Critical Thinking For Children: A Dialogue of Hope

by

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Abstract

The thesis begins with an investigation of the lineage and diverse interpretations

of the term "critical thinking." It also discusses some of the more contentious issues

surrounding critical thinking such as: Is critical thinking generalizable? What is the place

of moral values in critical thinking? Is critical thinking biased? How is critical thinking

assessed? What has to be in place before critical thinking can flourish in a classroom?

The thesis culminates in a six week, qualitative study that describes, interprets,

and evaluates the emerging critical thinking (Ennis, 1987, p. 10) competence of a

heterogeneous group of 6 to 7 year old students. The research investigates how the

students utilize the "tools" of critical thinking, as described by Ronald Case and LeRoi

Daniels (1996, p. xiv-xv), to find solutions to challenging questions based on 3 pieces of

literature: The True Story of the Three Little Pigs by Jon Scieszka, It's So Nice to Have a

Wolf Around the House by Harry Allard, and A Handful of Seeds by Monica Hughes.

The study indicates that the young children were able to successfully make use of

the critical thinking tools (Case & Daniels, 1996) in a classroom setting. It was evident

that the students had a knowledge system in place that allowed them to evaluate and use

evidence as a justification of causality. It was also evident that the students were in the

process of developing critical thinking dispositions. The recorded data demonstrate how

children make sense of their world.

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Acknowledgements

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CRITICAL THINKING FOR CHILDREN: A DIALOGUE OF HOPE

AN EXPLORATION OF THE EMERGING CRITICAL THINKING

COMPETENCE IN 6 TO 7 YEAR OLD STUDENTS

We explore by clarifying meanings, analyzing concepts and positions, uncovering assumptions, investigating the implications of our ideas, views, or beliefs, attempting to find reasons for our views (by offering examples, evidence, counter examples, and considering criticisms), comparing different views, attempting some kind of resolution or conclusion which . . . leads to some kind of action.

Portelli & Church, 1995, p. 99

The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of the inquiry permit. Facione, 1990, p. 12

Critical thinking is about how you approach problems, questions and issues (Facione, 1990). For as long as I can remember, I have been engaged in searches for answers. My natural childhood curiosity was constantly stimulated by my surroundings: the challenge of creating a boat that could float; the investigation of a path that wandered up the mountain; the problem of how to tame a wild cat; the philosophical questions posed by Uncle Max who never seemed to give answers, only more questions; the help offered by a father who challenged one to think rather than to look for easy solutions.

The majority of my undergraduate education took place in an era in which everything that society represented was subject to a probing inquisitiveness, an intense questioning. There was an aura of eagerness for reliable information that would often precipitate reasons for change. The time was 1965 to 1969. The place was Simon Fraser University, British Columbia, reputed home of rebellious students. At SFU, students were actively engaged in using critical thinking in their search for a way to overcome what they felt was the oppression of people's rights. Many of the instructors taught "thinking" as a skill and debating as a way to investigate issues and problems. When I became a teacher in 1968, I simply carried on in a similar philosophical manner. I encouraged my students to critically approach the evidence relevant to a problem or issue before coming to a justified conclusion. I challenged my students to arrive at reasonable rational judgments as part of their understanding. Even though I was handed a textbook and a content-based curriculum guide, I still managed to promote "thinking" in between the cracks of the authorized curriculum.

Now, years later, I am on a new quest. My journey began when I read an excerpt from Paulo Freire's (1968) Pedagogy of the Oppressed that was included in a group of readings that I was doing for a Master's course. Suddenly, questions that I had wondered about began to have explanations. I became so excited about my findings that everyone, who was even remotely interested in the subject, became a participant in discussions about Freire's ideas.

