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ABSTRACT

This practicum was designed to address the problem of a class of 23 second-graders who were unable to make judgments and support opinions at all levels of Bloom's taxonomy. The goals of the practicum were to design and implement a Critical Thinking Skills (CTS) program that taught students to make judgments and support opinions, and that encouraged students to think about and react to literature. To attain these goals, pre- and posttests were developed and administered to assess students' critical thinking skills. Twelve critical thinking lessons were developed and administered to the class. These lessons included reading and writing activities, small- and large-group discussions, and self-selection of books. As a result of the practicum, 14 of the 23 students were able to make judgments, 18 of the 23 students were able to support their opinions, and all 23 students were able to demonstrate at least one CTS. (Four appendices contain a CTS inventory, a CTS student behavior checklist, a making judgements test, and a supporting opinions test. Contains 19 references.) (MDM)

IMPROVING CRITICAL THINKING SKILLS IN SECOND GRADERS THROUGH INSTRUCTION AND TEACHER-LED DISCUSSION GROUPS

by

Yvonne R. Tillman

Cluster 49

A Practicum I Report Presented to the
Ed. D. Program in Child and Youth Studies
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

NOVA SOUTHEASTERN UNIVERSITY

1994

PRACTICUM APPROVAL SHEET

This practicum took place as described.

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December 10, 1993

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This practicum report was submitted by Yvonne R. Tillman under the direction of the adviser listed below. It was submitted to the Ed.D. Program in Child and Youth Studies and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova Southeastern University.

Approved:

15 June 1994

Date of Final Approval of Report

Roberta Wong Bouverat

Roberta Wong Bouverat, Ph.D., Adviser.

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ABSTRACT

Improving Critical Thinking Skills in Second Graders Through Instruction in Critical Thinking and Teacher-Led Discussion Groups. Tillman, Yvonne R., 1994: Practicum Report, Nova Southeastern University, Ed. D. Program in Child and Youth Studies. Descriptors: Critical Thinking Skills/ Thinking Instruction/Whole Language/Thinking Behaviors/Reading and Writing Activities/Cooperative Learning/Teacher-Led Discussions/Elementary/Primary.

This Practicum addressed the problem of 23 second grade students not being able to make judgements and support opinions at all levels of Bloom's taxonomy. Primary goals of the program were to: 1) design and implement a critical thinking skills program that taught second grade students to make judgements and support opinions; and 2) encourage second graders to think about and react to literature.

To attain these goals, pretests and posttests were designed to assess students' critical thinking skills. Test items were related to prescribed critical thinking objectives. In addition, the writer developed 12 critical thinking lessons that required making judgements and supporting opinions. The direct teaching method was used to teach these skills. The design included reading and writing activities, small and large group discussions, and self-selection of books. A main focus of the program was the development of critical thinking questions to be asked by students.

Through the use of such assessment instruments as a critical thinking skills inventory and critical thinking skills behavior checklist, the practicum results showed: 1) 14 of 23 students were able to make judgements; 2) 18 of 23 students were able to support opinions; and 3) 23 of 23 students were able to demonstrate at least one thinking behavior.

Results indicated that a critical thinking skills program that emphazises the teaching of thinking as a separate skill enhanced the students' ability to make judgements and support opinions.

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Chapter I

INTRODUCTION

Description of Community

The writer works at a public elementary school in a predominantly middle-class suburban neighborhood. The community of approximately 500 families consists of white and blue collar workers, who, for the most part, are actively involved in education. The school was established in 1960 on ten acres of land. It was designed to house 840 students but now delivers services to over 1100. It originally consisted of a main building of 20 classrooms, a kindergarten building, a library, a main office, a counselor's office, and a cafeteria. Over the years, as the school's population increased, two wings were added to the original building. The school has six portables that house fourth- and fifth-grade classes as well as the exceptional education program.

The school's population is made up of a diverse ethnic blend. It is composed of 63% White, 20% Black, 14% Hispanic, and 2% Asian Students. A staff of 65 classroom and exceptional education teachers serves the needs of the students. The school has shown itself to be a leader by forming educational partnerships with local businesses. The school has received funding to implement parent involvement projects.

