Critical and Creative Thinking: A Literature Approach

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CRITICAL AND CREATIVE THINKING
A LITERATURE APPROACH

Phyllis G. Cooper
Critical and Creative Thinking Thesis
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CRITICAL AND CREATIVE THINKING

A LITERATURE APPROACH

A Thesis Presented

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CHAPTER I
INTRODUCTION

"I have grown increasingly disturbed by the lack of correspondence between what is required for critical thinking in adulthood and what is being taught in school programs intended to develop critical thinking. The problems of thinking in the real world do not correspond well with the problems of the large majority of programs that teach critical thinking. We are preparing students to deal with problems that are in many respects unlike those that they will face as adults."

Robert Sternberg, "Teaching Critical Thinking, Part I: Are We Making Critical Mistakes?" \(^1\)

Robert Sternberg goes on to suggest that a major difficulty is that we do not teach children to recognize when a problem exists or to do Problem finding. Instead, we give them the problem and then teach them to solve it. I would add that we need to go one step further at this point and teach children that even when they have recognized the existence of a problem, that which initially appears to be the problem may not be. Therefore we need to teach children the importance of problem definition as well as of the solution process.

At a time when decision-making and problem-solving have become increasingly complex, when the future for our children holds so many alternatives and so few certainties, I believe it is our mandated responsibility as teachers to help our children develop the critical and creative thinking skills, skills of sound reasoning and good judgment, which are not only desirable, but are imperative in the future of which they are required to be a responsible part.

- 1 -
What is Critical and Creative Thinking?

In examining the definitions and commentaries of those who have researched and written about critical thinking, I formed a strong belief that the definition, in some way, needed to embrace both the generative and the evaluative aspects of critical and creative thinking, that it had to view thinking as a conscious process, that it had to view critical thinking not merely as a skill but as an attitude, and therefore, that the environment was very important. I would ask the questions, "What skills, attitudes and dispositions make a person an effective thinker? What are effective strategies for the teaching of good thinking, and what is important in the creation of a good climate for effective thinkers?"

In this section I will focus on several views of critical thinking held by experts today. I will emphasize the major disagreements related to definition and instructional strategies. As concerns definition of critical thinking, a major disagreement involves the "boundaries" of the definition. Barry Beyer defines critical thinking in a narrow sense:

"Critical thinking consists essentially of evaluating statements, arguments and experiences."

This is quite different from such experts as Richard Paul and Robert Ennis who give a far broader interpretation of critical thinking.

Barry Beyer, writing about critical thinking in the social studies context states,

"Equating critical thinking with all other kinds of thinking or with Bloom's list of skills, inquiry, decision making or problem solving is incorrect. Such practices blur the essential distinctions between these various kinds of thinking. They also lull teachers into believing that by teaching these other skills, they are really teaching critical thinking."
Beyer, believing that critical thinking should be narrowly defined, also believes the teaching of thinking should be very directive. He assumes, I believe, that by this very direct teaching of thinking skills in the way he has delineated, students will internalize these skills. Beyer begins with a skill then seeks ways to use it, rather than working from a situation or problem and determining the skills most effectively utilized.

Beyer believes in a hierarchy of skills. Yes, it is valuable to be able to distinguish fact from value judgment in order to detect bias, but is it necessary or helpful as stated in the Thinking Skills Check List to "clearly delineate which thinking skills are to be taught at each grade level in each subject area?" I think not. To place primary emphasis on the skill at all times (and this does not preclude the teaching of the skill which is, of course, necessary) removes the thinking from the context, isolates it, rather than integrates it with the subject matter and context.

Beyer uses the term "overlearn" and states,

"Transfer is best facilitated when students initially overlearn the skill; this initial learning requires repeated guided practice in the same context as that in which it was introduced. However, once students have demonstrated mastery of a skill in a given context, the teacher can then vary the context to induce those cues needed to facilitate transfer to new contexts."

I am not certain that overuse is not a more descriptive term. Beyer's approach appears to be very much one of drill. It seems too
structured, too categorized, allows for little flexibility, and emphasizes too much the skill in isolation and not enough the climate and the modeling. Repeated practice, broadening of skills, using skills in combination, providing, or rather seeking, opportunity for transfer are all important. Beyer's approach seems to me to be too teacher directed, the teacher provides the skill, the teacher provides the content, the teacher provides the additional opportunities to apply the skill. When do the students discover a problem and decide what skills are needed to solve the problem? And isn't problem solving one part of critical and creative thinking? I, unlike Beyer, believe it is.

With a more broadly defined approach, one which includes problem solving in his definition, thinking begins, in the words of Jonathan Baron

"with a state of doubt about what to do or believe...one usually has a goal, a state we wish to achieve, in mind when the doubt arises but we may search for new goals, subgoals or a reformulation of the original goal."

Baron views the most important components of the model as the three search processes: search for goals, search for possibilities, and search for evidence. Baron cites three crucial elements necessary to promote a thinking classroom climate:

1. A spirit of inquiry - inquiry is valued and the teacher admits uncertainty.
2. An emphasis on problem finding (as different from the classroom where answers are sought and solutions valued.) Here questions are encouraged.
3. A more deliberative pace - time to think, to reflect.

In his discussion of methods, Baron argues for the teaching of thinking in all subjects, the use of the process in subject-related
problems, beginning with the problem, not the skill, focusing on the relationship of the important search processes to the particular subject and finally providing the opportunity for application of the model to personal decision making.

I see one of the most crucial differences between Beyer and Baron being one of skill versus skill and attitude and climate. A student can be taught the skill, has the ability, but he or she also needs to want to use that skill, that ability. In true critical thinking, one has to be willing to change a goal, to admit mistakes. I would question whether or not everyone who has been taught the skill has been taught the attitude. Without the critical attitude, critical thinking may very well stop at self interest. If we want children to be able to think critically in their everyday lives, we must recognize that our daily problems are not nice and neat and logical. They cannot always be compartmentalized like the skills Beyer teaches.

Richard W. Paul, also rejecting a narrow view of Critical Thinking and Strategies needed to develop it, writes:

"There is a fundamental difference between the kinds of problems one faces in technical domains and those in the logically messy "real world." Solutions to technical problems are typically determined by one self-consistent close-textured system of ideas and procedures. In contrast, the problems of everyday life are rarely settled in a rational manner as a result of opposing points of view, contradictory lines of reasoning, and the realities of power and self-delusion.

To this point the schools, to the extent they have addressed problem solving, have focused their efforts on technical problems and technical reason and procedure, and have either illicitly reduced real-world problems to them or have tacitly inculcated into students the prefabricated "apodictic answers" of the dominant social majority or some favored minority."
Long a proponent of the need to attend to the development of attitude relevant to critical thinking, Robert Ennis of the Illinois Thinking Project, has developed a comprehensive list of dispositions and abilities for critical thinking. This list, called Goals for a Critical Thinking Curriculum, forms a foundation for his working definition of critical and creative thinking. Ennis states,

"Although there are narrower concepts of critical thinking in some people's minds, I think that the one that is most widely employed is expressed in this definition: Critical thinking is reflective and reasonable thinking that is focused on deciding what to believe or do. Note that there are creative activities covered by this definition, including formulating hypotheses, questions, alternatives, and plans for experiments. Note also that so defined, critical thinking is a practical activity, because deciding what to believe or do is a practical activity."11

The dispositions he identifies include, among others, clarity of thesis or question, seeking reasons, relevancy, seeking alternatives, open-mindedness, deferred judgment, and sensitivity to others. Abilities include focusing, analyzing arguments, clarification questions, judging credibility and criteria, observation, deducing and judging deductions, inducing and judging inductions, making and judging value judgments, identifying assumptions, deciding on an action and interacting with others.

E. Paul Torrance somewhat parallels Robert Ennis in that Ennis sees critical thinking as a practical activity, i.e., we are continually making decisions regarding beliefs or actions and this involves creative thinking as part of critical thinking. Torrance also focuses on awareness of problems, searching for solutions, formulating hypotheses, etc. as a natural human process. In each definition, "practical" and "natural" could be exchanged.
E. Paul Torrance defines the creative learning process:

"One of becoming sensitive to or aware of problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; bringing together available information; defining the difficulty or identifying the missing elements; searching for solutions, making guesses or formulating hypotheses about the deficiencies; testing and retesting these hypotheses, and modifying and retesting them; perfecting them; and finally communicating the results. This definition describes a natural human process. Strong human motivations are involved at each stage." 12

Robert Swartz points out,

"Critical-thinking taxonomies typically tend to be far less developed vis-a-vis creative thinking, and taxonomies like the productive thinking skill list of Torrance tend to be underdeveloped with regard to critical thinking skills." 13

John Passmore also relates the critical and creative elements of thinking and expresses the need to view critical and creative thinking in combination.

"I have introduced the phrase 'critico-creative' thinking, not through any fondness for it, but because 'critical thinking' may suggest nothing more than the capacity to think up objections. Critical thinking as it is exhibited in the great traditions conjoins imagination and criticism in a single form of thinking; in literature, science, history, philosophy or technology the free flow of the imagination is controlled by criticism and criticisms are transformed into a new way of looking at things. Not that either the free exercise of the imagination or the raising of objections is in itself to be despised; the first can be suggestive of new ideas, the second can show the need for them. But certainly education tries to develop the two in combination. The educator is interested in encouraging critical discussion, as distinct from the mere raising of objections; and discussion is an exercise of the imagination." 14

Passmore continues, "This point is fundamental. It is related to the fact that critico-creative thinking is not a subject, in the sense in which chemistry or technical drawing or history are subjects. It can be fostered, or it can be discouraged, as part of the teaching of any subject—even if some subjects provide more opportunities for doing so, at least at an early stage, than others." 15

And very important in the context of transfer, Passmore states,

"It would be absurd to suggest that a man must either think critically about everything or about nothing. But it is not absurd to
suggest that the critical attitude, once aroused, may extend beyond the particular group of problems which first provoked it.16

Passmore argues, and I strongly agree, that children can and should begin to be taught critico-creative thinking at a young age:

"So far, then, as a school emphasizes, within the great traditions, the practice of skills rather than rote learning--the use of intelligence rather than the development of habits--it in some measure prepares the way for critico-creative thinking...The crucial principle seems to be: wherever possible and as soon as possible, substitute problems for exercises. By a problem I mean a situation where the student cannot at once decide what rule to apply or how it applies, by an exercise a situation in which this is at once obvious.17

Robert Swartz demonstrates agreement with Passmore when he writes:

"The second thing that emerges from taking this broader perspective is that critical thinking skills and creative thinking skills are not just another set of skills to be taught the way subject area skills are taught. Good critical and creative thinking takes place in a context of questioning and open enquiry that requires a certain spirit of thought manifested in certain attitudes and dispositions like being openminded, considering points of view other than one's own, etc. These attitudes and dispositions are as much capable of cultivation in the classroom as are skills."18

Swartz also speaks of the power of the combination of Critical and Creative thinking:

"Both creative thinking and critical thinking must be emphasized in teaching. In situations where they are best used, the norm, not the exception, is to use them in combination, not in isolation...In combination we have an approach that is more powerful than each because it is in keeping with the way that people naturally approach good thinking. If we think about creative thinking skills as skills of the generation of ideas which stretch our mental abilities to consider a number of alternatives without prejudging any and think about critical thinking skills as skills that operate on our cognitive attitudes towards those ideas, once generated (e.g. belief, disbelief, doubt), the necessity to develop both in combination becomes obvious. The development and use of the other can lead to overly narrow or overly fanciful thinking that may not be very effective.19

Since the creative thinking skills--sensitivity to problems, flexibility, fluency, originality, elaboration, and redefinition 20 are of
a divergent nature, the ability to use them enables the critical thinker to discover the unusual, the hidden, or that which is defective, break old patterns and old boundaries, generate many ideas and alternatives, seek new ideas or combinations, expand on that which is already in existence, enhance the details, and perceive a problem or need for a decision in a different way.

