writing process approach taught to every seventh grade student at both of the participating middle schools comes from the San Diego Area Writing Project where it has been part of the seventh grade curriculum at the two middle schools for at least four years.

The interviewed students explained that they could "pay attention now," use imagination, and think more about what to write. Their "ideas got better" and "vocabulary got better" following the seminars. Of the two students who did not answer affirmatively, one reported that "spelling is a problem" and equated that with writing. The other student felt his grades had remained about the same.

#### Table 26

Student Interview Question 3

Question 3: Hav	e your grades	in writing been better? If so, why?
Student	Yes	No Comments/Reasons
1	X	
2	X	Benefits of writing after a seminar
3	X	Seminars help me to write a good paper and pay attention
4		I stayed about the same
5	X	After seminar, writing was better
6	X	Use imagination, and think more about what I'm going to say/write
7	X	Ideas got better
8	X	Went from B to A; vocabulary better after the seminars
9		Undecided; spelling a problem
10	X	
11	X	I write more and my grade went up

For Question 3, the overwhelming majority cited greater writing competency. Thinking, vocabulary growth, attending skills, and imagination were the main areas the students identified as areas of growth. During the seminars it would be usual for the teacher to compliment a student on a particular statement without necessarily negating a differing opinion. For example, one of the seminar teachers might say "you gave that a lot of thought, Jeff" to affirm for Jeff that his statement had worth. In this environment, students had more reason to be attentive, be concerned about the meaning of words, and were free to risk imagining or projecting from a story.

Questions 4 and 5 were open-end questions asking students for their ideas and feelings based on their seminar experience. There were many similarities in the students' responses to question 4 which asked how learning to function in a seminar helped them with other parts of their school day or with their lives. The majority of the comments centered around three main categories: (1) talking in class, (2) story comprehension, and (3) talking at home (Table 27). Students recognized their increased ability to express themselves verbally in class, to talk with people, and to listen to others speaking because of the practice in discussing and listening during the seminars. They reported being "patient with speakers," "taking turns," and finding it "easier to talk with people." The monthly experience of discussing a story as a class with two teachers, with the class listening to the responses and interacting, had the effect of "practice makes perfect." Students who are provided regular opportunities to exchange ideas through discussion and other cooperative learning situations with classmates, will be more aware of what process is necessary for the exchanging of ideas. Also, if the opportunity to engage in meaningful dialogue is expected it becomes less likely that one individual will monopolize the seminar

Table 27

### Student Interview Question 4

Question 4: How has learning to function in a seminar helped you in other parts of your school day or life?

Student	Talking in class	Understand story	Home talks
1	easier to talk with people	X	
2	X		x
3	patient with speakers		
4	I participate more		
5		x	
6			I think more about why my parent yelled
7		x	
8	take turns; group work	pay attention	take turns
9	talk outside about story	increased vocabulary	
10			told parents about how good stories were
11	take turns		

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because students will know there will be many opportunities to contribute and express ideas.

The seminar process requires listening and formulating thoughts based on what is read and heard in order to share an opinion with care and conviction. Since students can only explain what they understand, the seminar process helps them arrive at understanding that has a basis in concrete facts or phrases an author has expressed in writing. They learn about thinking (metacognition) because they are thinking as part of listening, sorting, reasoning, inferring, and deducing during the seminars.

Other related areas that the interviewed students mentioned with regularity were (a) an increased understanding of the stories, (b) an increased ability to attend, and (c) an increased vocabulary. These areas surfaced in the first three questions also. Understanding vocabulary is closely tied to story comprehension and these students realized the effect the seminars had on their increased abilities to define and use new vocabulary.

Finally, students' comments acknowledged the far reaching effect the seminars had on their home life. Talking about the seminars with their parents or their families at dinner was not uncommon. Students told their parents how "good the stories were" and parents in turn listened to their children. Students reported "taking turns" talking during dinner after experiencing the effectiveness of this approach in the seminars.

Students cited a variety of ways the seminar experience helped them

get more out of school and their home life. There was more understanding about why parents and teachers "yell" about studying. Preparation was experienced and appreciated and for some carried over into other aspects of their lives.

The fifth interview question offered students the opportunity to share suggestions for improving the seminars (Table 28). These students had regularly experienced the opportunity to express themselves, had read stories they did not select, and had to follow the rules for an effective seminar. What did they think worthwhile and what would they eliminate if they could? Six of the eleven students reported liking the seminars just the way they were and wanted no change. The suggestions for change centered on the size of the seminar group and the choice of readings. Students reported a preference for the larger, whole class seminar group (25) as compared to the seminars with only about one half the class (15). One student's response echoed many of the interviewees' feelings: she liked "getting together and talking and (liked) the big, big seminar because then you have more ideas."

Students who preferred the seminars to stay the same, wanted to hear more ideas expressed. Since students were not forced to contribute verbally during a seminar, there could be as few as six or seven students doing most of the talking in a seminar with only 15 students. The large group assured students of more contributors and more diverse viewpoints.

Table 28

Student Interview Question 5

Question	5:	Do you	have any	suggestions for	improving	the seminars?
Student		Like as	is	Suggestions		Readings
1		Х				same
2				Call on kids to	talk	change some
3				15 best		same
4				More participat students call at first	ing if ed on	same
5				2 periods neede	d	same
6				Big group, more	ideas	
7		X				
8		X				
9		X		Big group best		same, more
10		X				
11		x				some different

#### Summary of Student Interviews

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Hearing directly from the students who received the Paideia seminar treatment was very valuable as a resource in evaluating the worth of the seminars. Overall, the students felt the seminars helped them to understand better what they read through the sharing of ideas with

classmates and through increasing their writing and thinking skills. The random sample of students were most divided about whether their seminar skills had any effect on what they did in their other classes. The students who reported changes in other classes viewed the differences as including more thinking about what they read, the value of taking notes, and class discussion helping with understanding. Combined with the mean gain scores on the test of critical thinking that was used as both a pretest and as a posttest, teacher and researcher observations, and teacher interviews, the student interviews add another dimension to the complex task of evaluating the gains made from involvement in Paideia seminars.