Writer's Role in the Work Setting

The writer is an elementary school teacher with 20 years of primary and intermediate classroom experience. The writer works full-time in a local school district as a second grade teacher. The writer collaborates with six second grade teachers to create a liberal arts curriculum consistent with sound educational practices and challenging for grade two students.

The writer directs learning and manages the daily activities in the classroom. The writer checks progress and maintains records for every student. The writer schedules conferences with parents to discuss each student's progress. The writer has a bachelor of arts in elementary education and a master of science in elementary education.

Chapter II

STUDY OF THE PROBLEM

Problem Description

The problem was that second graders were unable to make judgements and support opinions at all levels of Bloom's taxonomy. Yet, as students moved into higher grades, teachers expected students to demonstrate higher level thinking skills.

Problem Documentation

A comparison of the 1990 and 1991 Stanford Achievement Test median scores for reading comprehension, as shown in Table 1, indicated that the scores of second graders dropped from the 75th percentile in 1990 to the 62nd percentile in 1991 (Gardner, Rudman, Karlsen, & Merwin, 1982; The Psychological Corporation, 1989).

Table 1 showed percentile equivalents based on the standardized sample. Results presented in Table 1 suggested that second graders had not fully comprehended what had been read.

The writer developed a Student Critical Thinking Skills Inventory that assessed seven critical thinking skills (Appendix A). The assessments were made by introducing and reading aloud a story to the second graders.

Table 1

Declining SAT Scores

Year	Grade	Number Tested	Number Score Reading Comprehension
1990	2	180	75 percentile
1991	2	176	62 percentile

After the story was presented, the writer led a discussion of the story. During the discussion, the writer recorded a plus sign in the appropriate thinking skills column when a student volunteered an answer that demonstrated a higher level thinking skill. A minus sign in a column indicated that the skill was not demonstrated. The inventory was used to assess each student's level of thinking skills development.

Low areas, as shown in Table 2, were in making judgements and supporting opinions. These critical thinking skills were congruent with the synthesis and evaluative levels of Bloom's taxonomy. In this practicum, the writer dealt with improving the ability of second graders to make judgements and support opinions.

Table 2

Critical Thinking Skills Inventory

Student #	Draws Conclusions	Understands Characters	Makes Judgments	Relates Reading	Categorizes Information	Notes Details	Supports Opinions
1	-	+	-	+	+	+	-
2	-	-	-	-	-	-	-
3	-	+	-	-	-	-	-
4	-	+	-	-	-	-	-
5	+	+	-	+	+	+	-
6	-	+	-	+	+	-	-
7	-	+	-	-	+	-	-
8	-	-	-	+	+	-	-
9	+	+	-	+	-	-	-
10	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-
13	+	+	-	+	-	-	-
14	+	+	-	+	-	-	-
15	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-
17	+	+	-	+	-	-	-
18	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-
20	+	+	-	+	-	-	-
21	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-

Note. A plus sign indicated the critical thinking skill was observed during the literature lesson. A minus sign indicated the critical thinking skill was not observed during the literature lesson.

The writer developed a Student Critical Thinking Skills Behavior Checklist to record observable critical thinking behaviors (Appendix B). Observations were made by using a five-point scale. The scale was used to rate eight student thinking behaviors. Second graders were observed in the familiar setting of the classroom. The writer did not prompt students to exhibit any of the observed behaviors. Thirteen of 20 second graders were unable to demonstrate any of the thinking behaviors on the checklist. The extent to which second graders exhibited thinking behaviors, as shown in Table 3, was minimal.

Causative Analysis

The inability of second graders to master critical thinking skills had several causes. There had been few opportunities for second graders to learn the step-by-step cognitive processes involved in thinking critically. An analysis of workbook activities revealed that written comprehension exercises routinely required second graders to recall facts about a story. Seldom were students in second grade asked to support opinions and make judgements. Further, manuals that accompanied basal readers were too incomplete to be of much help to a teacher who wanted to directly teach critical thinking skills. Though reading research supported more independent reading and fewer workbook assignments, the program implemented at the writer's school had relied heavily on basal methods. The curriculum being used at the writer's school had traditionally restricted higher level thinking instruction to students enrolled in the gifted program. Consequently, the second grader in the regular classroom had