Previous to reading the excerpt from Freire's (1968) Pedagogy of the Oppressed, I had wondered how it was possible for a person to be educated and still not be able to better the conditions one encountered on a daily basis. For instance, how could a people, such as the indigenous people of North America, Africa, and South America, receive an education (by North American standards) and still not become intellectuals capable of arriving at a more

productive way of life without socio-cultural restraints and prejudices. In the past, I had assumed that the education system would give the "oppressed" people the tools they needed to become an active part of a thriving nation. Yet, strangely enough, this phenomenon didn't always occur. I was puzzled. The absence of the phenomenon was explained by Freire's (1993) discussion of the difference between a "banking" form of education, where teachers treat the students as "receptacles" to be filled in order to preserve the world as it exists, and a "liberating" form of education, where students are encouraged to become "critical co-investigators in dialogue with the teacher" (p. 62) so that they can reflect upon their world in order to transform it. I was amazed to learn that a teacher could be used to oppress rather than liberate people. This notion flew against everything that I believed in as a teacher. I realized that living in my classroom world, I had been isolated from what was actually happening in other parts of the world or even other parts of my school. Consequently, the fields of critical thinking and critical pedagogy acted like a magnet pulling me into their world. I began by reading books and articles by Paulo Freire (1993, 1994), Henri Giroux (1988, 1992, 1997), John Dewey (1902), Miles Horton (1990), Peter McLaren (1989), Joel Spring (1994), and Alfred North Whitehead (1929). The ideas of the critical theorists were both challenging and fascinating. I tried to make sense of the roles of thinking, knowledge and power. Giroux's (1997) ideas about the relationships between power and knowledge became a strong influence. Giroux (1997) comments that

> knowledge and power come together not merely to reaffirm difference but also to interrogate it, to open up broader theoretical considerations, to tease out its limitations, and to engage in a vision of community in which student voices define themselves in terms of their distinct social formations and their broader collective hopes. (p. 160)

The concept of relinquishing total power and becoming a part of a classroom community that is engaged in an inquiry of dialogue was an enticing prospect - one that was to have interesting results at a later date. Giroux & McLaren (1992) discuss critical pedagogy in terms of understanding

> how the socially constructed and often contradictory experience and needs of students
> might be made problematic so as to provide the basis for exploring
> the interface between their own lives and the constraints and possibilities within the
> wider social order. (p. 23)

Understanding critical pedagogy became another challenge. I was gaining an insight into the "role that schools actually play within a race, class, and gender-divided society" (McLaren, 1989, p. 163). As I progressed through my learning, I came to understand the extent to which knowledge is concerned with both meaning and affect and how it is strongly influenced by one's culture or worldview (Giroux & McLaren, 1992, p. 23). Central to this ideology is the concept that knowledge is an entity that is gained through reading, writing, dialogue, reflection and struggle rather than that which is produced in the head of the educator (p. 23). (Many of the teachers with whom I had come into contact were quite convinced that the bulk of the knowledge that was required was produced in their heads as a result of another expert filling up the void therein.) I came to understand that "critical literacy," a form of critical pedagogy, attempts to interrogate sources of information, such as textbooks that often represented the dominant social ideology, for what they don't say as well as for what they do say (p. 24). I was amazed to discover that much of our knowledge, which has been passed on by the "masters" in the form of books, was written by "dead, white men." I revisited the concept that knowledge is

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examined "for the way it misrepresents or marginalizes particular views of the world"

(McLaren, 1989, p.183). Knowing the context from which the literature is derived provides

valuable information in judging the worth of the source in its present context. As well, it

provides a platform for critical social critique. At this point, I was beginning to understand how

it was possible to be educated and still remain oppressed. Reflection on these concepts provided

the incentive to go on and learn more about critical thinking and critical pedagogy. It also

provided the impetus to critically examine my own teaching practices and to search my

materials for the hidden lessons about power and justice. However, I soon realized that although

I was becoming conversant in the area of critical theory, I really had no clear way of defining

what was entailed in the "critical thinking" aspect of critical theory. McPeck (1980) sums up my

situation when he makes the following point about critical thinking not being generally

understood:

> The problem has not been a dearth of literature on critical thinking: on the
>
> contrary, journal discussions and prepackaged discussions are legion. The
>
> problem is that there is no precise way of assessing this material in the absence of
>
> an understanding of what the concept entails and what it precludes. At the
>
> moment, the persistent vagueness of the concept supports curriculum proposals ranging
>
> from courses in Latin to logic and clever game puzzles. All such proposals have
>
> claimed to promote critical thinking. (p. 2)

I certainly agreed with McPeck's comments for at this present time, "critical thinking" functions

as a slogan system in education. When asked what "critical thinking" entailed, I was at a loss

for words. There was a jumble of ideas roaring about my head and I had no way of organizing

them into coherent speech. I was at a loss for words that could promote understanding. The need for further research and study is what prompted the next aspect of my journey.