#### Summary of Chapter IV

In this chapter, the researcher examined data on four hypotheses to see if there were gains in the critical thinking skills of the seventh grade students who participated in the Paideia seminars for seven months. The findings were inconclusive inasmuch as the experimental group made significant gains when compared to control group 2 but not when compared with the gain made by control group 1. It was hoped that the experimental group would perform better on the test of critical thinking than both of the control groups. When the experimental group was compared by gender and ability level to the control groups, there was no significant difference in the experimental students' gain on the test of critical thinking.

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The experimental females performed better than the experimental males on the test of critical thinking. The difference in their mean gain scores was a significant difference. While the males were equally represented in the experimental group and began the study with means equivalent to the means of the experimental females, the females in the experimental group made significantly greater gains on the posttest of critical thinking.

The qualitative data, in the form of teacher and experimental student interviews, were able to provide information valuable to future researchers in the area of critical thinking and the seminar approach. There was a sense that teachers and students made steady progress through the seven months of the study and that students were able to discuss their own learning styles and approaches to learning new material because of the seminar experience. In addition, the interviews yielded insights important for teachers new to the seminar approach which included: (1) awareness of students' enthusiasm for the seminar approach to learning, (2) the growth in social and emotional development of the experimental students as reported by both teachers and students, (3) the time required for effective Paideia seminars, and (4) changes made by the seminar teachers in their instructional practices following involvement in the Paideia learning approach.

In Chapter V, the researcher will summarize the major findings and draw conclusions based on both the quantitative and qualitative data. The main focus of this study was on how to increase the critical thinking skills of seventh grade students and the summary will focus on

that issue. Implications for students, educational leaders (teachers, site administrators, district level personnel), institutions of higher education, and the community will be offered. Recommendations will be made for future research in the areas of critical thinking, Paideia seminars, gender, and pre-adolescent growth and development.

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Chapter V

Discussion, Conclusions, Implications, and Recommendations

This study grew out of my long held desire to know more about how to provide meaningful, and equitable learning opportunities for all students. My special education training and experience suggest that educational professionals should provide skills and experiences that will enhance each student's ability to generalize across disciplines, provide an environment that suggests to students that they are capable, and should instill a desire for lifelong learning. Rote learning of procedures, formulas, or tables has value only as it allows students to work toward a depth of understanding in many interrelated areas of the curriculum.

The underlying theme of Mortimer Adler's Paideia Proposal (1982) is the necessity for everyone to receive an equitable education so democracy will be an effective and viable form of government in America. He stated, "...we have achieved only the same quantity of public schooling, not the same quality" (p. 5). There must be a belief among the school staff, students, and the community that the same high standards for excellence in academics, behavior, and extracurricular performance will be expected of all students. School populations should not be grouped according to preconceived notions about their potential

for achievement. Self-fulfilling prophesies can achieve both positive and negative results. Grouping students by ability suggests to the students and teachers involved a set of preconceived expectations based on current functioning levels rather than on open ended expectations based on student motivation and teacher skills. Students who learn in an atmosphere of open communication, shared goals, and high self esteem will be more likely to learn, share, and communicate.

The Paideia seminars are one mode of instruction meant to foster critical thinking skills and higher order learning styles for students in an atmosphere of open and shared communication. The two seminar teachers provided this opportunity to participate in Paideia seminars to their students and assessed the effect of the seminars on the students' critical thinking skills. These teachers also looked at the holistic effect of the seminars on their students in areas such as listening, speaking, and socialization.

## Summary of the Research

The major findings from this study of the effects of Paideia seminars on the critical thinking skills of 7th grade students were presented both quantitatively and qualitatively. This summary highlights these major findings and describes results of the posttest of critical thinking and the interviews with teachers and students in the experimental group. A test of critical thinking was used as a pretest and as a posttest for the quantitative data. A random selection of

experimental group students as well as the two teachers of the experimental group were interviewed for the qualitative data. Quantitative data were analyzed to assess differences in mean gain scores between pretest and posttest. The interviews provided qualitative data to add to the knowledge base concerning Paideia seminars with 7th grade students.

The findings available from the study will (1) help in determining whether the Paideia seminar approach is effective in raising the level of critical thinking skills of the 7th grade students, (2) help in evaluating the merits of the seminars against the time and the effort required by the teachers and administrators to provide these seminars, (3) help other teachers become aware of the processes and skills necessary to include seminars in their own classes, and (4) assist in making teachers aware of all the types of skills students develop through the seminar process.

The study focused on the improvement of critical thinking skills. The Paideia seminars were designed to enhance this critical thinking when didactic teaching and the coaching of writing were also used as instructional techniques. Adler (1982) visualized three interrelated types of learning situations. The emphasis was on "the different modes of learning on the part of students and the different modes of teaching on the part of the teaching staff..." (p. 22). Seminars are but one type of learning situation and are useful in combination with other teaching techniques. The seminars in this study addressed many kinds of learning for the involved students which only became apparent after the

study had begun. The interviews with the students in particular demonstrate the depth of the experience for them in several areas. Listening and speaking abilities were practiced and enhanced for participants, as were patience, politeness, and an increased ability to take risks and share ideas and feelings with classmates. The risk free environment of the seminars meant students could look forward to the experience each month with enthusiasm and ideas.

#### Discussion of Major Findings

In this study, the experimental group was compared to two separate control groups. The decision to form two control groups was made because the teachers of control group 1 had participated in a one day seminar on Interpretive Reading and Questioning through a Junior Great Books program the previous spring. However, during the seven month period of this study none of the teachers in control group 1 used seminars to discuss literary works. Control group 2, at the second middle school site in the same school district, consisted of teachers with no previous training in interpretive reading and questioning; they also did not use a seminar approach to discuss literary works during the seven months of the study. Therefore, the use of two control groups with pretest means equivalent to the experimental group would allow two comparisons.

The four hypotheses focused on students in the experimental group, control group 1, and control group 2, examining the results of the

testing by gender and by ability groupings of high, average, or low. Three of the hypotheses compared the mean gain scores of the experimental group to the separate control groups, and the fourth hypothesis compared experimental males to experimental females.

#### Quantitative Analysis

The first hypothesis compared the experimental group to each of the control groups using the Cornell Critical Thinking Test, Level X, as a pretest and as a posttest. The mean gain score of the experimental group was significantly greater than the mean gain score of control group 2 but was not significantly greater than the mean gain score of control group 1. The difference between the scores of the experimental group and control group 1 was slight and might be attributed to the additional training in interpretive reading and in writing techniques received by all of these teachers. It is also possible that students need to participate in Paideia seminars more than once a month for seven months in order to make a significant gain on the test of critical thinking.