Table 3

Observable Critical Thinking Behaviors

Student #	Checks Mistakes	Gives Evidence	Develops Plans	Asks Questions	Shows Commitment	Notes Differences	States Ideas	Transfers Knowledge	Total
1									0
2									0
3									0
4									0
5	x		x	x	x				4
6									0
7	x				x				2
8									0
9		x					x	x	3
10									0
11	x				x				0
12									0
13	x		x		x	x	x	x	6
14	x				x				2
15									0
16									0
17	x			x	x				3
18									0
19					x				1
20	x				x		x		3
21									0
22					x				0
23									0

Note. Each behavior observed during the observation period was indicated by an x.

not received direct teaching instruction designed to develop higher level thinking skills. Another cause was that teachers had not received training in how to teach thinking as a separate skill. As a result, second graders had not acquired the competencies necessary to apply critical thinking to what had been read.

Relationship of the Problem to the Literature

Ennis (1985) defined critical thinking as the way in which an individual uses his or her reasoning abilities to arrive at sound judgements about a problem or situation. The writer defined critical thinking as reasoned, indepth thinking that is mainly concerned with determining either what appropriate action to take or what is most probably true. Though educators have identified critical thinking as a prime educational objective, there has been little agreement among experts about what critical thinking is and how it can be achieved. Sternberg (1983) identified a set of standards that should be adhered to if students are to learn how to use intellect. Sternberg theorized that programs should be designed for the children served. Hudgins and Edelman (1986) defined critical thinking as the tendency to give proof in support of opinions and to ask for proof from others before accepting an opinion.

Though researchers as well as educators have agreed that thinking is an important concept for children to learn, there has been very little purposeful teaching of thinking in classrooms. Costa (1985) stated that the number of students who are able to demonstrate higher level thinking skills has decreased

every year. Goodlad's (1983) study of classrooms around the country revealed that three-fourths of the classroom time was spent on instruction that mainly involved teachers talking to students. Less than 1% of the time were students challenged to think or find solutions to problems. Children were called on more often to recall facts rather than to use higher level thinking skills.

The report of the National Commission of Excellence in Education (1983) indicated that many young people were unable to think beyond the comprehension level of Bloom's taxonomy. Further, only a small percentage of the students could write a critical essay or solve problems that involved more than one step. In light of the findings, it is imperative that students be taught how to think independently.

There have been many programs designed to teach children to think. One was the Productive Thinking Program (Covington, 1985) that taught children how to solve problems. Another was de Bono's Cort Program (Costa, 1985) that used small group discussions to teach children critical thinking skills. Lipprnan (1985) developed the Philosophy for Children Program in order to teach children to solve problems by tapping into logical thinking capabilities.

The writer reviewed several studies that were developed to investigate critical thinking skills. Hudgins & Edelman (1988) conducted a study to find out the effects of teaching fourth- and fifth-grade students how to use self-directed thinking skills as well as how to apply those skills to new learning situations. The experimental and control groups were made up of 39 fourth-

and fifth-grade students. Both groups were given a critical thinking skills test at the beginning of the study. Afterwards, members of each group were assigned four thinking roles. The roles were: 1) defining work to be done, 2) developing a plan of action, 3) checking progress, and 4) proving statements. Hudgins & Edelman (1988) felt that if children could be taught these skills, posttest scores would improve. Children in the experimental group participated in eight small group discussions. The discussion session gave children the opportunity to practice the four skills previously learned. The control group received neither small group nor thinking roles instruction. Results of the post test revealed that the experimental group obtained higher scores than the control group.

Riesenmy, Mitchell, & Hudgins (1991) conducted a study which further investigated self-directed thinking and the degree to which learning has been transferred. The study involved eight students from 10 fourth- and fifth-grade classrooms. Students were given certain thinking roles to play when engaged in small group discussions. The investigation was designed to determine whether the children trained in the four thinking roles retained and transferred skills better than the 28 control group members. The control group was not instructed in either small group discussions or thinking roles. The students in the experimental group achieved outstanding scores in thinking independently, determining the amount of information needed, and the kind of answers given. Members of the experimental group also scored better than the control group

on problems that required a transfer of skills learned.