A Nurturing Environment for Critical and Creative Thinking

It is my contention that the most effective way, the most important strategy, to help students become effective, critical and creative thinkers is for the teacher to model critical and creative thinking behavior. In many classrooms in the past, silence was equated with “thinking.” Thinking was a private activity where the only evidence of its occurrence was the answer on the paper or the oral response to the question which was then judged to be correct or incorrect. The process of thinking was virtually ignored in favor of the correct answer. “Climate needs” were not an important consideration. These needs must be met in order to provide a nurturing environment for the development of strong critical thinking skills and effective thinkers. These needs include opportunities for discovery of and time to work through appropriate problems, tasks that invite sustained thinking on complex issues, and rewards, not in the “concrete” sense such as stickers, but in terms of time in which to share and work together. Another significant need is what Delores Gallo of the Critical And Creative Thinking Program at U. Mass., Boston states as “A psychologically safe environment.” By that she means a place where
critical and creative thinking is valued and where the child knows questions are as important as answers, where all ideas have value and where the person as a source has value. In this environment it is the process which is valued more than the end product. In this environment differing points of view are shared and valued, risk-taking is encouraged, and mistakes are seen as part of the process of learning and open-mindedness is promoted.

A nurturing critical and creative thinking environment is often "noisy" because children are thinking out loud, bouncing ideas and strategies off one another. If we don't hear others think, how do we learn what good thinking is? As the model teacher talks through his or her own thinking process, the child begins to understand how he or she arrived at point M from point A, can evaluate the process, and begins to understand his or her own thinking process through similar identification and assessment.

In a world which is, in many ways closer together, where we depend more on one another and where decision making and problem solving can no longer be an individual process, I believe it becomes increasingly important that we teach and model critical and creative thinking as a group process. Children must learn how to work together toward the solution of a problem. They must learn to listen to one another, share ideas, defer judgment, evaluate their own thinking as well as the thinking of others, consider other points of view, take the necessary time to be an effective thinker, and hopefully to enjoy the thinking process rather than to need to have the "right" answer.
Why A Wrinkle in Time?

It is my contention that the use of fantasy material to teach "real world" problem-solving can be especially effective. Fantasy removes those boundaries of "real" time, personal experience, and already "engraved attitudes" which so often affect the decisions we make regarding the solutions we create for our problems. The use of fantasy allows the reader greater freedom to imagine the impossible and thus greater freedom, to view problems from a variety of perspectives and to seek alternative solutions. Intra and interpersonal relationships, through fantasy, are no longer solely tied to our personal experiences, but are given the opportunity for wider definition and objectivity in the problem-solving process.

I will offer a rationale for the use of A Wrinkle in Time as especially appropriate for developing critical and creative thinking by exploring the ways in which it provides opportunities for problem finding and problem solving and avoids the common mistakes of teaching for thinking as described by Robert Sternberg.21

Sternberg states that although we should, we do not require students to deal with the realities of problem finding and problem solving. Madeleine L'Engle, in her book, A Wrinkle in Time, although it is a science fiction context, provides a rich opportunity to apply critical and creative thinking to some of the realities of problem finding and problem solving. This is possible in that conditions in the story parallel the "real" conditions set forth by Sternberg: The problems are not always easily identifiable; the information needed to solve
the problem is not always readily available; the students must search and determine which information is relevant to the problem; the student must attempt to make his own connections; the obvious problem is not necessarily the one which should be dealt with directly.

In *A Wrinkle in Time* there are a series of problems which need first to be identified and solved in order to ultimately solve the larger problem. Sternberg refers to the importance of context-sensitivity to text in solving real world problems. Though it is not a "real life" context, the student must be aware of, sensitive to, the context in order to solve the problem. The characters in *A Wrinkle in Time* often have differing viewpoints on the correct course of action to take and examine the consequences of those different courses of action. This is imperative in attempts to solve everyday problems. As Robert Sternberg points out, there often is "no one right solution and even the criteria for what constitutes a best solution are often not clear." Sternberg states that "solutions of everyday problems depend at least as much on informal knowledge as on formal knowledge."

Madeleine L'Engle endows her characters with unique character traits. These traits are creatively used by the characters in their individual approaches to the problems, thus they model for the readers the ability to use self-knowledge and the knowledge about others in working through the solution to a problem.

In the real life of the classroom I must model this complex process for my students. One classroom example demonstrates my modeling of my trait of patience over a period of time, a trait which I value both in
myself and others, and one I wish my students to value also. Shanna needed to develop this trait of patience with herself. She was totally frustrated with math. She would look at a math paper, throw it on the floor and sulk. Telling her I was willing to help when she felt ready gave her some control over the situation. Slowly Shanna learned patience with herself. She began by coming to me when she found a problem she was uncertain of. Later she checked things out with a classmate. The next step was her effort to discover where she went wrong. She learned to verbalize her reasoning and often discovered where she had made her mistake even before she had completed the verbalization! Through this experience and similar ones throughout the year, the students were learning an approach which helped them examine their reasoning in their attempted solutions to other problems. Shanna learned she could develop the trait of patience with herself and did, in fact, help others to do the same. Other students learned what patience could do when what was needed was that extra time.

When students have discovered an approach which appears to "work" in a particular situation, it is then important to ask them to think of a time that that approach might have worked when another one didn't or a future time when it might be beneficial to use that approach. This is focusing them on the process rather than the product or solution. Within the context of A Wrinkle in Time it is comfortable to flow back and forth between the literature approach, the thinking processes employed by the characters and/or our analysis of what those processes were when we were
not certain and the students own experiences as they relate them to the approach. Thus the students are able to "make connections" between the unreal problems they are asked to solve and their own real problems. At times students are specifically asked to think of an instance or instances in their own lives where one of the approaches used in the literature might have been a better way to approach a problem than the one they used and to examine the differences which made it a better approach. In this way, students were shown how to apply a skill or group of skills to several situations.

Robert Sternberg, in his article, "Teaching Critical Thinking, Part 2: Possible Solutions" expresses the view that we should not throw out existing programs for the teaching of Critical Thinking. Rather, "unless programs designed to teach thinking skills reflect the realities of everyday problem solving and decision making, it is doubtful students will be able to apply what they have learned from these programs to their everyday lives. We must teach students to solve problems as they occur in the real world, not as they appear in the simple, orderly world of courses in critical thinking—a world in which, unfortunately, none of us lives."24

Madeleine's L'Engle's work is an exciting vehicle for the opening up of one's imagination and the discovery of new ways in which to use it. At the same time, I believe, this piece of literature is a natural way in which to begin to help students use their minds critically. The story offers an opportunity for a perfect blending of both critical and creative thinking skills.
In teasing out the creative aspect, the development of imagination in children deserves closer scrutiny than we sometimes tend to give it as it is also an area to which we attach adult values without realizing this. Within my experience, children in this age group, ages ten to twelve, have wonderful imaginations and love to use them but are often allowed to do so openly only under adult rules. One such example is in the area of aggression and violence. Though we all hold the capacity for aggression and violence within us, as adults many of us are fearful of expression of such in children, so rather than attempting to understand its expression at all we tell children they cannot have toy guns, cannot play war, cannot draw any pictures which demonstrate violence, cannot write any stories of which violence is a component, etc. Writing on this subject, Bruno Bettelheim, Child Psychologist and author writes:

"Learning to live with violence and aggression is an important part of a child's development. I would never force a gun on a child but parents think that if their children play with guns they are going to become murderers. If they play with blocks it doesn't mean they will become architects. If they play with trucks it doesn't mean they will become auto mechanics or truck drivers...one learns how to socialize violence rather than repress it..."25

Perhaps one can argue Bettelheim's reasoning, but I doubt most of us could or would wish to argue his strong belief in the value of the development of the imagination within a child. What Bettelheim is also saying to me here is that we as adults must question our own values, the way in which we teach them, overtly or covertly, to our children, and the way in which we hinder or aid in the development of their imaginations. Throughout these activities the teacher, along with
the students, should participate in this questioning of him/herself and the subsequent values which are embraced or rejected. We, as teachers, must always ask whether or not we are promoting in a responsible way the development of our students' imaginations. As inferred in the statement by Bettelheim, what we don't do or do not allow becomes as important in the formation of values as that which we choose to do or allow.

The "realness" of Madeleine L'Engle's characters, their feelings, their relationships, their values, enable the reader to empathize and identify, relating them and analyzing them in terms of the students' own lives while at the same time taking them on a totally imaginary trip, challenging them to discover the capacity of their imaginations. The potential for a great journey into the imagination is there if the doors are allowed to remain open to the possibilities.
FOOTNOTES


3. Ibid., p. 271


5. Ibid., p. 148

6. Ibid., p. 319


8. Ibid., p. 49

9. Ibid., p. 52


15. Ibid., p. 204
16. Ibid., p. 205
17. Ibid., p. 206
19. Ibid., p. 18
22. Ibid., p. 196
24. Ibid., p. 280
It is my personal belief that teaching children should be a journey of inner exploration for both teacher and student. It is my intent, through the experiences and activities developed within this literature approach, that both teacher and student have the opportunity to begin this inner exploration.

Brian Way, in the introduction to his book, Development Through Drama, states:

"It is comparatively easy to develop good drama but more difficult to develop good people."

Through a total immersion in literature, specifically, A Wrinkle in Time, I shall attempt to guide my students on a journey, a pilgrimage, where each step and each stop will involve them in examination and re-examination of attitudes and values toward life. At the end they will have not only experienced the development and changes of the characters of the story, but will have discovered new dimensions within themselves as individuals, their own thoughts, feelings, opinions, and new dimensions in relationship to others.

I have chosen the term pilgrimage, as opposed to journey, as a "pilgrimage" designates a journey for a particular purpose and is often
an act of devotion. This concept applies well to *A Wrinkle in Time* because it contains both an outward pilgrimage, the search for a father, and an inward pilgrimage, the search for and ultimate discovery of qualities previously unknown in the characters, or of qualities experienced in a new light. In approaching the novel I will pose questions and problems that require students to develop literal and interpretive comprehension of the plot and characters, to develop an empathetic enjoyment with the issues through the use of drama techniques, to identify the problem solving techniques used and apply them and others to their own lives.

Though this book certainly could be read and enjoyed individually, privately, I have chosen to develop an approach to be shared within a class and/or small group context through discussion and dramatic activities, but also with opportunities to respond to the literature in more personal (private) ways. This decision came from the realization that Madeleine L'Engle wishes her readers to understand the complexities of human relationships and their importance, and also that relationship which each of us has with him/herself. Each person relates and reacts to his or her world in a very personal way, a way which cannot always be known by another. Through the strategies I have developed, it is hoped that each person interacting with this book will gain respect both for the feelings and actions of others and for their own personal thoughts and responses.

Though the book itself is divided into twelve chapters, I have
organized it into eight sections in terms of the objectives I have chosen for activities and discussion:

I  Mrs. What'sit
    Mrs. Who
    Mrs. Which

II The Black Thing

III The Tesseract

IV The Happy Medium

V The Man With Red Eyes
    The Transparent Column

VI IT

VII Absolute Zero
    Aunt Beast

VIII The Foolish and the Weak

Prior to reading, each section will be introduced through an imagery activity, an improvisational activity, or a written activity. In order to help develop a more complete understanding of the traits of particular characters, an optional on-going activity will be to develop a character silhouette (Activity I) in order to record the personality traits of one or more characters as they become known. The student may also wish to develop this activity as it applies to him or herself. As shared traits are discovered (the student realizes that he or she shares a trait with a character) those shared traits can be highlighted in some personal way. This activity will require the gathering of supportive evidence for the students need to be able to list or discuss that which caused them to state a character is a risk-taker, reliable, etc.
These motivational activities shall serve to provide conceptual preparation for comprehension through the recall and organization of relevant, prior knowledge, to set the mood of place or circumstance, and to give the reader/listener a connecting point to his/her own life and point of anticipation.