Hypothesis 2 considered the experimental groups, control group 1, and control group 2 by male gender and across ability levels. Through random selection, a statistically equivalent number of males and females were found in each group (Table 4). Also, when gender and ability levels were combined there was no statistical difference in the number representing each group at the beginning of the study (Table 5).

The effect of the Paideia seminars on the critical thinking skills

of males in the experimental group was not significant. In fact, males in control group 1 who did not experience the seminars made greater gains on the test of critical thinking than did those males in the experimental group. Control group 2 males made no significant gain.

When males in the experimental group were divided by their score on the pretest of critical thinking into ability groups of high, average, and low there was again no significant difference between their gain score and the gain scores of the control groups with similar ability levels. Both teachers of the experimental group used a personal method for noting which students participated during a seminar and they also noted the kind of participation. Neither teacher noted one gender participating more than another. The Paideia seminars provide fewer opportunities for a single correct response to a given question making it difficult to label responses. Often a response or question was part of a larger discussion and would trigger subsequent remarks which aided in the understanding of the text. It is not clear why the males in the experimental group did not perform better than the males in the two control groups on the post test of critical thinking.

The third group of hypotheses addressed how females in all three groups and across ability levels progressed during the seven months of the study. Females in the experimental group made statistically greater gains in their total mean gain score than females in either of the two control groups. However, the difference between the females when divided into ability levels of high, average, and low was not significant at any level. Since the Paideia seminars seemed to have

contributed to the significant gains made by females in the experimental group, the lack of finding of a significant difference when females were divided by ability levels may be due to the small numbers in each group of high, average, and low.

The last hypothesis compared males and females from within the experimental group. There was a significant difference between the gain scores made by females compared to males. Two aspects to the findings on gender in this study are (1) that gender research suggests that females at the age of seventh grade students perform better on language assessments than do males of the same age, and (2) that the experimental females also performed significantly better than control group females. Therefore, the Paideia seminars seem to have been a factor in helping females increase their critical thinking skills.

The quantitative results are mixed. Males in the experimental group did not make significantly greater gains than control group males, but females in the experimental group did perform statistically better than control group females. When the results were analyzed by ability level for all three groups it was found that students in the low ability groups made greater gains in their mean gain scores than did students in the high and average groups. The Paideia seminars thus seem to be one way to group heterogeneously and to instruct low ability students in order to improve their ability to think critically.

This was the first experience the two teachers of the experimental group had with Paideia seminars. They had minimum training and practice before beginning the monthly seminars for this study. One seminar a

month for seven months may not be sufficient to bring about significant differences in the scores of seventh grade students in the area of critical thinking. Beginning the seminars in elementary school or the cumulative effect of Paideia seminars over two or three years may be what is required to make a significant difference in thinking skills.

#### Qualitative Analysis

Students were enthusiastic about the seminars and came prepared to participate. Boys and girls were expected to participate equally by their teachers and from my observation they did participate equivalently. Also, I observed that when a particular student was a strong seminar participant that the tendency to be a strong participant continued throughout the seven months regardless of gender. Seminar groups were not made up of the exact same students each month since the teachers varied the size of the seminar group to provide increased opportunities for student participation. All students had the opportunity to participate in all seven seminars. Absenteeism was low on seminar days so most students participated in all seven seminars.

There were many intangible results noted by the teachers and students of the experimental group. Closer bonding between students and teachers, and between students and students, improved study habits and listening skills, awareness of differences in learning styles, and increased social and emotional growth are just a few of the areas of growth for the students and teachers participating in the Paideia seminars. Closer analysis of some of the qualitative aspects of this

study follows.

The interviews of seminar teachers and of the students who participated in the seminars yielded qualitative data which were subjective but valuable. The questions were straightforward and easily answered, requiring simple recall and reflection from the participants (interviewees). An attempt to elicit information on all aspects of the seminars, especially those concerns necessary for replication, was the motivation for the particular questions asked of both students and teachers of the experimental group.

The two teachers of the experimental group were asked questions about seminar planning, the requirements for cooperation and help from administrators and parents, the effects of the seminars on their relationships with students, and changes in their instructional techniques and in the critical thinking skills of their pupils. As expected, preplanning as many aspects of the seminars as possible was essential to the success of the seminars. They addressed such issues as: (1) story selection, (2) seminar dates, (3) seminar questions, (4) scheduling (periods), and (5) evaluation procedures. Immediate formative evaluation was essential to each successive seminar. These teachers said they learned something new about students during each seminar. The site administrator was called upon for support in a variety of areas from scheduling to arranging for substitute teachers. The specific kind of support was not as important as the general understanding and appreciation for the program by their administrator.

The Paideia seminars afforded the seminar teachers the rare
opportunity to observe their students in an environment in which a wide variety of learning and teaching styles were evident. The seminar teachers noticed a tendency for students who do not typically do well on regular written assignments, homework, and paper and pencil tasks to perform as well or better than any of the students who are usually successful in the traditional school model of lecture and recitation. as noted by Goodlad (1984). The opportunity to demonstrate both a variety and a depth of understanding was available to many of these students for the first time. An additional benefit was the subtle change in students' perceptions of classmates' intellectual abilities gathered through the seminar experience. The seminar process is designed to encourage and allow for the risk free involvement of everyone. Students start out with a more equal chance for success. The seminar teachers reported that certain students were perceived as having greater academic ability by classmates because of their performance during the seminars. If Goodlad (1984) is right and there is a paucity of intellectually stimulating classroom environments, then the Paideia seminars can help bridge the instructional gap and provide opportunities to learn on many levels for many more students.

Both seminar teachers cited the improved quality of written responses as evidence of increased critical thinking ability in their students. Student writing became less like what students thought teachers wanted to hear and more like how an adolescent would think and feel. This change occurred partly because the expectations and goals for writing assignments changed over the seven months of the study. The

seminar teachers combined the skills they derived from past involvement with the schools' writing lab with a new found awareness that one of the purposes of writing is to help clarify thinking. Participation in the seminars took various forms for students and teacher assessment was subjective. Writing, as an assessment tool for teachers, is an individual endeavor, representative of an individual students' thinking processes and conclusions. The teachers noticed an increased student willingness to write, which they took to mean an increased willingness to think about the issues of a story. Writing after a seminar seems an essential part of the process and is supported by Adler (1982). After listening to so many ideas during a seminar, students need the time and an assignment to think more about specific aspects or characters from a story. Thus, they learn to pull together many threads in order to make a whole picture that satisfies their beliefs.