What is defined by the words "critical thinking?" Twenty years after McPeck's (1980) comment was written, it is obvious that there is still no common definition or common understanding of the term "critical thinking." The more diversely I read the more confused I became. Each person's definition of critical thinking was unique. Unwittingly, I had stumbled upon a topic that was embroiled in a great, and sometimes heated, academic discussion. Looking for common threads of agreement or dissent amongst the ideas of the academic community I became much more involved than I ever could have anticipated. Previous to this investigation, I had the notion that definitions were something quite straightforward such as those bits of knowledge that are commonly found in dictionaries. Such was not the case for "critical thinking"! Understanding critical thinking was like squeezing a ball of mercury: it looks solid on the surface but when you squeeze it to test it, it fragments into hundreds of tiny balls which shoot off into an infinite number of directions. This was a time fraught with frustration and the need for patience. I termed it my "wandering through the dark forest and getting stuck in the occasional swamp time". There certainly weren't any paths or signposts.

Investigating the academic conversations surrounding critical thinking was like stepping into a river and getting churned through the rapids. Sometimes it was difficult not to give up and become swept along by the strongest current and thus simply accept the ideas offered as the ultimate explanation, but I stubbornly clung to the idea that I needed to hear more of the river's sounds before I could come to a reasonable conclusion. I intensely dislike being indoctrinated. I wanted to make up my own mind. Tenaciously, I fought against the current in an effort to make my way through to a quiet back eddy where I could stop and reflect on what I had experienced.

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Thus fortified, I would plunge back into the mainstream and try valiantly to keep from drowning in confusion. Finally, the rapids became familiar, the whirlpools a little less intimidating and it was time to climb out onto the riverbank. The river still raged on fueled by the conversations and discussions of the academics but at this point, my course changed. I had come to terms with a general understanding of what critical thinking might entail and I wanted to investigate the possibilities of using critical thinking strategies and promoting critical thinking dispositions when working with 6 and 7 year olds.

Simplicity and practicality became my guidelines for choosing a definition of critical thinking. In reply to the casual inquiry, critical thinking became "reasonable reflective thinking that is focused on deciding what to believe and do" (Ennis, 1987 p.10). Ennis' definition, in combination with content specific criteria, also gave me a simple, generalizable, practical framework for the classroom. His definition was easy to remember and it provided the flexibility that I required in order to adapt it to the needs of my research.. Facione's (1990) defines critical thinking as "purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" (p. 12). Facione's definition is primarily based on skills or operations that can be generalized across a wide variety of contexts. Although it provides useful boundaries in that specific context, missing from Facione's definition are the attitudinal factors or qualities of thinking which can also be generalizable (Case & Wright, 1997). Some of these attitudes include being: open-minded, fair-minded, independent-minded (McDiarmid, Manzo, & Musselle, 1996, p. xv), and critically-spirited (Siegel, 1996, p.108). This list is by no means exhaustive. Although Facione's (1990) definition provides more specific guidelines, it is, by its

very nature, more limiting. If one wants to know more specifically what critical thinking could be defined as, then if one combines Facione's "skill" definition with the previous attitude characteristics then one has a more complete understanding of critical thinking.

Having derived a partial understanding of critical thinking, my intellectual curiosity was further piqued. New challenges lay ahead. What personal and professional attributes would a critical thinking teacher display? What factors have to be in place before critical thinking will flourish? My journey led me to explore how young children, age 6 to 7, use critical thinking for thoughtful analysis of issues or problems that are of interest to them.

Research Problem

Critical thinking is recognized in the curriculum as a worthwhile set of skills and attitudes but this emphasis is seldom reflected in the assessment of the students' learning. According to Bognar, Cassidy & Clark (1997), the results of the British Columbia Social Studies Provincial Learning Assessment indicated that "on the one open-ended form which was also presented to students in 1989 (Grade 4), students showed a decline in performance in areas which measured decision-making and problem solving processes" (p.134). The Research Team (Bognar et al., 1997) believed that there could be a substantial number of students leaving the British Columbia school system with "only marginal abilities in such important contemporary citizenship skills as detecting bias, distinguishing between fact and opinion, and developing a reasoned argument" (p.136). The deficiencies suggested by Bognar et al. (1997) are actually deficiencies in the ability to use critical thinking.