Following the reading of each section, questions will be asked, responses discussed, and/or particular activities developed which will integrate specific critical, creative, and metacognitive thinking skills, attitudes, and dispositions. As the students respond to the story they will have the opportunity to examine their own decision making, problem solving strategies as well as their point of view as it compares to the point of view of others. They will see their own thinking skills not in isolation, as an exercise, but will develop an understanding of these skills as the foundation for all learning and growing whether in the classroom as part of a subject such as literature or math or as part of a decision which needs to be made within their classroom lives, or outside of the classroom. Importantly, students will not only learn how to "respond" to questions promoting effective thinking, but will learn how to generate their own questions. They will develop an understanding as to the way in which they, as individuals think and learn through opportunity for metacognitive activities, for it is this knowledge, knowing how you think and learn which gives effective thinking its power.

An extremely important, but often overlooked aspect of the teacher's role, especially as it relates to questioning techniques and
responses is discussed by E. Paul Torrance in the book, Creative Learning and Teaching. Torrance states:

"Although the paradigm for the open-ended question is apparently simple to follow, it really takes considerable skill to use effectively. There is a tremendous difference in the manner in which teachers receive their pupils' responses ranging from no comment at all to rejection and enthusiastic endorsement. The responsive teacher, however, is not usually an effusive one. He shows his acceptance in many ways other than by praising...if he should single out what is good in one child's idea, he is placed in a position where he feels he should say something positive about every child's response...premature evaluation of divergent productions is inhibiting, especially to those individuals who are timid about revealing something about themselves...Many intangibles operate to make teachers effective, ineffectual, or harmful. The teacher who never smiles can be just as stimulating as the one who smiles all the time...a teacher who does all the right things...asks interesting questions, is pleasant, supports...praises...presents stimulating materials...All of these "right" behaviors on the teacher's part are most persuasive in rating the teacher as being outstanding—until the observers attend to the reactions of his pupils...it may be simply a matter of really not valuing the children as individuals...of the teacher only going through the motions...when a teacher doesn't accept and respect children, very little of what he does will be effective in helping them grow intellectually, socially, and morally."

Yes, we must care deeply about what we teach and how we attempt to teach it, but most importantly, as Torrance so ably expresses it, we must care about who we teach and always respond to the WHO.

Activities for A Wrinkle in Time have been developed and presented chronologically and according to the sections I outlined earlier. Listed at the beginning of each activity (in the classroom these could be listed on the board, etc.) will be those critical, creative and metacognitive skills which I have chosen to promote through that particular lesson. The lesson will begin with the statement of one or two general objectives, a motivational activity of a divergent nature.
activities developed for the promotion of the particular thinking skills followed by the opportunity for discussion, student generated questions, double-entry journal writing, etc. Finally there will be an analysis of the strategies used and the critical, creative and metacognitive skills developed.

Strategies will involve the use of both convergent and divergent thinking through imagery, small and large group processes, journal keeping, optional individual activity sheets (included at end of activity), the use of "how", "why", "what if" questions, the opportunity to predict events and their consequences and to evaluate those predictions and consequences.

Creativity and the relevant attitudes will be developed through opportunities for risk-taking, open-mindedness, generation of ideas, originality, flexibility, elaboration of ideas, deferred judgment, tolerance for ambiguity, open-ended questions, generalization, and prediction.

Critical thinking skills developed will include inference, analysis, compare/contrast, cause/effect, point of view identification and relevance, seeking evidence, identification and relevance of strong/weak reasoning.

Metacognitive skills will be enhanced through the opportunities for self-reflection and development of self-awareness through writing and discussion, recall and application of prior relevant knowledge to present circumstance, exploration of choices and consequences, building images and image connections, identification of what is already known in relationship to what needs to be known.
These skills are not all used in each activity, but several are focused on in a single activity, some more than others as the analysis and discussion of each lesson will show. The critical and creative thinking skills are used basically in clusters to reflect the way in which we use thinking skills in our everyday lives. Though it is not "spelled out" in each activity, the students are made aware of the skills they are using mainly through discussion. It is helpful to post the terms in the room as they are being used. The teacher may even wish to post a check list on which a skill is recorded and checked each time it is used.
FOOTNOTES


CHAPTER III
INTRODUCTION

"It is the time you have wasted for your rose that makes your rose so important."

The Little Prince
Antoine De Saint Exupery

The activities developed for A Wrinkle in Time have been written with flexibility in mind. The suggested activities may develop into new ones as involvement increases. Open-endedness should always be a consideration. The use of the "How", "Why", "What if" questioning technique is a further reminder of the necessity to be open-ended in developing effective thinking skills. Within this flexible approach, the students should be free to generate their own questions, discussions, and activity extensions. These activities involve time, the willingness on both the part of the teacher and students to spend time, for it will be that time that brings out the essence of the story and its characters...

"It is the time you have wasted for your rose..." Some students may be timid about participating in some of the activities, especially the imagery activities. Time, with patience, will ease those students into this, in all probability, new experience.

It is also most important for the teacher to let the students know the way in which this novel is to be approached, what is expected of them, and the strategies involved in order for the students to become as comfortable as possible as soon as possible.
CHAPTER III

ACTIVITIES

Section I Activity I
Mrs. Whatsit, Mrs. Who, Mrs. Which

Goals focused on in this Section:

CRITICAL
Analysis
Inference
Identification of Problem
Seeking evidence
Evaluation of Strong/Weak reasoning
Comparing/contrasting
Point of view
Identification of point of view

ATTITUDES
Risk-taking
Empathy
Self-esteem

CREATIVE
Problem finding
Elaboration
Generalization
Prediction

METACOGNITION
Increased awareness of one's feelings and causes of those feelings through building of images and image connections.

Reflection on the process of imaging through the use of double-entry journal writing.

OBJECTIVES:

1. To introduce the students to the characters and personalities of Meg, Charles Wallace, Calvin, Mrs. Whatsit, Mrs. Who, Mrs. Which, and to the problem/plot of the story.

2. To begin to develop an awareness of the concepts of empathy and self esteem.

MOTIVATION:

1. What is a pilgrimage?

2. Introduce the story and set the broad purpose for the study by telling the students that they, along with you, are about to embark
upon a very unusual and important pilgrimage. Discuss the concept of pilgrimage as a "journey for a particular purpose...often an act of devotion." Some of the students may wish to discuss personal pilgrimages they feel they have been on. Contrast the concepts of both an outward pilgrimage, i.e., a search for a person, a lost city, artifacts from centuries ago, with the concept of an inward pilgrimage, i.e., a criminal who becomes rehabilitated, a recovering alcoholic, etc. Tell them they will not be traveling alone. Some traveling companions they will find most comfortable to be with and others they will feel most uncomfortable with. They should recognize these feelings within themselves and let them out whenever possible. They, along with you, the teacher, are to be on this pilgrimage just as are the characters in the story. This pilgrimage is full of the unknown. As do the characters of the story, the students will need to discover their own strengths and weaknesses and how to use this knowledge in order to successfully complete the journey. They will need to learn about their fellow travelers and how to work with one another in order to successfully complete the mission. When the pilgrimage is over, the students will have gained new knowledge of themselves and of their peers. This new knowledge will enable them to re-examine their views of one another and themselves in terms of their own attitudes and values and any changes in these attitudes and values.

Explain to the students that while on this pilgrimage they are to keep a double entry journal, a "word map" which will help them to
evaluate where they are, where they have come from and in which direction they might choose to proceed. At times they will be required to record their thoughts, feelings, questions, etc., but they are encouraged to record their reflections at any time and to share them should the need or desire occur. Later they may be asked, or may desire at any time, to return to their journal entry and respond to it with new thoughts, feelings and insights.

ACTIVITY I

The first activity is one using imagery in order to, as quickly as possible, draw the student into the story as an active participant. Guide the students in this imagery:

"Close your eyes and let me take you to a very old house out in the country. It is a dark and stormy night. You are in your attic bedroom. The wind is lashing at the trees. Clouds darken the sky. Every once in a while the moon rips through those forbidding clouds only to be almost immediately covered up. The house is shaking around you."

Direct the students to keep their eyes closed and continue the imagery in their own minds. Following thirty to sixty seconds ask for volunteers to share their imagery extensions. It might be helpful to ask, "How do you feel?" "What did you see?" "What other sounds did you hear?" This discussion draws the student even further into the setting. You, as the teacher, should also share thoughts. As students share, the climate of acceptance is enhanced. The students may also begin to relate an idea to one previously expressed, beginning a positive interdependence among them.

ANALYSIS

The introductory motivational activity creates connections
between the entire underlying concept of the story, that of a pilgrimage, and that concept as it applies in their own lives or lives of persons connected to them. Through this recall of prior relevant knowledge, they are already bringing their own experience to an understanding of the story. They are also given some personal goals such as the understanding of their own strengths and weaknesses which will later on be of value in understanding inner characteristics of the story characters. The imagery activity immediately brings their imaginations into play. Extending this activity allows each student to extend, elaborate on this image as much as he or she desires. In their willingness to share their elaborations, they are demonstrating their readiness or lack of it to take this initial risk. Their elaborations may or may not bring more of their own experiences into this image.

ACTIVITY II

Read the first chapter aloud to the students. Following the reading you will engage the students in several activities which will continue to promote empathy for the characters as well as enable the students to engage in several important skills of effective thinking.

"Here is a mirror (Use a real one). It appears ordinary enough but...it is magic. In addition to seeing what you look like, this mirror serves another purpose. You can see not only visual images, but also thoughts and feelings!"

Question:

Pretend you are Meg and look into the mirror. What thoughts and feelings do you see? (Possible responses: anger, dumbness, sadness, ...
loneliness, hurt, ugly oddball).

Discussion:
1. Have you ever had feelings such as these? Discuss responses in terms of when, where, why. Following discussion have the students respond in their journals.

2. How did Meg feel about herself? What evidence is there in the story to support your response to this question? Optional: Have students complete Activity Sheet #2 on Finding Evidence.

3. Discuss any generalizations the students make related to the discovery that feelings such as these are quite common.

4. Meg compared herself with her mother. What were some of the comparisons she made? Have the students think of someone they are close to, how they are alike, how they differ from one another. The students should then record these comparisons in their journals and share on a voluntary basis.

5. Discuss the factors which contribute to our self-images and whether or not they are always true self images.

Activity:
Look into the mirror a second time. You now see Charles Wallace. What really appears special about Charles Wallace? (Possible responses: He always seems to be able to predict Meg's behavior; other people view him as "different", even dumb; he appears to be far older than age five.)

Discussion:
1. Ask the students to look at the relationship between Meg and Charles Wallace. Discuss this relationship in terms of the feelings each has for the other. Some students may identify with this relationship in some way. Discuss.

2. Ask the students to add their own comparisons of Meg to her mother to those Meg made herself. Can they see some which Meg didn't see?

Activity:
Looking into the mirror one more time, close your eyes. Imagine someone in lots of clothes, wearing scarves of many colors, a man's felt hat perched on top of a head, a shocking pink stole over a rough overcoat and black rubber boots. Who am I describing? What was your first clue that Mrs. Whatsit had some unusual qualities? (Possible responses: She knew about the
Who or what could she be?

ANALYSIS

Through these activities requiring active involvement the students explore the concept of empathy, relating their own experiences to those of the characters. They are asked to go beyond that, however, and are required to cite evidence to support their views. They are asked to look at their own behaviors and personalities analytically and compare and contrast themselves to someone they are close to and perhaps even begin to look at causes of particular behaviors. Through double-entry journal responses the students are required to reflect upon their own self-awareness and to create conscious images of themselves where there might not have been any previously. The students are also required to relate their personal lives to those of the story, to begin the process of transfer. Sharing their journal entries on a voluntary basis here allows the student control over his or her own writing. This permits the student to say as little or as much as he or she desires without the fear of being judged. It is an initial and important step in risk-taking and developing the context of a "Psychologically Safe environment."