Another study that the writer reviewed was conducted by Hudgins & Edelman (1986) and was designed to increase the critical thinking skills of fourth- and fifth-graders by having the teacher conduct small group discussions. Ten classes participated in the study. Each class had two groups with six students in each group. Each group had three girls and three boys. There were 20 groups in all. All of the students in the ten classes were given a Test of Critical Thinking (Edelman & Hudgins, 1984) several weeks before the group discussions began. Prior to the critical thinking discussions, teachers were trained in how to lead discussions in small groups. The same test was administered to the students after the discussion lessons were completed. The scores were compared to determine the extent to which the experimental group's thinking abilities had improved. The small group discussion sessions were analyzed with the use of a worksheet that consisted of four categories. The categories were: 1) giving information, 2) giving evidence, 3) arriving at conclusions, and 4) looking for information. All of the responses were recorded on the worksheet and then transferred to a matrix that was indicated number of times a specific response occurred. The investigators hypothesized that at the end of instruction teachers would talk less and implement teaching techniques that encouraged students to talk more. Students would also give more evidence for statements and ask the kinds of questions that elicited evidence from others. The results of the study indicated that teachers who received

inservice training in how to conduct small group discussions talked less during discussions and allowed students to talk more. The study did not reveal any increase in the number of times students asked others to support statements.

Several conclusions can be drawn from these investigations. When fourth- and fifth-grade students are taught how to use self-directed critical thinking skills, learning can be successfully applied to new situations. Further, the combination of small group thinking roles and thinking skills lessons facilitated the teaching of critical thinking skills. In addition, fourth- and fifth-grade students who were trained in self-directed critical thinking skills were not only able to apply what had been learned but produced high quality answers as well. The authors concluded that the dynamics of small group discussion sessions facilitated learning. Students participated less when discussions occurred in large groups. Students who needed thinking instruction the most tended to get left behind when the entire class received instruction.

The critical thinking skills studies produced positive results because the authors communicated specific directions to the teachers that spelled out in detail how the project was to be implemented. Moreover, Hudgins & Edelman (1986) concluded that when teachers and students are given specific instructions about expected behaviors along with a model of those behaviors, there will be a significant increase in critical thinking skills.

Chapter III

ANTICIPATED OUTCOMES AND EVALUATION INSTRUMENTS

Goals and Expectations

The following goals and outcomes were projected for this practicum: 1) design and implement a critical thinking skills program that teaches second graders to make judgements and support opinions, and 2) encourage second graders to think about and react to literature.

Expected Outcomes

After practicum implementation, results of a Student Critical Thinking Skills Inventory will indicate that half of the second graders enrolled in the writer's class will be able to make judgements.

After practicum implementation, results of a Student Critical Thinking Skills Inventory will indicate that half of the second graders enrolled in the writer's class will be able to support opinions.

After practicum implementation, a Student Critical Thinking Skills Behavior Checklist will indicate that all of the second graders enrolled in the writer's class will have mastered one of the thinking behaviors on the checklist.

The writer will also assess each second grader's critical thinking ability by giving paper and pencil tests. A weekly quiz will be administered after each skill has been taught to assess the degree of cognitive learning.

Measurement of Outcomes

The writer used a Student Critical Thinking Skills Inventory, a Student Critical Thinking Skills Behavior Checklist, and two weekly quizzes on each skill to measure practicum success.

A Student Critical Thinking Skills Inventory was administered as a pre- and posttest. The test consisted of seven skills that measure each student's ability to comprehend what is read. Assessments were made during group discussions of literature selections. Administration time was 30 minutes.

A Student Critical Thinking Skills Behavior Checklist was used to conduct ongoing observations of each student's ability to demonstrate critical thinking skills throughout the implementation period. The checklist consisted of eight observable thinking behaviors.

The two weekly quizzes developed by the writer consisted of three to four items. Each quiz included one item that required a definition of the skill and two to three items that required application of the skill. Administration time was 20 minutes. Students were tested individually.

Chapter IV

SOLUTION STRATEGY

Discussion and Evaluation of Possible Solutions

The problem was that second graders were unable to master critical thinking skills. In this practicum, the writer dealt with improving the ability of second graders to make judgements and support opinions. The writer tried a whole language approach to the teaching of critical thinking skills. The writer's thorough examination of current research on critical thinking skills supported this proposal.