The frustration felt by the current social studies Research Team is similar to that experienced by the Research Team for Communication Skills Assessment in 1993. Piecemeal

recommendations such as: teachers need to" focus more on problem solving and decision-making" (Bognar et al., 1997, p. 137) have had very little effect on the teaching of critical thinking in social studies. Thus, part of my research included an investigation into the specific role of the critical thinking teacher in order to come up with concrete recommendations for classroom teachers. The qualitative research study deepened my understanding of the critical thinking potential of young children, and the factors that constrain or encourage critical thinking.

Significance of the Problem

The underlying assumption is that the world is not better left alone and there are areas in our world that could be improved. There are many global, national, and local problems that could conceivably be rectified by an involved and informed citizenry. Samples of these types of problems include the following:

- "individual beliefs / majority rule

- obey the law / the right to dissent

- cultural variety / cultural assimilation

- individual rights / public safety

- national security / individual freedom

- worker security / employer rights"

(National Council for the Social Studies, 1994, p. 10)

- the environment / the economy

- concern for the common good / concern for the individual.

The solutions to these types of problems will probably be found in the area of compromise and to make fair and just decisions under these circumstances requires reasonable, reflective thinking that is focused on what to believe or do (Ennis, 1987, p. 10). At this point in time, the general public, itself a product of our past educational system, is unable or unwilling to solve many conflicts or long-standing problems.

The Research Question

This research study further extends and deepens our understanding of how six and seven year old students use critical thinking as an opportunity for thoughtful analysis of issues or problems that are of interest to them by investigating fourteen to twenty one students enrolled in grade 1 in a public elementary school in Kamloops, British Columbia. The research will also deepen our understanding of what has to be in place in a classroom before critical thinking can flourish.

The research focused on investigating how six and seven year olds work within the following areas of concern:

1. - looking at a problem or concern from multiple points of view - including understanding the circumstances surrounding each point of view and displaying empathy for the those who are involved.

2. - an understanding of the role of evidence. Are children willing and able to change their mind in light of new evidence?

3. - an awareness of how the outcome of a decision would affect others. Are children capable of consequential reasoning or do they live only for the moment?

The Context of the Study

According to the United States National Council for the Social Studies (1994-1995),

"the primary purpose of the social studies [that strongly emphasize critical thinking] is to help

young people develop the ability to make informed and reasoned decisions for the public good

as citizens of a culturally diverse, democratic society in an interdependent world" (p.157).

Closer to home, Bognar et al. (1991) have noted that critical thinking contributes significantly

to the citizenship mandate of social studies in the British Columbia public school curriculum

(p.45-46). Critical thinking, in this scenario, is generally defined as "reasonable reflective

thinking that is focused on deciding what to believe and do" (Ennis, 1987, p. 10). According to

Bognar et al. (1997), in primary age children, the following components of critical thinking

have been identified as an area of increasing weakness:

> The Research Team finds student performance on the open-ended problem
>
> solving forms disappointing, since there is still a large percentage of students
>
> showing weaknesses in various stages of the decision making model, and
>
> particularly at the final stage of actually reaching a decision and providing
>
> reasoned justification for the decision. In fact, the proportion of students doing
>
> well in these exercises has declined since 1989. Students demonstrate weaknesses
>
> in formulating questions and in identifying appropriate sources of information . . .
>
> students also show a need for an increased emphasis on inferential and divergent
>
> thinking, and in identifying, accessing and assessing sources of information. (p. 46)

The justification for proceeding with studies in critical thinking for primary age children lies in

the need for further information regarding the following question: Given that the material used

is age-appropriate and the teacher is adequately able to create a classroom environment which is conducive to inquiry, to what extent are 6 and 7 year old children capable of learning to think critically? Kennedy, Fisher and Ennis (1991) state that when teaching methods are suitable for the developmental level of the student even young children can benefit from critical thinking training (p. 18). The child cognitive development theories of Jean Piaget indicate that young children have structures that differ from older children. However, Gelman (1985) disagrees with Piaget. According to Gelman (1985) "young children's competencies are more like older children's than once assumed . . . cast[ing] serious doubt on the hypothesis that age differences in performance reflect fundamental characteristics" (p. 538). Perhaps what is reflected by age differences is the ability to use formal terminology to describe one's actions or statements. So, at **what age** should critical thinking be introduced as part of a classroom curriculum?