ACTIVITY III

Read the second chapter, "Mrs. Who". In this chapter Meg is called to the principal's office where she and the principal, Mr. Jenkins, argue over the fate of Meg's father. Direct the students to use Activity Sheet #3 to record responses to this activity. The
students are asked to first pretend they are Meg and to give at least three reasons to support her belief that her father will return home. Secondly, they are asked to pretend they are Mr. Jenkins and to give at least three reasons to support his belief that Meg's father will not return home. The students must then determine whether the reasoning for each is strong or weak reasoning and defend the decision in each case.

Optional Activity: Separate the class into groups of three or four, assigning each group the role of Meg or Mr. Jenkins. Place each "Meg group" with a "Mr. Jenkins group" where each has to present their view to the other and defend that view. They may ask each other questions and disagree, but each statement has to be supported with some kind of evidence.

Question:
When or if either Meg or Mr. Jenkins is found to be correct, does that mean that the other told a "lie?"

Discussion:
1. Have the students, through discussion, establish a criterion for distinguishing rumor from lie if they have first concluded that they are not the same. In either case they should be able to defend their position. Applicable here would be examples from their own lives. Ask them to attempt to draw parallels between their experiences and that of Meg and Mr. Jenkins.

2. Could both Meg's and Mr. Jenkins' views have been predicted? Here the students can make some generalizations as to the predictability of their views.

ANALYSIS

Through the role-taking activity the students are first requested to examine closely differing points of view. In order to do this they
must also examine causes of points of view. What is there in Mr. Jenkin's experience that causes him to view the same situation differently from Meg? To take this examination further the students in option two could be requested to change roles as they actually had to do in Activity #3. They then were asked to determine the reasoning strength of their supporting statements and defend their views. Elaborating on the Point of View, students could, in addition, decide if there were only two points of view or if there could be others the author chose not to include. Further discussion of this possibility and other possible points of view could lead the students to a deeper introspection of themselves and how they form their own points of view on things. This activity is an especially strong activity for developing metacognition through self-reflection and the development of self-awareness through discussion. It is also strong in that it underlines the fact that point of view is not merely opinion with no basis, but brings with it evidence, experience, or lack of, and bias and prejudice. It underscores the message that, not only must we be aware of this bias and prejudice in others, but we must develop the capacity to be willing to see it in ourselves.

ACTIVITY IV

Read chapter three, "Mrs. Which."

Question:

Have you ever met anyone and just knew from the beginning you were going to be friends? What was it like? What were some of the signals? Discuss the "signals" Meg and Calvin shared.
Explain to the students that they have already developed an understanding of Meg's relationship with her family. In this chapter the students have learned some things about Calvin and his relationship with his mother. Through role-taking the students will be able to enhance their understanding of these relationships. This identical situation will be used to see how each mother, Meg's and Calvin's would react under similar circumstances: Meg is calling her mother to ask if she can stay at a friend's house for dinner. Calvin will then call his mother and ask the same question. Have students work in pairs and participate in the role-taking situation. Have several students do different versions. Analyze responses through class discussion. A useful variation would be to have the same student assume the role of both mothers. The two points of view could be experienced and more deeply felt in this way.

Discussion:
1. Discuss how the students felt in one role versus the other. Was one role more comfortable than the other? What do you think made it so?
2. Discuss the differing attitudes and values among families and some of the contributing factors towards these differences.
3. How could Calvin still love his mother?
4. Compare Meg and Calvin. How are they alike? How are they different?

Discussion Extension:
Think of a very close friend of yours. In your journal list at least three ways you and your friend are alike. List at least three ways you and your friend are different.
5. Do people have to be alike to be friends? How (in what ways) can differences contribute to a friendship?
6. In response to Meg's question, "Do you think things always have an explanation?" What do you think Meg's mother meant when she said, "Yes, I believe they do. But I think that with our human limitations we're not always able to understand the explanations. But you see, Meg, just because we don't understand doesn't mean that the explanation doesn't exist."2

7. What are some things you accept without totally understanding them or without 100% evidence? Why do we accept things we don't understand? Discuss reliable/unreliable sources, faith, trust, etc. How do you respond when someone says something you know is false yet you are unable to prove it?

8. Determining the facts concerning Mr. Murray's disappearance so far: Ask three questions: 1. What do we know about Mr. Murray's disappearance so far? 2. What do we know about his disappearance that is not true? 3. What are we not certain of? Give at least one piece of evidence from the story to support your responses. Optional: These can be listed on a class chart under three headings. As the story progresses, information can be removed, changed from one heading to another or new information added or students may record responses using Activity IV.

9. People were saying things about her father that Meg "knew" weren't true. Has that ever happened to you in some way? How did you react/respond? What did Meg do? Do you think she was right? Why? Why not? What should she have done differently? What if she had reacted differently—what would have happened?

10. Meg said she wished she were a different person. Do you ever feel that way? When? Are there some things you wish you could change about yourself? What are they? Can we change some things about ourselves? Are there some things we can't change?

Discussion Extension:
In your journal make a list of those qualities, etc. you wish you could change about yourself. Put a check beside those which you believe can be changed. Place an X beside those which you believe are impossible to change. What is the difference between the two lists, i.e., What is it that makes some things changeable and others impossible to change? Discuss responses.

ANALYSIS
Through the first question the students are again asked to bring their own experience to aspects of the story, to relate the story to
their own lives. They are asked to compare and contrast two differing points of view and their responses to them. They are able to see more clearly how our attitudes and values are shaped and how these attitudes and values bear on our view of the world and our relationships within our world. In question 5 they are forced to think of something in a new way, to perhaps make some connections which may not have been thought of. We often think of our commonalities being the bonding elements in a relationship. Here the students are asked to see differences as bonding elements in a relationship. This will be an important issue to refer back to as the story progresses, when personality traits are viewed as gifts which are to be used in the solution to the problem.

Through the act of beginning to determine the facts surrounding Mr. Murray's disappearance, the students are required to analyze information, categorize it and then be open to change it when new evidence comes into play. Thus they can begin to understand that what is a "fact" at one time may not be a fact at another time, that facts are not facts in isolation but depend upon other pieces of information and circumstances to make them facts, possible facts, or not facts at all. We must always be open to new information and the effect that new information can have on that which we think we already know. This discussion will also help the students realize "facts" can become facts too soon, that it is too often too easy to accept too few sources instead of searching out additional ones, or of searching only for those which support a biased view. The concept of open-mindedness is an important one to be discussed here.
In questions #9 the students are asked to consider alternative actions and their possible consequences. The "what if" question enables the students to make some predictions if a different decision were made and therefore to see that often what happens is a result of a choice we made earlier in the process, perhaps a choice we hadn't realized was a choice at the time and in this way to develop cognitive flexibility. An extension of discussion surrounding this question might be to ask the students to think of a recent time when something happened to them they were not happy about and to "back up" and see if there was a point at which other choices could have been made that would lead to a different conclusion. A distinction here has to be made between hind-sight and a too hastily made decision.
Section II
The Black Thing

Goals focused on in this Section:

CRITICAL
- Analysis
- Inference
- Identification of Point of view
- Comparing/contrasting

CREATIVE
- Flexibility
- Elaboration
- Interpretation
- Originality

METACOGNITION
- Reflection on reasoning used in the process of interpretation. Increased awareness of process of relating prior knowledge to present circumstances.

OBJECTIVES:

1. To begin to develop the trait of flexibility in examining issues and circumstances.

2. To develop the concept of transformation in a broad sense.

3. To develop the concepts of metaphor and simile and how they can be used in literature to deepen understanding.

4. To develop the concept of symbolism, why and how it is used in the story and how we use it in our own lives.

MOTIVATION:

"Through silent improvisation, create the feeling of transformation:"
Today we are going to become something other than ourselves, something capable of movement but not another person. Everyone find an open space. You may sit or stand. Become very still and close your eyes. Imagine what you are going to become. Without moving, find the center of yourself inside. Begin there very slowly becoming whatever you have chosen. You are very, very small. Now, very slowly begin to radiate, expand towards the other parts of your body changing inch by inch as you move towards your arms, your legs, your neck--stretch--you are still inside yourself. Move towards your finger tips and the tips of your toes, toward the top of your head until all of you is totally transformed. Now imagine something that is very different from what you have transformed yourself into and very slowly begin to transform yourself again feeling exactly what it is like as each part of you again changes completely. Finally, from the outside, slowly transform once more back into yourself.

PROCEDURE:

Discussion:
1. What did you become? How did it feel? Try to describe the process. Was it easy, hard, both? Could you really feel what it could be like? Were you ever not conscious of this room or others in it?

ACTIVITY I
Read Chapter Four, "The Black Thing".

Ask the students to close their eyes and image Mrs. Whatsit's change into the creature; image the flight. Using watercolors, have the students translate the flight image into an abstract painting. Discuss interpretations. Include the "feelings" they painted in the discussion. Share feelings about one another's paintings. Compare and contrast the differing interpretations.

ACTIVITY II
Using Activity Sheet #5 as a guide, evaluate given Senses Poem as to necessary characteristics criteria. Explain that this poem uses similes in its form.
Analyze the concept of simile and metaphor as it is used by the author in this chapter to produce vivid images. As a class, choose a topic and compose a Senses Poem. Following this, using Mrs. What'sit's flight as the subject, have each student compose a Senses Poem. Share.

ACTIVITY III

"Throughout her entire body, Meg felt a pulse of joy such as she had never known before. Calvin's hand reached out; he did not clasp her hand in his; he moved his fingers so that they were barely touching hers, but joy flowed through them, back and forth between them, around them and about them."3

Ask the students to sit on the floor in pairs, barely touching fingers, moving hands as Meg and Calvin did ("mirroring") imagining the feelings experienced by Meg and Calvin.

Discussion:
1. Why do you think the author used this unusual way to demonstrate the feelings of Meg and Calvin to us as readers?
2. Do you think this was an effective way to communicate those feelings to us?
3. How did it make you feel that might have been different if it had been done in a more "conventional" way?
4. On the first page of this chapter the author asks a question: "Did a shadow fall across the moon or did the moon simply go out as abruptly and completely as a candle?"4 What do you think the author meant by that? Possible responses: That we can look at something in more than one way; to not always jump to the most obvious, but to see if there could be something less obvious to help gain clarity; sometimes we become focused on only one way of looking at things and that prevents us from discovering what we need to discover.

ACTIVITY IV

Discussion:
1. What was the purpose of the flowers Mrs. What'sit gave to Meg, Calvin, and Charles Wallace? Why do you think the author chose flowers?
2. What are some symbols of America? Why are they good symbols? Define the relationship between a symbol and that which it represents.

3. Discuss the meaning/purpose of symbolism and the possible symbolism of the flowers.

4. Discuss possible symbolism discovered in the story thus far: i.e., the names "Who", "Whatsit", "Which"; light and dark; dark thing; glasses; shawl; numerous times things are clustered in threes, etc.

Activity Sheet #6 is an activity which can be begun at this point and continued through to the conclusion of the book in order to show the continued use of symbolism throughout the story. The activity is set up in such a way so as to have not only the students reflect on the possible meaning of the symbols, but also so as to have them reflect on their own reasons for their interpretation. Several symbols are already given, but the students should add to the list. At this point there is no "right" answer if good reasoning is demonstrated.

Part two of this Activity Sheet #6 exercise requires that each student think of four important personal characteristics which he or she believes he or she possesses. Secondly, a symbol is to be devised for each characteristic. Classmates can be asked to interpret symbol or they can be asked to see if they can match a symbol to a student.

ACTIVITY V

Discussion:
At the conclusion of this chapter Meg asks, "That dark thing we saw, is that what my father is fighting?"

What is Meg's father fighting? What is the "dark thing?"

What is there in the story that makes you feel that way?

ANALYSIS

The imaging of the transformation contributes more totally towards
the student's full immersion into the story. If the student were only
to read of Mrs. Whatsit's transformation, it would in all probability
remain total fantasy, impossible. Through the actual imaging there is
given an element of possibility to the concept of transformation even
though not in the way it happens in the story. This presents an opening
up for a discussion of real transformations within our own lives.