The two teachers of the experimental group gave a great deal of time and energy to the success of each smeinar. They felt the return on their investment was well worth the effort in both the quantity and the quality of student involvement.

# Interviews of Students Who Participated in Paideia Seminars

Students who participated in the Paideia seminars were asked questions regarding their seminar experience and its effect on their thinking, writing, relationships, and learning skills. Students were also asked how the seminars could be improved.

Students' enthusiasm for the seminars was obvious from their level

of preparation, participation, listening, and thinking. One of the more important aspects of the seminars as stated by the students was getting to hear what other students were thinking and feeling. The students preferred a whole class to participate in a seminar for this reason. Students said they learned more about the stories, heard many ideas they had never thought of, and, through the process of discourse and listening, gained a better understanding of the story. They even changed their minds about events in a story during a seminar because they heard new or different perspectives from other students. Adler says a seminar is more successful if many people change their minds following the sharing of ideas, perspectives, and knowledge. Since students come to school from different families, upbringing, and cultures, we can assume that sharing comments will allow others to hear new background assumptions in an atmosphere of mutual respect.

The majority of the interviewed students said that the seminars and the writing assignments following each seminar helped them become better writers. Attending to detail and practicing listening helped promote better thinking and imagining about the stories. Students were required to use supporting evidence during the seminars, a practice useful when transferred to their writing discourse.

There was evidence that the Paideia seminars affected other parts of the lives of the students. Students reported re-reading material in other classes, taking turns during conversations with friends and family, taking more time to listen, and having a better understanding of how important different ideas are to effective problem solving and

decision making.

The seminar students began to see the value (and fun) of hearing responses from as many students as possible. The large group, two period seminar received a lot of comments because students realized this format made it possible for every student to be heard. Total student participation was preferred by interviewed students, and some even felt it might be necessary for the seminar teachers to "make" students talk in class. This attitude was not meant to be dictatorial. The students thought that if a fellow student talked during the seminar then it would be easier for that student to contribute voluntarily the next time. While a small seminar group of only 15 students may seem ideal at first to a teacher and a class, it really means fewer people contributing and fewer ideas shared. Ideas are triggers for minds to start firing off more ideas. Students wanted as much stimulus as possible before deciding on the meanings in the reading selections.

### Conclusions

The following conclusions are made based on the results of the analysis of quantitative and qualitative data. A test of critical thinking was used to assess the amount of growth in critical thinking made by the experimental group following the seven month study and the qualitative data were derived from teacher and student interviews. The purposes for including the qualitative data from teacher and student interviews were (1) to gather as much insight as possible from the

students' reactions and comments to direct questions concerning the Paideia seminars, (2) to use the summative interview data from students and teachers to improve future seminars by the two teachers of the experimental group, (3) to provide specific information to educators so that the Paideia seminar process that was used for this study could be replicated, and (4) to supplement the quantitative data.

At best, the quantitative evidence from this study is mixed. While there was not a significant difference between the gain scores of the experimental group and control group 1, the experimental group performed significantly better on the test of critical thinking than did control group 2. When compared by gender and ability level to the two control groups, the Paideia seminar treatment group again, generally, did not show a significant difference in gain scores. The seminars were held once a month for over a seven month period. It may be necessary to conduct more than seven seminars for an increase in critical thinking skills to be demonstrated on a formal assessment such as the Cornell Critical Thinking Test, Level X.

In spite of mixed statistical gains, the random sample of students who were interviewed generally reported positive feelings and comments about the seminar experience. They considered the experience unique, beneficial, and enjoyable. The students expressed definite awareness of having been influenced by the seminar process. They acknowledged more careful reading, taking notes, highlighting passages, listening, actively participating in the discussion, sharing ideas, and making decisions, and indicated that these activities had altered their

performance in other classes and at home. Possibly the students in the experimental group transferred the skills of organization, study, and discussion to other courses because of the exposure to and the practice with the Paideia seminar process. Because Paideia seminars help increase the use of critical thinking techniques such as identifying, comparing, questioning, organizing, deciding, and explaining in one content area, literature, these students found that thinking skills were transferred to other content areas which required similar thought and planning processes to complete assignments. Dericco (1988), when discussing the Philosophy for Children thinking skills program, agreed with this concept. Derrico stated that "discussion has proven to be such a powerful teaching strategy that its effects are felt in other classrooms and disciplines" (p. 34). While the Paideia treatment did not significantly increase the experimental group's critical thinking score on the Cornell Critical Thinking Test, Level X, it appears that the monthly treatment did have an effect on these students' ability to use organization, thinking, and reasoning during the seminars and for other courses and assignments.

The data from the student interviews were conclusive in several areas. Students in the experimental group expressed a desire to hear what other students had to say (think), and their involvement in the seminars gave them the opportunity to learn what their peers were thinking and feeling and to use this information to challenge their own thinking and values. The constant exchange and interchange of ideas provided students with practice in listening to and in responding to

various points of view with open minds. Seventh grade students are very concerned with what their peers think and with what their peers think of them. Without a doubt, the trust atmosphere of the Paideia seminars proved to be a successful milieu for pre-adolescents to grow intellectually, socially, and emotionally.

Even though students in the experimental group perceived the seminars as a learning environment, rather than as a social time, the social growth that occurred became evident even to the students themselves. The researcher observed among the students an increased willingness to speak during the seminars, an expressed empathy for students who were reluctant to speak during the seminars, the practice of referring to the comments made by a peer as part of a seminar discussion, and an awareness and pride when an insight was shared by a peer during a seminar. These actions are all indicators of social growth and development for seventh grade students. During the seminars, the researcher observed many personal and insightful comments made by these middle grade students. It did not take these students long to use metaphors, see similarities, make comparisons, use another student's ideas, and change positions when finally convinced by another. The student interviews provided evidence of continued growth in the area of critical thinking for the experimental students resulting from the opportunity to use critical thinking skills in a positive, active learning environment.