Since there is a notable lack of information, knowledge, and available research on the topic of primary age children and critical thinking, and since the topic is deemed to be valuable as part of British Columbian's public school curriculum, then further research on the topic is justified. Cochran-Smith and Lytle (1993) claim that

> research by teachers represents a distinctive way of knowing about teaching and learning that will alter - not just add to - what we know in the field. Furthermore, we have argued that as it accumulates and is more widely disseminated, research by teachers will represent a radical challenge to our current assumptions about the relationship of theory and practice, schools and universities, and inquiry and reform. (p. 85)

It remains to be seen whether such teacher action research will add to the knowledge base for others to directly apply to their teaching practice or whether the results of the research will be cause for further reflection, theorizing and subsequent action.

Chapter 2

The Roots of Critical Thinking

He who cannot draw upon three thousand years is living from hand to mouth.

Goethe

Wisest is he who knows he does not know.

Socrates

Like a river destined to join an ocean, knowledge is ever expanding. Where did the idea of critical thinking originate? The deepest roots of critical thinking lie intertwined in the fields of philosophy and science. Early documentation of the controversy between science and reason occurred when an Eleatic, named Heraclitis (540-480 BC), publicly chose to value perception above reason stating that change was the most consistent part of nature. At the same time, another Eleatic, named Parmenides (540-480BC), chose to value reason above perception when discussing the problem of change. As a Rationalist, Parmenides believed that human reason was the primary source of knowledge. The tension between science and philosophy had begun. However, since both men were looking for evidence to back their claims, the age of critical thinking had also begun.

Throughout the years more seeds of critical thinking were planted through the influence of science and philosophy. Then, in the early 1950's, science and philosophy were joined in the discussion by a relatively new discipline, psychology. The psychological model of critical thinking emphasized thinking skills and the processes involved with thinking. "Higher order thinking skills" became synonymous with critical thinking. The tension between content and process in curriculum was fueled by the advent of the "inquiry method of teaching" which was also synonymous with critical thinking. The inquiry methods valued process: didactic methods

valued content. In later years critical thinking has been a factor in curricula involving problem-solving, reflective thinking, and decision-making (Hullfish & Smith, 1961; Massialas & Cox, 1966). Fueled by the repercussions of the data regarding the weak higher intellectual skills of 17 year old Americans as documented in <u>A Nation at Risk</u> (United States Commission on Excellence in Education, 1983, p.4), critical thinking was revitalized with renewed vigor by the academic community (Ennis, 1987; Lipman, 1991; McPeck, 1990; Paul, 1990; Siegel, 1988) and the Ministry of Education in British Columbia in the 1980's and 1990's. Throughout this time, critical thinking took on new meanings and connotations, depending upon who was using the term and why they were using it. Each definition of critical thinking has led to different implications for curriculum and instruction (Wright, 1995, p. 26) To the teachers, the concept of critical thinking was like a weather forecast: cloudy with a chance of rain, fog in some low lying areas, high winds in the mountain passes, thunder storms in the valleys, and periods of sun throughout the day. Critical thinking was a bit of everything and not much of anything. Part of the problem was there was no universally definitive answer to the question, "What is critical thinking?"

The Foundations of Present Day Critical Thinking

To appreciate the beauty of the tree one must investigate

how the roots caused it to grow so diversely.

Ashton

The purpose of the historical survey is to investigate how and why "critical thinking" came into being. The survey will show how "critical thinking," as we presently understand the term, has firmly established roots in the views and philosophies of both past and present philosophers, scientists and psychologists. Before undertaking the actual research project,

which was centered on the use of critical thinking, I wanted to know what critical thinking was. Due to slippery nature of trying to define critical thinking, I thought it best to search for the roots of the various aspects of critical thinking so that I could better comprehend what was meant by the term. The journey was long, but fascinating.