Anderson (1984) recommended that children spend less time working on basic skills sheets and more time engaged in independent reading and writing. Costa (1985) recommended that critical thinking skills be taught using direct teaching strategies. Furthermore, Beyer (1984) suggested that teachers introduce a few thinking skills at a time and teach them across the curriculum. Beyer (1991) stated that evaluative measures should be designed to provide a more critical assessment of reading and comprehension. These measures should include teacher observations, assessments of student responses to literature, and records of independent thinking and writing activities completed by students.

The writer generated several possible solutions to the problem. One solution was to use the whole language approach. Ohanian (1991) developed

a unit that utilized fairy tales as a vehicle for teaching higher level thinking skills. The teacher introduced multiple versions of a fairy tale to the students then guided a discussion of the different versions heard. As this process unfolded, students began to sharpen critical thinking skills. Ohanian's project revealed that students were motivated to read more when a whole language, group discussion method was used.

Another project implemented by Angeletti (1991) was designed to improve the critical thinking skills of second grade students through the development of specific reading and writing activities. This project involved the integration of reading and writing activities with small group discussion sessions. The project included activities such as leisure reading and sessions dedicated to the writing of thinking skills questions. After implementation, students demonstrated higher level thinking skills.

Paradis, Chatton, Boswell, Smith, & Yovich (1991) implemented a project that was designed to measure the degree to which students comprehended stories read. The problem was that though students demonstrated comprehension abilities comparable to acceptable grade level standards, students achieved low scores on standardized tests. The authors proposed that teacher observations during discussion sessions provided a more accurate assessment of true comprehension ability.

Paradis et al. (1991) developed several measures for assessing comprehension. These measures included the collecting of samples of each

student's writing, tape recording discussion sessions, and anecdotal records. Results of the project supported the authors' hypothesis that teachers were better able to determine whether or not students have mastered comprehension skills. Formal tests are only one way of assessing progress.

Description of Selected Solution

The writer took several steps to solve the problem. The writer taught 12 lessons designed to cover the following two critical thinking skills: 1) making judgements, and 2) supporting opinions. The skills were taught through the development of teacher-made lessons utilizing the direct teaching method of instruction. The design included reading and thinking activities, small and large discussions, and cooperative group activities. During the 12 week implementation period, students were encouraged to read literature representative of 12 genres. Students were grouped heterogeneously in cooperative teams. One half hour daily was devoted to students learning how to develop critical thinking questions. Students participated in daily writing activities. Small and large group discussions were also held. At the end of the 12 week period, posttests were administered to measure the success of the program.

This solution was easy to implement since it fit well with the methods already utilized in the writer's school. This program worked well with second grade students. The resources required for implementation were readily available.

Report of Action Taken

Over the 12 week implementation period, the writer chose 12 fairy tales to read aloud to the second grade students. Each fairy tale was used as a vehicle for teaching students how to make judgements and support opinions. One fairy tale was read aloud at the end of each week.

Before reading each fairy tale, the writer provided background information about the author and origins of the story. After reading each story, the writer asked critical thinking questions. The writer closed each lesson with a review of the concepts covered. A test of the skill was administered at the end of every week.

During the first and second weeks of implementation, the writer introduced the critical thinking skill supporting opinions. The writer told students that to support opinions meant to express a though about something. The writer further explained that thoughts should be supported by sound reasons.

During the third and fourth weeks of implementation, the writer introduced the critical thinking skill making judgements by telling students that to make judgements meant to decide the value of what has been read. The writer further explained that the judgement must be based on established rules widely known by everyone. In addition, judgements must be accompanied by facts that support decisions made.

During the fifth through eighth weeks, students continued to practice the two critical thinking skills introduced in the program. Many stories were read aloud and discussed. Students met in cooperative groups to read and discuss literature. After reading, group members answered questions related to the two critical thinking skills taught during the previous weeks. The writer also led the class in discussions and assigned weekly homework that required students to read a story and write at least one supporting opinions or making judgements question about the story. These questions were answered during the reading and language arts period.

During the ninth week, the writer distributed teacher-made supporting opinions and making judgements booklets. Each booklet consisted of a set of critical thinking questions and activities about the stories read. At the end of each day, booklets were collected and an assessment was made of each student's progress in mastering each skill.

During the tenth through twelve weeks, the writer continued to review supporting opinions and making judgements. The writer also scheduled critical thinking conferences with each student to discuss work in folders. At the end of practicum implementation, the writer administered the Student Critical Thinking Skills Inventory as a posttest. The writer enjoyed working with the second graders.