The evidence from the interviews of the two teachers of the experimental group is conclusive: the seminars are beneficial to most

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students in the areas of critical thinking development and social and emotional growth. When recalling the Paideia seminars, the two teachers of the experimental group were enthusiastic and instructive. They had definite suggestions and placed emphasis on the importance of planning, teacher preparation, administrative support, debriefing following the seminars, and a collegial relationship between the seminar facilitators.

From the responses to the question about the kind of help required for implementing Paideia seminars, it is evident that strong administrator support is a necessity. The seminar teachers clearly stated that there is a need for cooperation and collaboration in order to meet the challenge the Paideia seminars offer to teachers and students. It is essential that the staff and the administrator support the concept of Paideia seminars through such things as professional growth, the master schedule, and special funding in order to realize maximum success at the middle grade level. Staff flexibility, budget support, and staff development for the involved seminar teachers are an integral requirement. These two seminar teachers received continued support from their students, the staff, and site and district administrators for the seminar process, and because of that support, their enthusiasm and energy were maintained.

That the seminar teachers were able to build closer relationships with their students this year than they ever did before indicates that the seminars are valuable. Both teachers have taught middle level students for at least five years. The depth and degree of sharing and discussing values, feelings, characters, events, and themes were often

intense because they were so meaningful to the participants. Teachers and students definitely learned that it is possible to say and hear more in an environment that supports thinking than in a situation that rewards recall. The two teachers listened to students "thinking out loud" and learned more about these adolescents as people and learners during the seminar process than through more traditional instructional practices. The teachers concluded from their positive experience with the Paideia seminar discussions that it was advisable to learn as much as possible about their students in order to design and provide appropriate and effective learning environments.

Teachers of the experimental group indicated that they changed their questioning techniques from recall to more open-end and inferential as they practiced using more interpretive questions for the seminar discussions. It may be concluded that the teachers' heightened awareness of the power of appropriate questions provided their seminar students with opportunities to answer more fully and critically during other assignments outside the seminar process.

The seminar teachers expressed the feeling that students learned more about a literary work through the seminars than through the more traditional methods of studying literature in middle schools. These traditional methods include class recitation about settings, dates and events, and writing book reports. Based on interviews with the teachers and the students, the research concluded that there was a greater depth of understanding of the literary work by the seminar students than these two teachers had experienced with students in previous years using the

more traditional methods. Since students and teachers looked forward to seminar days with anticipation, it can be concluded that this anticipation represented enthusiasm for learning, sharing, discussing, and cooperating as compared to the less active involvement of filling in the blanks on a worksheet.

Evidence from the quantitative analysis indicated that participating in Paideia seminars was more beneficial for female students than for male students on the test of critical thinking. However, the seminar teachers did not distinguish between the seminar skills of male and female students when drawing conclusions about the level of involvement of either gender or about their ability to reason and to make decisions. During the seminars, I observed that an equal number of boys and girls were actively participating. However, it seemed to me that the level of articulation and vocabulary was more sophisticated for the females than for the males. The females seemed to make longer comments, to use more complete sentences, and to get back to their thought if distracted or confused by other students' comments more easily than did the males. The literature on gender intimates that one of the reasons that differences in skills are assigned by gender is researcher bias. While the seminar teachers were aware that three of the hypotheses of this research were separated by gender, there was never any discussion of gender issues between the researcher and the teachers and the gender issue was not one of the interview questions. Thus, even though neither seminar teacher considered gender differences during the seminars significant enough to mention during the interview

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or during the debriefings, the female students did make significantly greater statistical gains than the male students. Of greater interest to the teacher was the student, no matter if male or female, who surprised them with an insightful comment or who was better prepared for the seminars than for other assignments. The evidence from the seminar teachers found the males contributing as often and on a level of thinking similar to the female contributors. According to the informal observations of the researcher, the females had better verbal skills.

The Paideia seminars had a positive effect on the teaching and learning styles of the teachers, the students, and the administrators who were involved in this study. The process of preparing to discuss a literary work and the subsequent discussion of that work provided the learners with an invaluable tool for perpetuating their own future learning in many ways. It is easy to be impressed and to be infected by enthusiasm from teachers and students for a school program. The Paideia seminars were a successful endeavor for the two middle level teachers because they received a powerful return on their investment of time and energy. The return on their investment included high student interest in the seminars, continued student involvement as active participants, and the teachers' own desire to facilitate the next seminar just to hear what learning would unfold from their students. The administrator received positive feedback from parents, particularly following the seminar on Parent Conference Day, and from district level administrators in curriculum and instruction. Parents of high school students in gifted programs and curriculum directors observed for the purposes of

future program planning as did one member of the Board of Trustees.

While the quantitative evidence in this study does not support the value of Paideia seminars for helping to increase the critical thinking skills of the seventh grade students in the experimental group, the evidence from the teacher and the student interviews supports the use of Paideia seminars to enhance critical thinking skills and to advance growth in related areas of pre-adolescent need such as social and emotional skills. The interviews with the teachers and students showed that no harm was done and indeed much good came from participation in the seminars. It was evident that students participated in the seminars due to the supportive environment which made them feel trustful and secure within this group process.

The researcher selected the site for this study based on the willingness of the two teachers to conduct the Paideia seminars for seven months. This middle school has a history of conducting staff development in effective schools, the writing process, and interpretive reading and questioning. A site with less good overall teaching may have produced statistical differences between the experimental group and a control group at the same site.

Paideia seminars are one mode for helping students learn to think, to reason, and to make decisions with the added benefit of listening to and developing an understanding of and a respect for differing beliefs. "An essential element of critical thinking - perhaps the essential element - is the ability to see things from others' points of view" (Paul, 1987, p. 53). Without a doubt, Paideia seminars provided

students with practice in listening to, responding to, and acceptance of the fact of differing points of view within a framework that provided for transfer of these skills to other situations and courses. Students recognized the skills they acquired through practice and participation, and the teachers received positive feedback from the students through the Paideia discussions and the written assignments.