The Myths

In our Western civilization, the philosophical roots of critical thinking extend far back to around 700 BC, when much of the Greek mythology, which had a great influence on what people were led to believe and do, was finally recorded in written form by Hestoid and Homer. For the first time the written myths were available to the few literate common people and scholars in a form that was considered more reliable than "story telling." The myths came under critical public scrutiny. Skepticism began infiltrating the mythological belief systems. People, like Xenophanes (570 BC), began to notice that the egotistical and treacherous gods in the myths resembled mortals far too much for them to be superior to mortals. Consequently, people began to ask philosophical questions without recourse to the ancient myths or religions. The transition was being made from supernatural explanations of occurrences to scientific explanations based on natural experience and reason. The central root of critical thinking had started to grow: **claims and arguments were being evaluated** (Ennis, 1987; Lipman, 1988b; McPeck, 1990; Paul, 1990).

The Sophists

About a hundred years later, the Sophists laid down another critical thinking root. They allowed that the answers to philosophical questions may exist but mere mortals cannot know the riddles about nature and the universe. Thus the Sophists were skeptical just as critical thinkers of today are **skeptical** of something when they do not have sufficient evidence to back a

statement. The Sophists also made another contribution to critical thinking when they questioned what was natural and what was socially induced. This paved the way for **social criticism** of city-states like Athens. The critical theorists of today have carried on with a similar tradition (Freire, 1993, 1994; Giroux, 1988, 1992, 1997; Horton, 1990; McLaren, 1989.

Socrates

A major root of critical thinking began to flourish with the arrival of Socrates (470-399 BC). Socrates loved to converse with the people of Athens. He questioned everyone about everything in his search for knowledge. Throughout his life he attempted to convince the Athenians that they should remain **open-minded** and thus rationally consider all evidence, including **questioning both their own views and other points of view**, before arriving at a rational conclusion. Like Socrates' followers in Athens, when present day students are willing to consider view-points other than those that were previously familiar, and when they can recognize insights and strengths in views with which they have previously disagreed, then the students increasingly value the need to question as they search through material in order to understand what to believe or do (Cranson, 1995, p. 175). Questioning is still a method of honoring other points of view. However, to this day, some people have remained very close-minded while other people have become open-minded. What makes the difference? In Trycycle, a journal of Buddhist thought, Pema Chodran made the following comment in relation to teachers who have influenced his state of mind and spirit: "My models were the people who stepped outside of the conventional mind and who could actually stop my mind and completely open it up and free it, even for a moment from a conventional, habitual way of looking at

things" (in hooks, 1994, p. 207). Chodran would probably have enjoyed conversing with Socrates.

Socrates is perhaps best known for his method of asking **"deep questions** that probe profoundly into thinking before we accept ideas as worthy of belief" (Paul, 1999, p. 1). Even today, his questioning techniques remain valid. Paul (1990) published the following ideas based on the Socratic questioning and discussion methods:

> The discussion, the thinking, is structured to take student thought from the
> unreasoned to the reasoned, from the implicit to the explicit, from the unexamined
> to the examined, from the inconsistent to the consistent, from the unarticulated to
> the articulated. To learn how to participate in it, one has to learn how to listen
> carefully to what others say, to look for reasons and evidence, to recognize and
> reflect upon assumptions, to discover implications, and consequences, to seek
> examples, analogies, and objections, to seek to discover, in short, what is known
> and to distinguish it from what is merely believed. (p. 41)

Socrates' questioning and discussion models provide ways to arrive at a rational decision. His spirit of inquiry is relived today in a person's sense of curiosity and wonder.

Another Socratic "root" of critical thinking is for a person to be able to take time to **reflect**. In <u>Charmindes</u>, Socrates says to Critias:

> You come to me as though I professed to know about the questions which I ask.
> Whereas the fact is that I am inquiring with you into the truth of that which is
> advanced from time to time, just because I do not know; and when I have inquired, I
> will say whether I agree with you or not. Please then allow me time to reflect.

Not only is Socrates commenting on the need to reflect before replying to a question or assertion, by using the words " . . .I am inquiring . . ." he is also demonstrating that the teacher is also a learner not just a conveyer of knowledge. Socrates' pupil, Plato (428-354 BC), puts forth a similar idea when he comments that thinking is inner speech, and judgment is when you cease to doubt and your inner voices affirm the same thing. Having a conversation with your inner voices could probably be likened to critical reflective thinking. Reflection, or praxis, is still a key component of critical thinking (Dewey, 1993; Freire, 1968). One of the possible outcomes of reflecting on an issue or problem is that, as well as justifying your reasoning, you are looking towards the probable future consequences of your decision.