Translating the flight into a painting gives the student another
medium for interpretation, another way of looking at something. Keeping
it abstract makes it less easily "judged" and therefore hopefully the
students will feel freer to take risks in their expression. The use of
color adds a new dimension for reflection and expression. How do we
express feelings? How are colors related to our feelings?

The use of metaphor and simile enable the student to not only make
obvious connections but also to force connections that are less obvious,
to think of the ordinary in extra-ordinary ways, to think abstractly.
It is a wonderful vehicle for developing fluency, i.e. What could sadness
taste like? What does a daisy sound like? By asking the students to
compose individual senses poems on the same subject and then to share
their responses, students are able to compare and contrast the poems and
to experience interpretations of others. They discover that there are
always new ways to view things.

Through the third activity the concept of empathy is heightened.
Though all the students have at some time felt happiness and joy, perhaps
it is difficult for them to imagine the kind of joy the author wants
them to imagine. This activity may not "cause" that kind of feeling, but it says to them that this joy is very special, even more special than any we might have experienced.

Question 4 on page 42 requires interpretation and tolerance for ambiguity. It is a question which does not need an answer in that its answer is not necessary for the understanding of the passage. Yet spending some time on it opens up the chance for many interpretations, gives the students an opportunity to spend time on something they might have passed over and in so doing begins the understanding of making and identifying assumptions. Sometimes the most obvious conclusion is not the correct conclusion.

The identification of symbolism in the story and the further realization of the extent we use it every day is yet another way for the students to connect the characters and some aspects of the plot to their own lives. They are able to understand that symbolism can be open to interpretation, that we bring our own experience to our individual interpretation. The symbol of the Confederate flag held very different meanings for the North and the South during the Civil War. A loaf of bread to a truly starving person holds a very different meaning from those of us who see and have the opportunity to buy as many loaves as we wish at any time we wish. Through this activity the students learn to understand that the characters can be symbolized in different ways, that symbols often hold an emotional connotation and that we respond to symbols in different ways depending upon our experience.

The discussion for Activity 5 further asks the students to interpret a symbol based upon their own emotion-response to that symbol and also
based upon the symbolic interpretations of the story so far. They are
asked to predict what they think the enemy is, based upon what they
interpret to be evidence. Whether or not the evidence is reasonable
enough evidence upon which to answer this question is subject for
discussion.
Section III

The Tesseract

Goals focused on in this section:

CRITICAL

Risk-taking Analysis
Comparing/Contrasting
Inference
Evaluation Cause/Effect
Decision making
Evaluating strong/weak reasoning

CREATIVE

Fluency
Elaboration
Prediction
Interpretation

OBJECTIVES:

METACOGNITION

Increased awareness of one's feelings and causes of those feelings
through the building of images.
Exploration of the way in which one thinks through the examination of one's own view
through double-entry journal writing.

1. To introduce the reader/listener to the concept of a tesseract and the process through which we attempt to understand something about which we have little or no knowledge.

2. To further explore and attempt to understand our own inner conflicts through examination of some of our worldly conflicts, and vice versa.

ARTICULATING

Risk-taking for Ambiguity

Tolerance for Ambiguity

Analysis
Comparing/Contrasting
Inference
Evaluation Cause/Effect
Decision making
Evaluating strong/weak reasoning
MOTIVATION:
The students are asked to engage in an imaging activity:

I am going to create a great weight which will press down upon you. As I begin to press, move as if you are under that great weight. You feel a tremendous pressure. You are being pressed to the floor, flat, as if a great steam roller were rolling over you. You feel your body, your lungs being squeezed until you can barely breathe. Even your mind is flattened as are your thoughts. Your heart cannot expand. The pressure is intolerable. Suddenly there is a tingling in your fingertips and your toes. Your heart is beating regularly. You are once again able to feel the blood flow through your veins. It is over.

PROCEDURE:

Discussion:
1. How did you feel under that kind of pressure?
2. How did you feel when released from the pressure?
3. What other kinds of pressure are there? Discuss emotional pressure.
4. Have there been times in your life when you have felt (great) pressure? Discuss.
5. Why do we sometimes feel pressures within ourselves? What causes that pressure? Do we have any control over those causes? Discuss.
6. How did you become released from the pressure you felt? Did you release yourself or did someone or something else release you?

ACTIVITY I

Read Chapter Five, "The Tesseract."

Discussion:
1. Charles Wallace describes a tesseract. Could you describe it in any other way? Is it easy to describe? What is it that makes it easy to describe some things, experiences, and much more difficult to describe others? Discussion should demonstrate that it is easier to describe that which is within the realm of our own experience. Ask students to share examples.
2. What is the pressure symbolic of in the story? Direct the students to add this symbol to the chart on Activity Sheet #6.

3. What do you now think the evil really is? What is evil? What are some of the evils that people in our world and time fight against? Brainstorm a list of possibilities such as war, crime, poverty, ignorance, family abuse, disease, etc. Ask the students to each choose one he/she considers one of the greatest evils and respond in his/her journal as to why he/she feels that way, what are seen as causes and effects of that evil, and the best way to fight that evil. Share and discuss responses.

Activity Sheet #7 may be used instead of, or in conjunction with the journal assignment. Activity Sheet #7 treats ranking in more depth as the student has to identify specific reasons for his or her choices. The students can be asked to rank, as a group, the list of evils resulting from the brainstorming. From this they can be asked to develop criteria for ranking.

What other symbolism did you discover in this chapter? Add this and the other necessary information to your chart (Activity Sheet #6).

ACTIVITY II

Divide the class into small groups to discuss the question:

"If the author were to come here and tell us what this story is really about to her, what do you think she'd say to us? Why?"

Follow up on these discussions by asking that students respond to their individual discussion ideas in their journals. These entries can then be shared with the class.

ANALYSIS:

In the motivational activity, the students are asked to compare one type of pressure with another where they can discover both similarities and differences. Through this activity they are comparing and contrasting their own feelings to those of the characters in the story. They are seeking causes and then are asked to think about where these "causes" come from.
In order to do this they must analyze personal experiences and responses to those experiences. A moral question which could be discussed in a limited way here is, "How much responsibility must I assume for my own actions?" How much control do we have over those things that place emotional pressure on us? They are also asked to analyze escape from that pressure and what or who controlled that? Through the analysis of both the cause of the pressure and the cause of the release from the pressure, the strength or weakness of their reasoning can be assessed.

Activity I demonstrates to the students that what we know best comes out of our own experiences. The process of defining evil, giving examples, having to rank them, stating reasons and then assessing those reasons are all a part of the necessary steps in the decision making process. We not only need to have reasons for making a decision, but we need to have good reasons if we want our decision to have validity. Through discussion and comparing of reasons the students will begin to assess their own reasoning ability.

Activity II asks the students to begin to go beyond the literal meaning of the story, to consider that the author may have used the Science Fiction approach as a vehicle through which to share some personal beliefs and values. It asks for the readers' interpretation of an author's message.
Section IV

The Happy Medium

Goals focused on in this section:

CRITICAL
Analysis
Comparing and contrasting
Inference
Evaluating Cause and Effect

CREATIVE
Flexibility
Interpretation

METACOMPUTATION
Reflection on the ways in which one thinks about choices and the consequences of those choices.

OBJECTIVE:

To explore and develop the traits of risk-taking and independence of judgment through development of the themes of control and conformity versus non-conformity.

Motivation:

Play a rhythm game: Students sit in a circle. One person leaves the room. A leader is chosen from those in the circle. The leader begins a particular rhythm with hands, feet, etc. Others follow trying not to place eyes directly on the leader. Leader changes rhythm activity periodically. Person who has left the room re-enters and tries to discover who the leader is within a maximum of three guesses.
PROCEDURE:

Discussion:
1. What was the role of the leader in this activity?
   (to choose and control a particular rhythm and to change it at unexpected times).
2. What was the role of those in the circle?
   (to follow the leader; to not deviate; to not let on who the leader was).

ACTIVITY I

Read Chapter Six, "The Happy Medium."

Discussion:
1. Compare the village to the rhythm game. How were they alike?
2. What happened in the village that did not happen in the game?
   (The little boy was bouncing his ball out of rhythm). Why was he taking this chance? (Possible responses: He might be rebelling against something he felt wasn't right; perhaps he felt something else was more important).
3. Which is more like you, the little boy or the other children? Discuss. Why are some people more like the boy who took the chance and others more willing to do what everyone else is doing or do what they are told? Is one right and the other wrong? Defend your response.
4. Think of a time you were like the little boy. Why did you decide to take a risk? Is there a time when you wanted to be like the little boy, but did not dare take the chance? Describe the circumstances. What caused you to make the decision you did?
5. Who else in this chapter takes a risk? (Mrs. Whatsit) Why do you think she was willing to risk losing her life as a star?

ACTIVITY II

Ask each student to record their own definition of a GIFT in their journal.

Discussion:
1. What is a gift? Does a gift always have to be something that we can touch? Do they always have to be things that we buy or make?
2. Can you think of some gifts which are of a different nature?
3. Can we possess gifts which are inside of us? Brainstorm for ideas of non-material gifts such as love, kindness, patience, sense of humor, perseverance, etc.

What makes these qualities gifts? Discuss the concept of qualities we have which can help others when shared.

Optional: Activity Sheet #8

ACTIVITY III

The children were made aware of the gifts they each possessed which would help them as they continued their pilgrimage. Have the students identify those gifts:

Calvin: the ability to communicate with all different kinds of people.

Meg: Her faults: anger, impatience, stubbornness

Charles Wallace: resilience of childhood

Discussion:
1. How could Meg's gifts help her? Don't we usually attempt to get rid of our faults? Can we ever use the negative in a positive way? Can you think of anytime when becoming angry or impatient caused you to do something which ended up helping someone? Or when your parents became angry or impatient with you and afterward you were glad because it helped you do something you knew you should have done? Why did it take the anger or impatience before you did it? Think of some other examples.

2. What did Mrs. Whatsit mean when she said, "Only a fool is not afraid." (page 124) Discuss.

3. What was important to the people of Camazotz?

4. What are some things that are important to you, to your family? Are these same things important to everyone?

5. How do we decide what is important to us?

ANALYSIS

In the first activity the students are asked to examine themselves as risk-takers. By looking at examples in their own lives they can see
how they make choices. Do they always do what is "easier"? Do they always obey the "authority"? Do they really examine alternatives and make the best choice based on that examination? Do they see decisions in terms of choices? The way in which the characters in the story differ as risk-takers gives the reader a reference point for examining him/herself. How would they have gone about making the decisions that the story characters had to make? If they could have given the story characters any of their (the students) gifts, what would the gifts have been?
Section V

The Man With Red Eyes

The Transparent Column

Goals focused on in this section:

CRITICAL
Analysis
Seeking Reasons
Comparing and Contrasting
Evaluating Cause and Effect
Identifying Assumptions
Evaluating strong or weak reasoning
Evaluating Reliable/unreliable Sources

ATTITUDES
Risk-taking
Deferred judgment

CREATIVE
Generalization

METACOGNITION
Increased awareness of how one's opinions are formed.
Reflection on one's own reasoning used in the development of opinions on issues.

OBJECTIVE:
To explore the themes of freedom, responsibility, happiness, individualism versus conformity.

MOTIVATION:
Ask the students if they have ever believed in something or someone when no one else did and put that belief into action, sticking up for that belief or person no matter what?

Divide the class into two groups. Divide each half into two groups. Decide on an issue where two opposing viewpoints can be argued. Two possibilities:

- 55 -
Issue: Television and Violence
Side one: Watching violence on television can cause violent behavior.
Side two: Watching violence on television is a release of pent up emotions and takes the place of acting out that behavior.

Issue: Smoking in Public Places
Side one: Individuals have rights, therefore smoking should not be banned from public places.
Side two: Since smoking affects all people, smoking should be banned from all public places.