# Implications

### Implications for Students

Students need to be provided with many opportunities for exploring and developing their belief systems. They must be provided with opportunities for active learning in school in order to grow and develop intellectually, socially, and emotionally. The Paideia seminars provided a positive setting for the rational discussion of many issues which are both basic and critical to the development of belief systems such as honesty, goodness, integrity, morality, and friendship. Structured discussions with skilled facilitators can provide guidance to students as they listen, share, and develop outwardly from their egocentric selves into social beings.

Thinking about things and discussing them with other students and the teachers is an effective way to learn what others are thinking and also what we ourselves are thinking. Discussion involves talking, listening, developing a theme or issue, comparing and contrasting different points of view, problem solving, discarding information, and finally, deciding on what to believe. While students need opportunities to sort out and listen to their own opinions and rationale, they also need to hear the opinions and rationale of others.

Through discussion students are also able to become aware of the ideas, frames of reference, background assumptions, and beliefs of their classmates. Respect and understanding for differing points of view are learned through actively listening to opinions, theories, and explanations. The Paideia seminar process requires more than opinion and thus provides opportunities for learners to use "reasoned judgment" (Paul, 1987, p. 141). The implications for an informed, open-minded populace are that people will develop a framework for listening to each other and will be able to make informed decisions leading to appropriate action.

People are social animals; and middle school students may be in need of more quality socialization time than do other age groups. Designing opportunities and environments like the Paideia seminars so that students can interact with peers in the discovery of knowledge and fallacies is essential for intellectual, social, and emotional development. Awareness that an informed and rational citizenry can develop through participating in the free exchange of ideas will help perpetuate the use of discussion for these students as they solve problems later in life.

### Implications for Teachers

An implication for teachers which follows from this study of critical thinking using Paideia seminars is that most students will be

enthusiastic, prepared, and excited about learning if they are actively participating in the learning experience as the students in the seminars participated. Effective teachers at every level seem willing to employ an instructional strategy that succeeds in providing a learning environment to involve motivated students. The teachers and students here found that they all were motivated to be prepared to discuss the literary work in anticipation of knowledge, sharing, explaining, and reasoning. Thinking about the story out loud with classmates helped students and teachers to clarify their thoughts and beliefs. Using textual support to convince others gave teachers and students greater confidence in their own beliefs and made what they thought and believed much clearer.

Writing is a way we display what we are thinking. When students wrote about a topic following a seminar discussion, the assignment was meaningful and the student was engaged with the topic. Following the discussion of ideas and issues, the student was further able to develop a position or scenario by thinking through writing. Thus Paideia seminars enable teachers to provide opportunities for students to use the writing process as a critical thinking tool and as a way to integrate thinking skills into the existing curriculum.

Successful teachers know about the developmental capabilities of their students and use that knowledge to develop challenging learning situations and problems. In order to provide meaningful programs for middle level students, it is essential for teachers to have an awareness of and a working knowledge of the many physical changes which occur

between the ages of eleven and fourteen, to have an understanding of the effects that these physical changes have on the social and emotional development of the student, and to combine this knowledge about pre-adolescent growth and development with good instructional practices for an effective middle level program.

Providing settings to promote critical thinking skills is the business of teachers at all levels and in all content areas. A thinking program, separated from other subjects, defeats its use and purpose. The purpose of thinking as stated by Ennis (Baron & Sternberg, 1987) is to "reasonably reflect and decide what to believe" (p. 10). The process of integrating thinking skills into the current curriculum standards requires using more interpretive and open end questions and posing problems which require more than knowledge recall. Teachers will coach students into the habit of thinking, reasoning, and exploring creative options to solve problems when they purposefully incorporate higher order thinking skills into their daily lesson plans.

### Implications for Principals as Instructional Leaders

Principals have a vision for their schools based on the underlying philosophy of education that they believe. The vision grows into a reality with the help of the staff, students, and community to the extent that it is a shared and clearly articulated vision. Then vision becomes a part of a school culture, and also the underlying basis for many decisions affecting educational programs.

The use of seminars as a learning tool is at least as old as

Socrates himself. As Goodlad (1984) observed, the practice of using seminars is rare in schools today. Mortimer Adler (1982) and the Paideia Group, having made observations about schooling that are similar to those shared by Goodlad, recommended that a seminar component be added to the more traditional didactic and coaching instructional paradigm prevalent in schools. An implication that could be drawn from this research for principals is that the addition of the seminar component to the instructional model in use at their school will help create a better learning and teaching environment for students and teachers.

The qualitative results of the use of Paideia seminars as an instructional milieu have more conclusive implications for principals than do the quantitative results. The research indicated that teachers involved in the Paideia seminars felt administrative support was crucial to the success of this instructional strategy at a middle school. Principals, as leaders, play the key role in this support system. Teachers, in their role as innovative instructors, must be encouraged, nurtured, and supported by principals so that they may pursue new approaches to the presentation of content within their courses. Budget allocations are usually necessary to support the inclusion of new programs in the curriculum and Paideia seminars are no exception. The teachers and students of the experimental group recommended that each student have his or her own copy of the reading selection in order to make notes, highlight passages, and thus feel ownership for the assignment. The cost of supplying each student with his or her own copy

of all reading selections each year can be very costly. School budgets do not increase at the same rate as ideas for the use of funds increase; therefore, many worthy programs are competing for the same funds. Keeping the mission and philosophy of the school in the forefront of all budgetary decisions is essential. If fostering critical thinking, problem solving, decision making, oral and written language development, and social and emotional growth is part of that mission, then the added costs of the Paideia seminars will be worth the money spent.

Another implication for principals is the importance of a well prepared and knowledgeable staff. Since funds for staff development are limited, a principal must look to the school mission, the needs of the individual faculty members and grade level teams, the instructional goals decided upon by the faculty for the current year and the vision that principal has for the future of the school. Being aware of the professional strengths and needs of every teacher on the staff is important when planning and deciding on how staff development funds will be spent. Many middle school faculties were originally junior high school faculties and the teachers were credentialed in a specific content area. Goodlad (1984) found a paucity of teachers using instructional methods other than lecture and seatwork. There were a minimum of cooperative, collaborative learning assignments and fewer open end problems to solve. To change these approaches, it will be important to provide for staff development in the areas of thinking skills, cooperative learning strategies, and interpretive questioning. Principals should be aware, when planning staff development activities,

that testing programs like the California Assessment Program (CAP) recently have begun to incorporate higher order thinking skills questions into the framework of this assessment tool that a state uses to judge how districts compare with similar districts in reading comprehension, English usage, mathematics, social studies, and science. Teachers can use the results of testing like the CAP for planning and instructional approaches only if they have a diverse repetoire from which to draw. Staff development can build a strong thinking skills mindset for teachers and should foster the same collegial, cooperative, sharing environment as the Paideia seminars did for the experimental group teachers and students.