Chapter V

RESULTS, DISCUSSION, AND RECOMMENDATIONS

Results

The problem in the writer's class dealt with the inability of second graders to make judgements and support opinions at all levels of Bloom's taxonomy. At the beginning of this program, the extent to which second graders exhibited critical thinking skills was minimal. Yet, second graders would be expected to demonstrate critical thinking skills in higher grades.

The writer's role as a second grade teacher enabled the writer to identify this problem and research possible solutions. Because the hard data generated by the writer suggested that a workable solution was needed, the writer implemented a 12-week program in the classroom with the expectation that the situation would be improved.

The goal of this program was to increase each student's ability to make judgements and support opinions. Learning critical thinking skills would help students apply critical thinking to what has been read.

The teacher utilized the direct teaching method of instruction to solve the problem. This method included providing direct instruction in each skill, reading, writing, and cooperative group activities, and small and large group discussions.

The teacher utilized fairy tales as a vehicle for teaching the thinking skills of making judgements and supporting opinions. The teacher introduced the fairy tales to the students then conducted question and answer sessions for each fairy tale that was introduced and read. As this process unfolded, students began to increase critical thinking skills. The teacher used teacher-made tests, a Student Critical Thinking Skills Inventory, a Student Thinking Skills Behavior Checklist, and reading and writing experiences to accomplish the program's goals and objectives. The achievement of the goals and objectives increased the thinking behaviors of all of the 23 students. The following outcomes which were projected for this practicum were satisfactory:

Outcome 1

After practicum implementation, results of a Student Critical Thinking Skills Inventory indicated that half of the second graders enrolled in the writer's class were able to make judgements. This outcome dealt with the second graders being given direct instruction in the critical thinking skill making judgements. The skill was introduced and taught to the entire class and reinforced in cooperative group sessions. The writer found that students needed a lot of practice to understand what it meant to make judgements. The writer surmised that the students were in that transitional period of cognitive development when judging right or wrong or assigning value to something has not been emphasized or taught. As the days passed, the students' expertise in making judgements increased. The students began to connect the concept of

making judgements with right and wrong and good and bad. This was evident in the quality of making judgements questions asked by the students.

The writer chose 12 fairy tales to read aloud to the students. Each fairy tale was used as a vehicle for teaching students how to make judgements. Before each story was read, the writer asked each student to think of a question to ask about the story. This strategy helped sharpen student listening and critical thinking skills. The writer was amazed at the high level of participation of all of the students. The writer's suggestion that students would participate more enthusiastically when the questions and answers came from them proved true.

During the implementation period, the students' skills in making judgements progressed from a simple to a more sophisticated level of questions and answers. A comparison of pre- and posttest scores disclosed the following information: the students' entry level knowledge of making judgements was minimal with number of students demonstrating the skill on the Critical Thinking Skills Inventory being zero. The students improved with lots of practice and 14 of 23 students were able to demonstrate making judgements on the posttest inventory. The posttest scores were encouraging.

For most of the students, the critical thinking skills lessons were the first introduction to instruction in higher level thinking skills. The lessons required students to think more deeply about what had been read. The second graders met the challenge. Table 4 reflects student scores on the posttest inventory.

Outcome 2

After practicum implementation, results of a Student Critical Thinking Skills Inventory indicated that half of the second graders enrolled in the writer's class were able to support opinions.

Outcome two dealt with the second graders being given direct instruction in the critical thinking skill supporting opinions. The skill was introduced and reinforced in cooperative group sessions. The students' entry level knowledge of supporting opinions was zero. None of the students was able to demonstrate supporting opinions on the pretest inventory. The writer found that students needed lots of practice to master supporting opinions. As the days passed, the students' expertise increased. The students began to give reasons for opinions. This was evident in the quality of supporting opinions, questions and answers given.

In order to determine successful program results, a student was required to demonstrate mastery of supporting opinions during literature lessons. The comparison of both pre- and posttests disclosed the following information: the students' entry level knowledge of supporting opinions was zero. As shown in Table 4, the students increased knowledge of supporting opinions with lots of practice resulting in 18 of 23 students passing the posttest. Table 4 contains supporting opinions scores on the posttest inventory.