Give two groups one side of the issue chosen and two groups the other side of the issue chosen. Each of the four groups should work together to list all the reasons to support that view and to organize those reasons to develop an argument for their side. Each group then has the opportunity to present their arguments to the other three groups. Through this activity the students are required to support their beliefs/opinions with strong reasoning, to discover where they have been able to do this and to learn where their reasoning has been weak.

PROCEDURE:

Discussion:
1. Who was the most convincing? Why?
2. Who "won"? Who "gave in?" Ask the students to think of reasons why one group won. Did one group give in? Could that be a reason why a group won, a default? Or did the actual arguments and reasoning have more to do with the winning and losing?
3. What might be some reasons for giving in? Possible responses: The other groups' reasoning was stronger than ours; it was easier than arguing; I realized my belief was not as strong as I thought it was, etc.
4. What was your struggle about? (an issue) Are all struggles about issues? The discussion here should include other possibilities such as power, tradition, and personalities.
ACTIVITY I

Read chapters seven and eight, "The Man With Red Eyes" and "The Transparent Column."

Discussion:
1. What struggle was going on here? Who was struggling? (Prime Coordinator and the children).
2. What was the objective of the Coordinator? (To create a happy and efficient society).
3. How did the Coordinator hope to achieve his goal? (Eliminate differences, create people who are all alike).
4. How was this accomplished? (By forcing everyone through IT to conform, to submit, to remove any desire to deviate).
5. Can you think of any similar situations in our lifetime? Discuss societies under dictatorships.
6. What are the negative aspects of having decisions made for you? Are there any positive aspects to not having to make your own decisions?

Where did Charles Wallace make his mistake? (Possible response: He misjudged (made incorrect assumptions about) his own strengths. His pride and arrogance got in the way.)

ACTIVITY II

Set up a role-taking situation in which the Prime Coordinator is arguing the definition of happiness with Meg or Calvin. Students can initially pair up to do this followed by two or three pairs volunteering to present their interpretation in front of the class. The teacher can write the responses on the board in such a way as to help the students organize the important points: i.e.

<table>
<thead>
<tr>
<th>Prime Coordinator</th>
<th>Meg</th>
</tr>
</thead>
<tbody>
<tr>
<td>happiness:</td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

- 57 -
Follow this by asking the students to support Prime Coordinator’s
definition with three reasons and then to support Meg’s definition
with three reasons. Do this as a class or ask the students to
respond in their journals followed by sharing of responses.
Discuss reasoning.

Discussion:

1. Ask volunteers to offer their own definition of happiness. Is
happiness a personal state or does it also involve the emotional state
of others?

2. How does your state of happiness or unhappiness affect other
people? Ask students to relate personal experiences i.e. Think of a
time when you were very unhappy. How did this affect a friend, a
parent, etc. Think of a time when you were very happy. How did your
happiness affect another person?

ACTIVITY III

On page 169 Charles Wallace says, "On Camazotz we are all happy
because we are all alike. Differences creates problems..."

Discussion:

1. Examine and evaluate Charles Wallace’s reasoning in terms of cause
and effect. What is the cause and what is the effect? Reverse the
cause and effect. Analyze, evaluate. What can you conclude? Is his
reasoning strong or weak? Support your belief.

2. "...Differences create problems..."

Think of at least three situations in real life where differences
create problems. Think of at least three instances where differences
among people prove to have a positive effect in some way. Elaborate
on how differences can be "problem-makers" and how they can be "problem-
solvers."
ACTIVITY III

Using Activity Sheet #9 to record your responses, recall two decisions you have had to make in your life where part of the process was to decide whether to do what the group or the authority wanted you to do or to go against the group or authority and do what you thought was the best course of action. Record your choices, your final decision and the reasoning that led to your final decision. Assess your final decision. Was it a good decision? If so, what made it so? If not, why not? Think of a decision you will have to make in the future. For each choice, predict a possible consequence. Analyzing these possible consequences, think of three reasons supporting each choice and three reasons why each choice would not be the best one. Go back and star the best reasons for or against. Rank these reasons that are starred from 1 (best) to 3 (least). At this point, what appears to be the best choice?

Discussion:
How has Madeleine L'Engle used Meg and Calvin to symbolize non-conformity or the value of independent decision making? How has she used Charles Wallace to symbolize conformity or obeying authority?

ANALYSIS

Students at this age are often ready to argue their side, say, "I have a right to my opinion" but for the most part have not yet learned to take responsibility for that opinion, have not learned that opinions should be supported with evidence and good reasoning. They are also just beginning to realize that our opinions do not just appear from inside, but are formed from a variety of sources: personal experiences, parents, friends, books, television. All of these can mean
exposure to many differing views or to very limiting views. In the motivational activity the students were forced to look at both sides of an issue where each had to examine an opinion differing from his or her own. The focus became, not the issue itself, but whether or not the opinion was well reasoned. Through the discussion the students are able to see the source of the reasons and to determine whether or not the source should be considered a reliable source. They are required to analyze their own reasoning. Through this discussion they are introduced to the complexities of decision-making and especially the fact that issues often have more than two sides, that it doesn't work out that all reasoning for one side is bad and for the other all good. Later, perhaps, they will discover that good "causes" are often lost due to lack of "homework" in developing strong reliable evidence and support.

Responses for Activity Sheet #9 take this a step further when the students are asked to analyze two decisions they have already made in their own lives. Through this activity they also have the opportunity to reflect on the consequences of the choices they made. They must think back and examine the reasons for the choice they made and decide whether or not the reasons were good ones and why, or if poor ones and why. They are then asked to apply this knowledge in preparing for a future decision they will be required to make. This could be assigned as an on-going activity where they could add reasons and choices as new ones arose and could continue to assess these as new evidence came into play.

Finally the students are asked to relate this experience with decision making to the problems of the characters in the story and to apply their knowledge of symbolism in the story to this. They are asked to interpret
the author's treatment of conformity and individualism as it applies to decision making and its consequences in this context.
Section VI

IT

Goals focused on in this section:

CRITICAL
Analysis
Comparing and Contrasting
Assessing reasons

ATTITUDES
Risk-taking
Tolerance for ambiguity

CREATIVE
Prediction

METACOGNITION
Increased awareness of one's feelings and causes of those feelings through verbal reflection on one's role in a game.

OBJECTIVE:

To continue to explore issues of freedom versus control and conformity versus non-conformity through improvisation.

MOTIVATION:

One person is "IT" (the leader). He/she uses a drum and taps out a rhythm. Others are requested to move in perfect synchronization to the drum beat. Rhythm should be constantly varied. "IT" should be maintained three to five minutes.

PROCEDURE:

Discussion:
1. How did you feel when you were asked to join this activity?

2. How did you feel at the conclusion of the activity? Responses will probably range from good to tired, bored, mad at the leader, etc.

3. If you didn't like the activity for some reason, why didn't you just quit? (Perhaps someone did.) Possible responses: Never occurred to me; didn't want to break the rules; worried about the consequences; didn't want to be the only one, etc.
4. Why didn't you find out if others felt the same way. If they did, you could outnumber the leader.

5. Have you ever followed the crowd when you didn't want to or knew it was wrong? Why do people do that?

ACTIVITY I

Set up two to three role-taking situations where peer pressure is the issue. Two possibilities might be:

The older kids in the neighborhood are trying to get the younger ones (age 9 or 10) to try smoking.

Parents are away for the afternoon and you are supposed to be home by yourself babysitting for your little brother (or sister). Three of your friends see this as a great opportunity for a party and tell you you can still babysit and have the party at your house. No one will ever know. Besides, your parents never said you couldn't have a party!

Discussion:
1. Discuss the reasoning used by both sides. What were the outcomes? Would it have been the same in real life? Why? Why not?

2. Give some of the good reasons used by both sides. What made these good reasons?

3. Give some of the poor reasons used by both sides. What made these poor reasons.

4. Which is more difficult and why -- to do what you feel you should do or do what your friends want you to do and you want to do it even though you know you shouldn't? Give reasons for your response.

ACTIVITY II

Read Chapter nine, "IT".

Discussion:
1. How does this compare to the activity we just did?

2. What would happen if the Great Brain were crushed? Support your prediction with good reasons.

3. "But that's exactly what we have on Camazotz. Complete equality. Everybody exactly alike."
Are like and equal the same? What are some things or circumstances that are like but not equal? What might be some things or circumstances which could be considered equal but not like?

ANALYSIS

The motivational activity allows the students to see how easily we accept authority without questioning. Further questions can be asked of those who wanted to engage in the activity and thought it fun. Is that sufficient reason not to question? Should we only question that which we doubt or have negative thoughts about? How do we determine when and if to question authority, information, or even ourselves? Was anyone willing to take the risk and drop out of the activity?

The question of when and under what circumstances are we willing to take risks is an important issue raised through this activity. The students can compare this risk-taking opportunity to any of the others they have been confronted with during the activities involving this story. Are we sometimes risk-takers and other times not? What makes the difference? How can the prior assessment of risk and consequences make for better decisions?
Section VII

Absolute Zero

Aunt Beast

Goals focused on in this section:

CRITICAL
Analysis
Inference
Comparing and Contrasting

ATTITUDES
Risk-taking
Open-mindedness

CREATIVE
Elaboration
Prediction
Fluency
Open-ended questioning
Visualization

METACOGNITION
Increased awareness of one's feelings and causes of those feelings through imaging.

OBJECTIVE
To explore themes of hope, doubt, the relationship of fear and anger, fear of the unknown, commitment, patience and faith through the character of Aunt Beast and the relationship of Meg to Aunt Beast.

MOTIVATION
Direct the students in this imagery improvisation:

Lie flat on your back on the floor. You have just tessered with your father who is an amateur at tessering. Your mind regains consciousness first. You struggle to open your eyes but they won't open. You try to sit up but can't--to move your hands and feet but nothing happens. You hear voices speaking
to you but you can't respond. In your mind you blink but no one sees it. Your tongue feels like stone. Your body is as if frozen in ice. Approaching are three creatures.

What are you feeling?

PROCEDURE

Read the tenth chapter but stop just prior to reading the last paragraph on page 210.

Discussion:
1. What do you think Meg is feeling? (fear, anger, etc.)
   Complete the reading of this chapter.
2. Why was Meg fearful of these creatures?
3. Why do you think the author created these creatures without eyes and with tentacles?
   Read Chapter Eleven, "Aunt Beast".
4. What did the beast mean, "We do not know what things look like, we know what things are like."

ACTIVITY I

Divide the class into two groups. One group is designated as the Writing Group. The other is designated the Speaking Group. Each group is now split up into working pairs. Each pair in the Writing Group is given an object. The same objects are also given to each pair in the Speaking Group who have, prior to having seen the objects, been blindfolded. The writing pairs must write as complete a description as possible of their object. The Speaking groups must record their descriptions making them as complete as possible also. Possible objects might be a flower, orange or watermelon, parafin, etc.
Prior to any further discussion of this activity ask the students to again look at discussion question #4. See if the students have anything new to add to their original explanation.

Discussion:
1. Ask the students to compare their descriptions. How are they alike? How are they different? How were the senses used in each group? How many, and which, senses were used in the descriptions?
2. If the students are acquainted with anyone who, for some reason, is unable to use one or more of their sense organs, discuss how that particular individual deals with that loss.
3. Have the students take turns trying to describe something without describing its appearance. The other students must try to name that which is being described.
4. Have the students attempt to describe Mrs. Whatsit, Mrs. Which, and Mrs. Who to someone who could not see them. How can you describe someone without describing their appearance?

Analysis

The motivational activity helps to create the feeling of helplessness along with fear of the unknown as Meg must have felt. An extension here would be to discuss some things we fear that we do not know much about. These might relate to a future experience such as a parent going on a long trip, a first airplane ride, the first day of high school, or even our death or the death of someone we love. What this fear holds fast to is the question, "What will happen to me?" Here the students are able to relate their own real life fears to those that Meg has.