# Implications for Institutions of Higher Education

The instructional leaders designing the curriculum and specific courses of study for teacher preparation at colleges and universities must be cognizant of the unique needs of the educational life of middle level students. Students at the middle level must be actively engaged in learning situations which help these early adolescents develop habits and skills that will serve to keep them motivated to continue learning and schooling.

Teachers of middle level students must be trained and inspired to provide for the diverse population at the middle school. In order for students and teachers to reap the benefits of this educational level, a variety of active learning methods must be used, including Paideia seminars. Teachers, counselors, and administrators need in-depth

understanding of pre-adolescent growth and development in the intellectual, physical, social, and emotional areas.

Institutions of higher learning must not assume that all students entering teacher preparation programs are skilled in the areas of teaching critical thinking. Because these students, too, are a product of an educational system where recall and rote learning have been rewarded, they may need courses specific to the development of critical thinking skills themselves, before they can be expected to model such skills for others. Therefore, teacher preparation curricula must be examined to make certain that the principles of the Paideia approach --listening, sharing, forming opinions based on textual support, and making decisions--form the basis for each course.

An important, timely, leadership function for institutions of higher learning is to be in the forefront of making a commitment to a credentialed or specialized training program for teacher preparation at the middle level. A proactive position by schools of education should include careful assessment of current teacher training programs, consideration of the differences between elementary, middle, and high school teacher preparation programs, and delineation of what additional courses are important in preparing teachers to teach at the middle level.

One approach would be to use the expertise of successful middle school teachers to determine what, if anything, is missing from teacher preparation programs which certify teachers to teach middle school students. Experienced middle level teachers would be asked to provide

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data to committees involved with teacher preparation. The teachers would be addressing issues such as: effective teaching practices at the middle school, suggestions for structuring learning environments for pre-adolescents, and information to instructors of teacher preparation programs on what courses and specific benefits these practicing teachers received in their training.

While a middle school credential may not be essential for successful teaching in grades 6-7-8, educational leaders involved in programs for teacher preparation must be sure that their programs are preparing pre-service teachers to teach at the middle level. This process of self-assessment will serve to either strengthen support for the training programs in place or will provide data for needed changes.

# Summary of the Implications

While the results of the quantitative data from the Cornell Critical Thinking Test, Level X, were mixed in the areas of critical thinking and problem solving, the results of the interview data were such that implications for future use of Paideia seminars for students, teachers, and educational leaders were supported. Both teachers and site administrators, as instructional leaders, must provide the ideas, time, energy, and financial support necessary to restructure the basic nature of classroom instruction. This study demonstrated that students that are motivated and eager to be involved will participate in learning activities if the environment is supportive of the free exchange of ideas, feelings, and beliefs.

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# Recommendations

The data and conclusions from this study of critical thinking skills suggest areas for future research consideration and focus.

(1) The qualitative data suggest that the students in the experimental group developed some organizational and thinking skills that they would continue to practice. A follow-up study of the students from this research effort would be useful to see if the Paideia seminars have long range effects, and in fact, whether the skills these students developed improved with continued practice.

(2) While the quantitative data were mixed, the qualitative data support the use of Paideia seminars for intellectual, social, and emotional reasons. A study with an experimental group participating in the Paideia seminars over a two year period instead of for only seven months might provide more definitive quantitative data.

(3) Since insightful data were provided through the qualitative analysis of the interviews, further qualitative analysis into the social and emotional growth, self-esteem, and self-concept of middle level students would provide valuable information in conjunction with assessing critical thinking skills following Paideia seminars.

(4) A qualitative study involving middle level site administrators assessing their knowledge of effective middle school practices for enhancing intellectual, physical, social, and emotional growth and development at the middle school might provide insight as to the readiness of middle school principals to serve as instructional leaders

at that level.

(5) A qualitative study of students participating in Paideia seminars who scored in the low range on the pretest of the Cornell Critical Thinking Test, Level X, might provide data which would demonstrate the value of seminars to students who tend to perform poorly in rote or recall situations. Once the students are identified, the research could focus observation on such areas as level and type of participation, type of response, and peer involvement during the seminars.

(6) Since there were significant differences in the gain scores of males and females in the experimental group, an observational study of the dynamics of gender during the Paideia seminars would be beneficial to those interested in studying gender differences.

(7) The institutional needs of students of differing ability levels on tests of critical thinking should be assessed in order to match learning needs to teaching styles. A quantitative study comparing more than one method or program designed to increase thinking skills would yield data useful for providing appropriate institutional programs for all ability levels.

(8) A study of students who have participated in Paideia seminars over a period of several years, perhaps including elementary school. Data could provide information about the growth of students in critical thinking, listening, speaking, reading and writing skills.

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APPENDICES

Appendix A

Superintendent's Consent Letter



ctober 7. 1986

Dr. Robert Infantino School of Education University of San Diego, Alcala Park San Diego, California 92110

Dear Dr. Infantino:

Our Superintendent, Dr. Gary Olson, and I, are aware of and completely support Steve Tarkington's dissertation project in Vista Unified School District entitled "Improving Critical Thinking Skills Using Paideia Seminars in a Seventh Grade Literature Curriculum.

We understand the project will include the following criteria:

- Subjects: Seventh grade students at both middle schools, WMS and LMS.
- Cornell Critical Thinking Test, Level X. It is a Instrument: standardized test appropriate for this population.

Pre-test - fall 1986. Post-test - spring, 1987.

- Treatment: The experimental group of approximately 100 students at WMS will take part in seminars once a month for a seven month period during their literature class. Students will discuss a selected reading during the seminar.
- Teachers: Two seventh grade teachers who have received training from Mortimer Adler in Paideia seminars will facilitate the seminars (students participating in active discussion).

We believe Ms. Tarkington's work will benefit our teachers and district, and educators in general, and are pleased to support her work.

Very truly yours.