Table 4

Posttest of Critical Thinking Skills Inventory

Student #	Draws Conclusions	Understands Characters	Makes Judgments	Relates Reading	Categorizes Information	Notes Details	Supports Opinions
1	+	+	+	+	+	+	+
2	-	-	-	-	-	-	-
3	+	+	+	+	+	+	+
4	+	+	-	+	+	+	+
5	+	+	+	+	+	+	+
6	+	+	-	+	+	+	+
7	+	+	+	+	+	+	+
8	+	+	+	+	+	+	+
9	+	+	+	+	+	+	+
10	-	-	-	+	+	-	-
11	+	+	+	+	+	+	+
12	-	+	-	+	+	-	+
13	+	+	+	+	+	+	+
14	+	+	+	+	+	+	+
15	-	+	-	+	+	-	+
16	+	+	+	+	+	-	-
17	+	+	+	+	+	+	+
18	+	+	-	+	+	+	+
19	+	+	+	+	+	+	+
20	+	+	+	+	+	+	+
21	-	-	-	-	-	-	-
22	+	+	-	+	+	-	-
23	-	+	+	+	-	-	+

Note. A plus sign indicated the critical thinking skill was observed during the literature lesson. A minus sign indicated the critical thinking skill was not observed during the literature lesson.

Table 5

Posttest Results of Observable Thinking Behaviors

Student #	Checks Mistakes	Gives Evidence	Develops Plans	Asks Questions	Shows Commitment	Notes Differences	States Ideas	Transfers Knowledge	Total
1	x				x		x	x	4
2				x					1
3		x			x				2
4					x				1
5	x	x	x	x	x	x	x	x	8
6	x				x				2
7	x				x				2
8	x				x				2
9		x					x	x	3
10				x			x		2
11	x	x			x		x	x	5
12	x			x	x		x		4
13	x	x	x	x	x	x	x	x	8
14	x	x	x	x	x	x	x	x	8
15				x	x				2
16	x			x	x		x		4
17	x	x	x	x	x	x	x	x	8
18					x				1
19	x	x		x	x		x		5
20	x	x	x	x	x	x	x	x	8
21	x			x	x				3
22	x				x				2
23				x			x		2

Note. Each behavior observed during the observation period was indicated by an x.

Outcome 3

After practicum implementation, a Student Critical Thinking Skills Behavior Checklist indicated all of the second graders enrolled in the writer's class mastered one of the thinking behaviors on the checklist.

Outcome three dealt with student critical thinking behaviors. The writer used a five-point scale to rate eight thinking behaviors over a 12-week period. The extent to which second graders exhibited thinking behaviors before practicum implementation was minimal. After receiving instruction in critical thinking skills, there was a significant increase in the number of students who exhibited thinking behaviors. A comparison of pre- and posttest results disclosed the following information: 8 of 23 students demonstrated prior knowledge of thinking behaviors on the checklist. After direct instruction and reinforcement, posttest scores revealed 23 of 23 students were able to demonstrate at least one thinking behavior. Table 5 contains the students' posttest scores on the Student Critical Thinking Behavior Checklist.

The results of the two weekly quizzes were very encouraging. The two quizzes consisted of three to four items. Each quiz included one item that required a definition of the skill and two to three items that required application of the skill. Students were given several opportunities to demonstrate competence in a skill. If a student answered two of three questions correctly or three of four, he or she successfully passed the quiz. The writer administered a making judgements and supporting opinions quiz every other

week. The lowest score for the making judgements quiz was 50. The highest score was 100. The lowest score for the supporting opinions quiz was 67 and the highest score was 100.

After carefully analyzing practicum results, the writer concluded that the outcomes were met. The obvious success of the program meant a lot to the writer. The writer planned to continue working with those students who did not achieve all of the program's goals and objectives.

Discussion

The writer was extremely pleased with the results of the practicum. Over half of the students enrolled in the writer's class demonstrated growth in critical thinking behaviors.

The students in the writer's class produced successful results because the various teaching methods used by the writer were enjoyed by the students. The students enjoyed the direct teaching of skills. Direct teaching of the skill was successful due to the repeated guided practice given to the students. In addition, students received instruction beyond a single session.