A Socratic foundational "root" of critical thinking is the concept of the need to critically examine one's own ideas in order to understand the influences of one's **biases** and points of view. From a psychological perspective, human thought tends to be egocentric and sociocentric (Piaget, 1972, 1926). However, recognizing our own personal worldviews and biases, as well as those of others, is an important aspect of critical thinking (Case et al. 1996). Socrates represents the detached, objective inquiry that is an educational outlook, bereft of personal purposes and local requirements (John Anderson, 1943, p. 178). Siegel's (1993) "critical spirit" reiterates the call to be aware of your own biases as well as those of others.

Dialogue is often used as a means to investigate one's thoughts. Socrates, as portrayed in the dialogues of Plato, provides us with an excellent model of how discovery, understanding, and critical self-examination are enhanced through **dialogue** (Johnson, 1983). Similarly, Freire (1968) and Paul (1982) consider students to be critical co-investigators in dialogue with the teacher when they are involved in a problem-posing situation.

In accordance with Socrates' views, Descarte (1596-1650) questioned everything that he had been taught - a fact which prompted him to develop a method of critical thought based on the principle of systematic doubt (Paul, 1999, p. 2). By the same token, David Hume (1711-1776) embraced the concept of systematic doubt by later suggesting, "past experience is no guarantee of future experience" (Weate, 1998, p. 58). This concept of **critical self-examination** enjoys great popularity with our present day critical thinkers: Lipman (1988b) redefines Descarte's term "systematic doubt" as thinking that is "self-correcting;" Freire (1968) believes that all theory should be interrogated; Facione (1990) also recognizes that judgments arrived at through a critical thinking process should be subject to cross examination and should thus be self-correcting.

Ellsworth's (1989) comment illustrates one of the tensions involved in the present situation involving the self-examination of thought:

> The desire of mostly white middle-class men who write the literature on critical pedagogy to elicit 'full expression' of student voices . . . becomes voyeuristic when the voice of the pedagogue himself goes unexamined. (p. 321)

Ellsworth's point could not be stated more eloquently! The Socratic call, for those who express their ideas to be responsible for critical self-examination of both their biases and ideas, still remains firm. The ability to be open-minded when considering new evidence and to be able to change your mind based on new evidence, are fundamental attributes of present day critical thinkers (Case et al., 1996, p. xv). These same fundamental "roots" of critical thinking also form part of the basis for my research.

As one of the great figures in the critical thinking movement, Socrates is "perhaps the clearest example of a philosopher who urged that education and society strive to imbue in all

students and persons, to the greatest extent possible, the skills, dispositions, and character traits constitutive of critical thinking" (Siegel, 1996, p. 120). Socrates lived for only 31 years but his philosophy of learning has had a tremendously strong influence on people for over 2400 years.

The Renaissance

The Renaissance ushered in the **age of reason** in conjunction with the age of science. During this period, Sir Francis Bacon (1561-1626) argued for the importance of studying the world empirically and thus he laid the foundations for modern science. Bacon's book, The Advancement of Learning, could be considered one of the earliest texts in critical thinking (Paul, 1999, p. 2). As a thinking being, Bacon concluded that it was "mind or reason that told him the truth about the world" (Weate, 1998, p. 55). This further enhanced the position taken earlier by Rationalists such as Parmenides (540-480 BC), Socrates (470-399), and like-minded men such as Rene Decarte (1561-1626) and Baruch Spinoza (1632-1677).

The Empiricists

Following the tradition of the Sophists (450 BC), who helped to smooth the way for **social criticism** in Athens, John Locke (1632-1704) laid the theoretical foundations for critical thinking in relation to basic human rights and the responsibilities of all governments to submit to the reasoned criticism of thoughtful citizens (Paul, 1999, p. 2). There is a strong relationship between the reasoning factor of critical thinking and a democratic form of government. Lipman (1998) clearly echoes the previous point of view:

> Reasoning and judgment, these are ideally what the educational institutions of our ideal democracy should cultivate, for reasoning and judgment together add up to reasonableness; to be able to reason and to be open to reason; to be able to make sound judgments and be respectful of the judgments others have made. (p. 279-280)

In <u>Demystifying Thinking,</u> Cranson (1995) shows a similar concern about the relevance of critical thinking in a democracy society.