Activity I is an attempt to help the students understand the essence of something, that we are all so much more than our appearance. The necessity to understand this is at the core of understanding bias and prejudice. This is the beginning of being able to analyze something in its deepest sense, to begin to use this analysis in a self-reflective
way, to understand how we as individuals respond to the different stimuli in our world.

Through this activity students begin to develop empathy. They are not only made aware of those who no longer have the use of a sense or who have some other handicap, but they can now begin to see that everyone has a part of him/herself which is invisible to others and that we must be sensitive to that which we are not able to see. We must develop an open-mindedness to new knowledge.

Aunt Beast is the personification of patience and faith. Through her unrelenting perseverance in desire to help Meg and her family, she is able to break through that barrier of fear.
Section VIII
The Foolish and the Weak

Goals focused on in this section:

CRITICAL
Analysis
Analysis of Point of View
Assessing reasons
Identifying Assumptions

ATTITUDE
Risk-taking

CREATIVE
Prediction

METACOGNITION
Explore the way in which one thinks about choices and consequences of those choices.
Examination of the way in which one views a problem and the way in which assumptions affect the process used to solve a problem.

OBJECTIVE
To predict, to clarify, to define a problem, to apply critical thinking skills, using knowledge previously learned in solving the problem, to examine alternative solutions to the problem, and determine strengths and weaknesses of the proposed solutions.

MOTIVATION
Give each student a copy of the "Nine Dot Problem". Explain to them that they must draw no more than four straight lines (without lifting the pencil from the paper) which will cross through all nine dots. This is Activity Sheet #10. Allow students ample time to work
PROCEDURE

Discuss results of the attempt to solve the Nine Dot Problem. Ask the students to share their attempts to solve it. How did they begin? Was it only trial and error? Was there a point when they could eliminate part of their initial strategy? What did they learn which helped them to do that? What questions were raised during their attempts? (Was there a major problem which prevented a solution?) Did the responses to those questions help toward the solution? Was there evidence of the building of knowledge in order to get closer to the solution?

Following the disclosure of the (a) solution, ask the students what they see as having been the major obstacle to the solution. Possible responses; They didn't know they could go outside of the boundaries; (assumption: Had to stay inside boundary formed by the dots) they hadn't even thought of the possibility of more than one solution; (assumption: only one solution) they gave up too soon, etc. Have the students rewrite (redefine) the directions to the Nine Dot Problem to eliminate the possibility of false assumptions.

Ask them to keep this activity in mind as they proceed toward the end of the story.

ACTIVITY I

Pose this question to the students to be responded to in their journals. Ask them to respond from the point of view of Meg, Calvin, or Mr. Murray:

- 70 -
"What is the next problem to solve?"

Share some of the responses. They should vary somewhat.

Some possible responses: Charles Wallace is still missing;
How do they get Charles Wallace back? Who should get Charles Wallace back? Should they go home or try to get Charles Wallace back? IT still has Charles Wallace, etc.

Discussion:

1. Were the differences based on the point of view of the character? Does there appear to be only one problem? (assumption) Did you see the problem differently because of who you were?

2. Looking at the problem from the differing points of view, is it possible to combine perspectives and come up with one problem which needs a solution?

3. Does how we look at a problem dictate how we should attempt to solve it? For instance, if Mr. Murray were responsible for leaving Charles Wallace behind shouldn't he be the one to return and try to get Charles Wallace?

4. How do the assumptions we bring to a problem affect working toward a solution?

5. Ask the students to write down their solution to the problem redefined in #2. Ask them to think about any information they might think of which could help determine the best solution. Map the information gathered thus far:

Alternative Problem Definitions Final Problem Definition Possible Solutions and Defense

5. With the students, look at each viable solution and analyze for strengths and weaknesses. Make into a chart such as the model:

<table>
<thead>
<tr>
<th>Possible Solutions</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Put chart up just prior to reading Chapter 12. Tell students they may add or subtract from chart as they gain any insight or knowledge which might alter their analysis or prediction. Changes are to be decided on by consensus.

6. Read this final chapter in sections. Stop on page 236: Why should Meg be the one to save Charles Wallace?

   Why is Mr. Murray really so angry?

   On page 242, discuss the meaning of "YOU are going to allow Meg the privilege of accepting this danger."
   page 243: "Don't be afraid to be afraid."
   page 246: What do you think Mrs. Which meant when she said,

   "I have not given you my gift. You have something which IT has not. This something is your only weapon. But you must find it for yourself."

As the chapter is continued to be read, the students can jot down in their journals any ideas they have to the meaning of Mrs. Which's words.

   On page 252, how could Meg use her gift of Love?

7. How do you predict this story will end? Support your prediction with at least three good reasons (pieces of evidence) gained from the accumulation of knowledge to this point.

8. Close your eyes. Visualize the ending to the story. Add as many details as you can. Working with a partner, write an ending that includes or combines your two predictions.

9. Following the conclusion of the story, assess your prediction. Was it accurate for the reasons you stated? If not, where did your reasoning falter? What do you see as the reason for this?

Analysis

This activity begins with an opportunity for an "incubation" period. Students will discover that, given enough time, ideas can often spring one from the other, and that what may be at first perceived as a boundary can be broken through and perceived in new larger ways. Once assumptions are identified, a problem can be viewed in expanded perspective.
The sharing of the results of the Nine Dot Problem further focuses on identification of assumptions, the ways in which assumptions affect the perception of a problem, and the process of working toward a solution. Though never stated, also demonstrated is that one problem may have a number of viable solutions. The students may wish to analyze the merits of each, defending their positions. Sharing their feelings throughout their attempt to solve the problem will highlight for each, the amount of time they were willing to spend—how does the amount of time compare to the results obtained?

The metacognitive activity of having the students talk through the different approaches and thoughts that came to them help them to further understand their own attempts at problem solving. If possible, one or two could share any similarities in approach to this problem and another they attempted to solve. Questions could focus on the directions for the problem. When, in the process, did assumptions come into play? —did anyone look for loopholes or missing elements?

In Activity I, sharing the ideas as to what the next problem might be enables the students to understand that a problem can be the result of an assumption, that assumptions can be, in part, responsible for differing problem definitions. Perhaps some students identified more than one problem. If so, they could engage in ranking those problems as to the most important, the most relevant, etc. and establish a criterion for such ranking.

Understanding that a problem is partially defined by assumptions
and the point of view of the "definer" lays the groundwork for the student's ability to understand and define his/her own problems both academic and outside of school.
1. This is a term I first heard used by Dr. Delores Gallo, University of Massachusetts, Boston. Her influence pervades this thesis and my personal growth as a teacher.


3. Ibid., p. 82

4. Ibid., p. 68

5. Ibid., p. 96

6. Ibid., p. 194

7. Ibid., p. 219

CHAPTER IV

SUMMARY AND CONCLUSION

Nine important principles of critical and creative thinking form the basis for this literature approach. These nine principles are outlined and explained in this chapter. Reference to some specific examples of Activities which particularly focus on these principles are indicated at the end of each explanation.

1. Climate of Respect and Valuing

Recently I visited a classroom in another community to observe Process Writing in each of four grades. In the fourth grade children were writing only imaginative stories. When I asked why only imaginative stories and none about their own experiences, the teacher responded, "Adults have experiences but nine and ten year olds are not old enough to have had any real experiences." It was obvious to me that the climate for critical and creative thinking as yet did not exist in that classroom.

First and foremost is the acknowledgment and respect accorded all that the child brings to that classroom. One of the very special aspects of using literature as one base for teaching critical and creative thinking is that all the students work from a common ground, the story, thus no matter what their differences, they all share in the story. They bring their own experiences to this piece of literature, enriching it for everyone else and being enriched by the experiences of the others.
The teacher, as a model, must openly demonstrate respect for the potential and ability of all children to become effective thinkers. If this value is real and modeled, the students will learn respect for the thinking abilities of, first and foremost, themselves, second and importantly, those of their classmates. There must be respect for and valuing of the individual as a source and respect for and valuing of clear thinking and competence. This respect and valuing takes place within a non-authoritarian environment, one which is psychologically safe, where questioning is promoted, ideas valued, errors tolerated, and one which provides the opportunities, requests, and rewards for critical and creative thinking such as I have developed in this approach.

For examples, refer to:
Section I, Activity I
Section II, Activity III
Section IV, Activity III
Section VI, Activity III

2. Attitudes/Dispositions

Critical and creative thinking is not merely a collection of skills to be taught. These skills must be developed through attitudes which encourage and require the learning and application of the skills. This approach has highlighted some of these attitudes and encouraged others to a slightly less visible extent. Highlighted are the attitudes of risk-taking which encourages the spontaneous, the unusual, the uncertain; open-mindedness, that which allows for the entrance of new information, acceptance of another’s point of view at the risk of rejection of one’s own ideas by another or oneself, and the acknowledgment that as we grow
and change, so do our ideas and values. Related to open-mindedness is flexibility, when we take or change a position when evidence and reasons warrant this change. Evident in this approach are other significant attitudes:

Contextual sensitivity, meaning that when we are assessing a problem, considering a decision, we must look at the “whole picture”, consider the total situation. An easily made decision in one situation may not be so easily made when other circumstances are added or when the original purpose is brought back into focus.

Interpersonal sensitivity has been created as an especially important attitude in A Wrinkle in Time where Madeleine L’Engle has endowed her characters with such different characteristics/traits and has required that they use those traits to help one another. This parallels so well real life where we value special traits in one another and try to teach children to relate to one another taking into consideration the unique traits of one another.

Persistence is an attitude developed in several of the characters, one which is “teased” out of the story and woven into activities through which the students may look at themselves in terms of their own persistence in seeking reasons and alternatives relative to the task.

For examples, refer to:
Section I, Activity I
Section II, Activity I
Section IV, Activity I
Section VI, Activity I

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3. Purposive Learning Related to Life
   Personal Connection to Learning

Learning proceeds most effectively in relation to a goal that the learner knows, shares, and ideally forms for him/herself. When the latter is not possible, i.e., limitations established due to content directed to be taught; the teacher can help the learner establish connections and perhaps formulate a "sub-goal" which relates to something he or she wishes to learn within the larger context. The most purposive learning occurs when there is a personal connection to the learning. Asking a student to recall information or a personal experience, organize that relevant prior knowledge promotes awareness and elaboration and facilitates comprehension, particularly of complex problems. Using a technique borrowed from the Acton Social Studies Model, the students are helped to make these personal connections through the utilizations of three questions. These questions primarily enable a student to organize their knowledge into three areas:

- What do I know about this?
- What do I think I know about this?
- What do I want/need to know about this?

The student immediately views him/herself in connection with the information. The first two questions also serve to pull out any prior knowledge or experience which may relate. The third questions demonstrates that students can have an active role in their own learning. As students learn to take increased control over their own learning the more purposive it becomes for that student. This approach has attempted to make learning both purposive and personal through the use of questions as developed in the Action Social Studies Model, imagery, small group interaction, and
and double entry journal responses, both private and shared.

For examples, refer to:
Section I, Activities I & IV
Section III, Motivational Activity and Activity I
Section IV, Activity I
Section V, Activity II

4. Problem Finding

I have emphasized problem "finding" rather than problem "solving". Indicated in my earlier remarks and underscored by Robert Sternberg, is the observation that often it is obvious in real life that a problem exists but just what that problem is is unclear. Examples are numerous: The student whose grades suddenly begin to drop -- Is he/she not studying? Has the evaluation system changed? Is there a major change related to the home situation? Is he/she working a job which takes away study or sleep time? Is there a contributing physical reason?

As our world grows in complexity, so do our problems. In order for students to be able to isolate or narrow a problem to its important components, to be more effective problem "finders" they must develop a sensitivity to the presence of a problem, develop an open-mindedness toward what that problem might be. They must be willing to examine a variety of alternatives. Deferred judgment is important here as it allows the freedom to explore, generate ideas and hypotheses, and analyze the problem from a variety of viewpoints. Deferred judgment also enables the student to keep "unusual ideas" around for a while in order to have the opportunity to refine those ideas into useful ones. It provides the important aspect of time to break out of "boundaries" or old habits and seek new ways.
There are times in which attempts to define a problem are too close to the problem, i.e., only the obvious is examined. The ability to back off, to begin to "connect backwards", to look at the less obvious connections, is important.