The writer set aside a specific portion of the daily curriculum to establish thinking as a subject in its own right. This heightened the children's awareness of the importance of thinking skills and enabled the students to recognize that the thinking skills were being taught directly.

Along with direct instruction, the students enjoyed the teacher-led discussion groups. The discussions were the most rewarding for the writer

because all of the students were eager to participate. The students contributed many interesting ideas to the discussions.

Finally, self-selection of books during reading instruction as well as the use of cooperative group activities were very enjoyable to the students. The self-selection of books exposed students to a wider variety of literature genres. Self-selection motivated students to choose books that were personally appealing. The self-selection process provided students with increased opportunities to discover the wide variety of books available in the classroom.

Cooperative group work facilitated the learning of thinking skills. The cooperative activities enabled students to share opinions and interact with peers in a non-threatening setting.

Recommendations

Those approaches and teaching techniques mentioned above were, in the writer's opinion, the factors that made the program a success. The writer would like to recommend the following approaches to other colleagues:

1. The writer recommends that direct instruction in critical thinking skills be incorporated into the second grade curriculum.
2. The writer recommends that teacher-led discussion groups be used to enhance the development of critical thinking behaviors.
3. The writer recommends the implementation of a staff development program that provides training in direct teaching of critical thinking skills.

Dissemination

The writer plans to continue using the critical thinking skills program with the current second grade students as well as other new students throughout the year. Because of the success of the program, the writer was afforded several opportunities to publish and discuss her work. The writer's practicum work was publicized in the following manner:

1. The writer's principal invited a project coordinator from the regional office to observe a seminar that incorporated the teaching of critical thinking skills.
2. The writer met with other reading and language arts teachers to share program results and to recommend the use of the writer's strategies in other classes.
3. The writer placed a copy of the final report in the school library for other teachers to use as a reference.

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APPENDIX A

CRITICAL THINKING SKILLS INVENTORY

Appendix A

Critical Thinking Skills Inventory

Name _____ Date _____

Story discussed: _____

Directions: Place a check mark on the line beside the skill(s) observed during the literature discussion.

_____ 1. Draws conclusions

_____ 2. Understands characters

_____ 3. Makes judgements

_____ 4. Relates reading

_____ 5. Categorizes information

_____ 6. Notes details

_____ 7. Supports opinions

APPENDIX B

CRITICAL THINKING SKILLS STUDENT BEHAVIOR CHECKLIST

Appendix B

Critical Thinking Skills Student Behavior Checklist

Student: _____ Date: _____

Grade: _____ Observer: _____

Directions: Read each statement. Then use the rating scale to select the number which best describes the student's critical thinking behaviors. Write the number on the line next to the statement.

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	2	3	4	5

_____ 1. Checks for mistakes

_____ 2. Gives evidence

_____ 3. Develops strategies

_____ 4. Asks questions

_____ 5. Shows commitment to tasks

_____ 6. Notes differences

_____ 7. States ideas in own words

_____ 8. Transfers knowledge

APPENDIX C

MAKING JUDGEMENTS TEST

Appendix C

Making Judgements Test

Grade 2

Name _____ Date _____

1. To "make judgements" means to:

   a) decide the value of something that is read

   b) tell what a story is about

   c) identify the main idea

2. Underline the question that ask you to make a judgement.

   a) How are the children alike?

   b) Was the girl in the story right or wrong?

   c) Where does the story take place?

3. Underline the question that asks you to make a judgement.

   a) In what ways are the characters different?

   b) Who do you think was right?

   c) Who is the main person in the story?

4. Teacher: In the story Goldilocks and the Three Bears, Goldilocks tasted all of the porridges and slept in beds. Do you think Goldilocks was right or wrong? Why or why not?

APPENDIX D

SUPPORTING OPINIONS TEST

Appendix D

Supporting Opinions Test

Grade 2

Name _____ Date _____

1. To "support opinions" means to:

   a) compare two things

   b) give reasons for what you think

   c) tell about a story

2. Underline the question that asks you to support opinions.

   a) Who are the people in the story?

   b) Who do you think is nicer, Cinderalla or her stepmother? Why?

   c) What is the title of the story?

3. Teacher": The story Cinderalla is about a beautiful girl whose family makes her do all the house work. Then she met and married a prince. Who do you think would make a better queen, Cinderalla or one of her stepsisters? Why or why not?