Rene Townsend Assistant Superintendent, Instruction

RT:sh

cc: Gary Olson Steve Tarkington Appendix B

Letters to Teachers on Test Administration

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September 10, 1986

Dear

Thanks for agreeing to participate in testing your students on the Cornell Critical Thinking Test. The test is untimed and takes approximately 1 period to administer. It would probably be useful to give it the first period of a two period block just in case a student needs a little more time.

Answers will be marked on scantron sheets. They will be in your box Monday morning, 9/15, along with the tests in a manila envelope. Please have your students put your last name. the date, <u>and</u> a.m. or p.m. in the upper right hand corner of the answer sheet. The tests and answer sheets should be replaced in the a.m. or p.m. manila envelope after testing and returned to me.

If possible, please administer the test one day of the week of September 15 to 19. Thanks for your cooperation and time.

Steve Tarkington

September 23, 1986

Dear

Thanks for agreeing to participate in testing your students on the Cornell Critical Thinking Test, Level X. The testing manual suggests that 95% of the people taking the test complete it in 55 minutes. It is not a timed test and some students will complete it in less time, while others will take a bit longer.

You are scheduled to administer the test on \_\_\_\_\_\_ to both your a.m. and p.m. core classes.

Test booklets and scantron sheets have been given to you. Please have each student put their name, your name, and a.m. or p.m. on the scantron answer sheet depending on which part of the day they have you as an English core teacher.

The test booklets should be forwarded to at the end of the day you administer the test so this person can administer the test next.

Thanks again for your help. If you have any questions please see Gail Tupper and she can reach me for help. I appreciate your cooperation. The posttest is scheduled for the week prior to Spring Vacation. I will check with Gail, as Team Leader, well in advance of this time in case you prefer a different week.

Steve Tarkington Washington 2284

### Dear\_\_\_\_,

Thanks for agreeing to participate in pre-testing and post-testing your students on the Cornell Critical Thinking Test. As you recall, the test is untimed and takes approximately 1 period to administer. It might be useful to give it the first period of a two period block just in case a student needs a little more time.

Test booklets and scantron sheets have been given to you. Please have each student write their name, your name, and a.m. or p.m. on the scantron answer sheet, depending on which part of the day they have you as an English core teacher.

Please plan to administer the test prior to Friday, March 27. The test booklets and scantron sheets can be returned to me when your students finish the test.

Thank you very much for your cooperation. The results will be made available to you at the end of the study for all of your students who participated even though only a random sample will be used.

Thanks,

Steve
## Appendix C Cornell Critical Thinking Test, Level X Information

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# **CORNELL CRITICAL THINKING TESTS LEVEL X & LEVEL Z — MANUAL**

## THIRD EDITION

Robert H. Ennis Jason Millman Thomas N. Tomko

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Appendix D

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Agreement Letter for Teacher Interviews

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167 PETER McHUGH, PRINCIPAL Stephanie Tarkington, Assistant Principal Vicky Gorham, Assistant Principal WASHINGTON MIDDLE SCHOOL

**Unified School District** 1234 Arcadia Ave., Vista, CA 92083-2395, (619) 726-2179

724-7115

no letter place to barn

SEPTEMBER 30, 1986

ROBERT INFANTINO. ED.D. SCHOOL OF EDUCATION UNIVERSITY OF SAN DIEGO ALCALA PARK SAN DIEGO. CA 92110

DR. INFANTINO:

IT HAS BEEN REQUESTED THAT WE PROVIDE QUALITATIVE. ANECDOTAL DATA FOR THE STUDY. 'IMPROVING CRITICAL THINKING SKILLS USING PAIDEIA SEMINARS IN A SEVENTH GRADE LITERATURE CURRICULUM." UUDMITTING TO INTERVIEWS WAS ALSO INDICATED AS DESIRABLE FOR COMPLETING CERTAIN PORTIONS OF THE STUDY.

WE ARE GRANTING INFORMED CONSENT TO SUBMIT TO THESE INTERVIEWS.

IF WE CAN BE OF ANY FUTURE ASSISTANCE, WE WOULD BE MORE THAN HAPPY TO HELP.

SINCERELY.

KIM HAMILTON TURNER

FREDERICK BALCOM

Appendix E

Reading Selection Titles

and

Seminar Questions

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#### Reading Titles and Seminar Questions

- <u>Harrison Bergeron</u> by Kurt Vonnegut Is everyone handicapped in some way? Why or why not? Please give examples.
- 2. <u>The Camel, the Lion, the Leopard, the Crow, and the Jackal</u> retold by Ramsay Wood. Fables are very short stories that teach a lesson. Most of the characters are talking animals. A fable is usually followed by a moral or lesson that teaches a standard of right or wrong behavior. Write a lesson or moral for this story.
- 3. <u>The Stone Boy</u> by Gina Berriault. Describe a stone. What are its properties?
- 4. <u>A Christmas Carol</u> by Charles Dickens. What is money? What is it a symbol for?
- 5. <u>Gun Without a Bang</u> by Robert Schekley. Why does Dixon wait to shoot the weapon?
- 6. <u>To Build a Fire</u> by Jack London. Use the words "to build a fire" in a sentence about a story that has meaning for you.
- 7. The Veldt by Ray Bradbury.

Appendix F

Teacher Interview Schedule

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#### Teacher Interview Schedule

- What kind of planning was required for you to implement the Paideia seminars?
- 2. What kind of specific support was needed from these groups: a) administrative, b) financial, c) parental?
- 3. Did the seminars affect your relationship with your students, and if so, in what ways?
- 4. Did the seminars affect students' relationships with each other and if so, how?
- 5. Did the skills you acquired as a seminar facilitator change your teaching? If so, how?
- 6. What evidence do you have that the seminar approach affected your students' ability to think critically?
- 7. What advice would you give someone who planned to implement Paideia seminars?

Appendix G

### Student Interview Schedule

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#### Student Interview Schedule

- 1. Were the seminars helpful in any way? In what ways?
- 2. Did the seminars change the way you looked at assignments in your other classes? In what ways?
- 3. Have your grades in writing been better this semester? If they have, why and in what ways?
- 4. How has learning to function in a seminar helped you in other parts of your school day or life?
- 5. Do you have any suggestions for improving the seminars? If so, what are your suggestions?

Appendix H

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Letter from a Student

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175 May 1, 1937



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