For examples, refer to:
Section I
Section VIII

5. Importance of Play to the Imagination and the Generation of New Views

I have used "Play" to stimulate the imagination through imaging and visualization techniques and to encourage active participation of students in their own learning experiences using a combination of body and mind activity simultaneously. As the students participate in their own learning, they bring new insights and thoughts to those which are already familiar to them. They learn that they can enjoy learning, that it becomes a part of them which they are able to apply again and again.

Play is a natural expression for children. It is positive in that it is non-judgmental, does not preclude evaluation which views something as right or wrong, and it is spontaneous. Play encourages children to take risks without fear of being judged, allows opportunities to explore new views and generate differing hypotheses, and try them out through such contexts as role-taking. It provides the opportunity for the student to connect his/her own thoughts, feelings, and prior experiences to a new situation or problem in a new way--at times in a totally outrageous way! Play contributes to the view of literature as fun and enables the student to "act out" his/her imagination. In so
doing the potential is there for a new view of oneself.

For example, refer to:
Section I, Activity I, III, IV
Section II, Motivational Activity, Act I, Activity III
Section V, Motivational Activity
Section VI, Activity I

6. Questioning Techniques

Questioning is one of, if not the most important aspect of getting students to think critically and creatively. Through modeling, the students begin to gain a sense of effective questioning techniques. In a paper prepared at the University of Massachusetts, Boston in 1985 by Dr. Delores Gallo, Dr. Gallo presents formerly known precepts being reaffirmed in the area of critical and creative thinking alongside newly identified and appreciated concepts. One formerly known precept being reaffirmed was the value and importance of developmental teaching while the newly identified and appreciated concept was the importance of questioning. The publication Super Think by Hilarie Davis, Dandy Lion Publications, has produced "Strategies for Asking More Productive Questions." These questions focus on eight areas most of which I have attempted to incorporate in my question/discussion sections in this approach:

- Reason information is true or appropriate
- Use of information
- Questions you can't know the answer to for sure
- Change something about the information to see what happens
- Questions that have many right answers
- Evaluate or justify response
- Ask for comparison or contrast
- Questions relating to previously unrelated things
Questioning techniques in order to be as effective as possible must also incorporate several other conditions: 1. Student-generated questions which structure inquiry, research, and discussion. This also serves as a metacognitive skill as students develop the ability to organize their prior knowledge and goals for research, etc.

2. Time - The quality of discussion improves and, many times, the number of students participating increase when we wait. 3. Through deferred judgment, students increase their awareness of their own limitations in thinking through a problem or an issue. 4. An environment where questioning is highly valued and there is a tolerance for error.

For example, refer to:
Section I, Activities II, III, IV
Section II, Activity III
Section III, Motivational Activity and Activity I

7. Metacognitive Skills and Attitudes

If we, as teachers, desire that students be in control of--take charge of --what goes on in their own minds, they must be conscious of their thought processes. This includes the ability for them to know what they know and to know what they don't know. It necessitates an organizational strategy to find out. In the article, "Mediating the Metacognitive", Art Costa defines metacognition as:

"an ability to plan a strategy for producing information needed and to be conscious of the steps and strategies as we put them into play, to reflect and evaluate the productivity of our own thinking."

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Transfer of critical and creative thinking skills is a major goal. A very important part of this transfer process is that students be able to name/identify and use consistently, the thinking processes. The teacher must approach the valuing of clarity and the need for precise shared definitions. This can be accomplished through repetition of terms, posting them in the room for reference, keeping individual and/or class charts showing where and when particular skills were used, etc. We also come closer to insuring the internalization of these terms and their meanings by inviting students to reflect on and evaluate their thinking by making them accountable for their responses, their reasoning. The use of metacognitive activities, that which engages students in thinking and talking about their own thinking is also important.

Metacognition is developed in several ways: Individually students reflect on, assess and respond in their journals using a double entry approach where they record their spontaneous reactions and then return after a time lapse to react to their initial response; through discussion in small or large groups; or on an activity sheet, in pairs or small groups as they not only share responses, but also talk through--think out loud--the steps they used to reach a conclusion. As a class, they listen to and assess the reasoning of one another, have the opportunity to generate their own questions, and are challenged by other students to defend a reason or point of view. They learn that everyone is allowed their own opinion on the condition that they are able to defend it using substantial reason, and explain the process by which it evolved.
For example, refer to:
Opportunities and Techniques included in all activities.

8. Specific Convergent Thinking Skills
Observation
Analysis
Inference
Evaluation

In addition to divergent thinking (sensitivity to problems, fluency, flexibility, originality, elaboration), it is equally important to help the students develop their convergent thinking through opportunities for observation, analysis, inference, and evaluation. Throughout this approach I have planned learning experiences in which the learner actively engages in these convergent processes through a variety of activities and the opportunity to respond through questioning and discussion.

Observation is a basis for all thinking. We all "observe". Therefore it is our responsibility to help students become accurate observers. Observation, if done well, enables us to determine the accuracy of basic information. I have developed activities for this approach to observation, to examine the meaning of conflict of interest, point of view, time, distance and the necessity for precision.

Through analysis the students develop the ability to clarify ideas and reasoning. Through questioning a greater understanding of the problem develops. Students learn to connect prior knowledge to new knowledge and to organize their knowledge. In this approach this is done through discussion, double-entry journal writing, and student generated questions.

Along with reasoning, opportunities to make and examine inferences enable the students to extend their own beliefs and knowledge through the
use of evidence and deduction. This includes the necessity to support claims of cause and reliable sources. Students are also required to support claims about beliefs and attitudes of people. They must seek evidence and other possible alternative explanations. Throughout her work, Madeleine L'Engle has provided dialogue filled with possible inferences for discussion and analysis.

Not only the ability to reason effectively, but the ability to evaluate or assess both the students' own reasoning and the reasoning ability of others is most important. Opportunity is provided throughout this approach to assess strong and weak reasoning of the characters along with the opportunity for the students to increase their own reasoning power as part of their evaluation, i.e. What would you do differently? Why? Why didn't Charles Wallace use good judgment in this particular case? The students must judge and criticize, but they must also support their judgment or criticism with strong reasoning. Students must learn to evaluate value statements. They must learn to look beyond the words and the structure of those words such as in an authoritative sounding statement, pull out the meaning.

For example, refer to:
Section I, Activity IV
Section II, Activity II
Section II, Motivational Activity
Section V, Activity II

9. **Transfer of Learning**

Transfer of learning does not just happen. Certain conditions must be present in order for transfer of effective thinking skills to occur.
Robert Ennis, in the article, "Critical Thinking and the Curriculum" summarizing some of these conditions has written:

They tempt me to retreat to the insights garnered from years of teaching critical thinking. Vague though it may be, here is one compilation of these insights: use many examples of many different sorts; go slowly; be receptive to questions and to students' original thoughts; press for clarity; arrange for students to engage each other in discussion and challenge; arrange for them to assume progressively greater control over and responsibility for their learning; encourage students to be aware of what they are doing and review what they have done; ask for a focus (often a thesis); and for reasons in any discussion, and encourage students to do likewise. I trust that if these principles are followed in a number of areas, transfer to new areas will occur.2

Key words "jump out": "many examples", "slowly", "receptivity", "clarity", "discussion", "control and responsibility", "awareness", "review", "focus" -- all of significant importance in promoting transfer of critical and creative attitudes and skills.

Students must understand the "how", "why", "what if", not only in their responses to such questioning techniques, but in order to generate such questions themselves.

Empathy with another person connects them to someone, something new, thus transfer is far more likely to occur when there is empathy.

I have attempted to infuse throughout this approach these techniques and attitudes, but it is my contention that no matter how well the students have used and responded to the skills and techniques, how well the attitudes and climate have been established through an approach such as this, these skills and attitudes must become part of all curriculum as
well as in the students' approach to their daily lives. As Ennis so aptly stated, "I trust that if these principles are followed in a number of areas, transfer to new areas will occur." Thus it is the teacher's responsibility to infuse a critical and creative thinking approach, not only in literature, but in all areas of the curriculum and the student's life. Only through a total emersion in a critical and creative thinking approach will a student begin to claim personal "ownership" and become a critical and creative thinker in his/her approach to "Life".

In the first chapter Meg is experiencing many feelings. Below is a "map" containing some of those feelings. Locate the places/times in this chapter where you think Meg has those feelings. Write in the page number and the evidence which supports your beliefs.

**ANGER**
page_
 evidence

**DUMBNESS**
page_
 evidence

**LONELINESS**
page_
 evidence

**SADNESS**
page_
 evidence

**HURT**
page_
 evidence

**UGLINESS**
page_
 evidence
ACTIVITY SHEET #3

STRONG OR WEAK REASONING

Identify three reasons Meg believes her father will return home. Evaluate each and state why you think each reason could be considered a strong or a weak reason.

<table>
<thead>
<tr>
<th>REASON</th>
<th>STRONG/WEAK</th>
<th>WHY</th>
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<tbody>
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<td>3.</td>
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</tbody>
</table>

Do the same for why Mr. Jenkins believes Meg's father will not return home.

<table>
<thead>
<tr>
<th>REASON</th>
<th>STRONG/WEAK</th>
<th>WHY</th>
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<tbody>
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<td>3.</td>
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<tr>
<td>What we know is true</td>
<td>What we know is not true</td>
<td>What we are uncertain of</td>
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ACTIVITY SHEET #5

SENSES POEM

Model:

Fall is red and yellow.
It tastes like chicken soup.
It sounds like wind through the trees.
And smells like warm wood smoke.
It looks like what you see when you get your new glasses.
It makes you feel energetic.

Mary Scott Hagle

MRS. WHATSIT'S FLIGHT
<table>
<thead>
<tr>
<th>SYMBOL/PAGE</th>
<th>POSSIBLE MEANING</th>
<th>REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowers 85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark Thing 88</td>
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</tbody>
</table>

Think of four important characteristics you possess. Devise a symbol for each and see if your classmates are able to interpret your symbol meaningfully. Using a separate sheet of paper, can you combine several characteristics into one symbol?
ACTIVITY SHEET #7  
RANKING

List ten things you think are the greatest evils in our world.

1. ___________________
2. ___________________
3. ___________________
4. ___________________
5. ___________________
6. ___________________
7. ___________________
8. ___________________
9. ___________________
10. ___________________

Evaluate and star the five you consider to be the five greatest evils out of the ten you listed. Take the five you have starred and prioritize them in order of importance, one being the most necessary to eradicate, and five the least. Give a good reason for the way you ranked each of the five.

<table>
<thead>
<tr>
<th>EVIL</th>
<th>REASON</th>
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</table>
A. What "inside" gifts do you have that you could give to others? Write them in the boxes and draw something to symbolize these gifts.

In your journal, write a paragraph explaining how each of your gifts could help someone else.

B. What "inside" gifts do you wish you had more of than someone else could give to you?

In your journal, write a paragraph explaining your reasons for wanting or needing each gift you would like more of. How would you use these gifts?
### ACTIVITY SHEET #9
### DECISION-MAKING

<table>
<thead>
<tr>
<th>DECISION CHOICES</th>
<th>FINAL DECISION</th>
<th>REASONING</th>
</tr>
</thead>
<tbody>
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<td>1.</td>
<td></td>
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<td>2.</td>
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<td>3.</td>
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<tr>
<td>1.</td>
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<td>2.</td>
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ACTIVITY #9
Part 2

B. Looking back, was this decision a sound one? If so, what made it a sound one? If not, why would you make a different decision today?

Think of a decision you will have to make in the future. What will be some possible choices? Give three positive reasons for each choice and three negative reasons. Star the best reasons.
Puzzle: Draw no more than four straight lines (without lifting the pencil from the paper) which will cross through all nine dots.
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