> People must understand the importance of gathering and weighing information, considering the impact of various decisions, and re-evaluating decisions after they are made in preparation for accepting the responsibilities of living in a democracy. (p. 80)

In our North American society, it is important that we encourage our students to use critical thinking because in a "socially interactive world almost every decision has a ripple effect on individuals other than the decision-maker" (Cranson, 1995, p. 180). Even more so than today, in the future, compromises rather than black and white solutions to problems will be prevalent (McPeck, 1990). Frequently, in our present political system, he who presents the strongest, most persuasive, politically powerful, emotionally appealing case will suffer the least compromise to their position. Consequently, being able to think critically will be a valuable asset when considering arguments, solving problems or making changes in order to improve the world.

In the interest of human rights and change, the **critical theorists** formulate theory from lived experience that then reduces the gap between theory and practice (hooks, 1994, p. 75). Critical theorists tend to look at the connections that are made throughout the "whole picture" so that a problem is not studied in isolation. As indicated by Henri Giroux (1988), Giroux & Kaplan (cited in Walters, 1994), Callan & Portelli (cited in Portelli & Bailin, 1993), Paulo Freire (1993), Miles Horton (1990), and Peter McLaren (1989), critical theorists are still very active in the field of social criticism. bell hooks (1994) makes the following powerful comment in relation to this movement:

I am grateful to the many women and men who dare to create theory from the

location of pain and struggle, who courageously expose wounds to give us their

experience to teach and guide as a means to chart new theoretical journeys. Their

work is libratory. It not only enables us to remember and recover ourselves, it charges

and challenges us to renew our commitment to an active . . . struggle. (p. 74)

In our classrooms, Freire's legacy has been the inclusion of problem posing education.

The Idealists

Empathy was reunited with critical thinking by Hume (1711-1776) who comments

"judgment comes from within, by reflecting on our own feelings and empathizing" (Weate,

1998, p. 58). This concept is closely related to the following the areas of my research: Are

young children aware of how the outcome of a decision would affect others? Do children look

at the circumstances surrounding the evidence from an empathetic viewpoint? Similar to Hume,

Hegel noted that uncertainty, ambiguity, unpredictability, and open-endedness would encourage

us to think. In his explanation of reality, Hegel (1770-1831) maintained that the universe and

everything in it is interconnected. Hegel also pointed out the dialectical nature of discussion as a

means of critical investigation. According to Weate (1998), Hegel's concept of how to arrive at

a reasoned conclusion is threefold:

First an argument or "thesis," is put forward. Then an opposing argument, or

"antithesis," is introduced. After much struggle a compromise is reached, which is

known as the "synthesis." This compromise then becomes the new "thesis" and

the process starts again, ad infinitum (p. 52).

Science research often follows Hegel's thesis pattern. In the non-academic realm, critically negotiated settlements also tend to follow Hegel's thesis pattern. Thus, once more, science, philosophy, and critical thinking became interwoven.

The Nineteenth Century

In the nineteenth century, critical thought was promoted in the domain of social life. In his Communist Manifesto, Karl Marx (1818-1883) argues for a better society in which money would not rule and everything would be shared. Towards this end Marx was instrumental in bringing about a political revolution. Critical theorists such as Paulo Freire (1993), Henri Giroux (1988), Miles Horton (1990), and Peter McLaren (1989), were influenced by Marx and shared his wish for a better society and so **critical pedagogy** became a means to create social change.

During the nineteenth century, Charles Darwin applied critical thinking to investigate the origins of life that he documented in The Descent of Man. People, who were critical thinkers, reflected with interest upon Darwin's theories. People who used emotions to express their ideas were outraged at Darwin's theory of evolution. The battle lines were drawn between rationalism and religious doctrine. The common people were, once again, heavily involved in public displays of rationality or irrationality.

The Twentieth Century

Without some heat, there can be no light

Wittgenstein venerated rationality and put it forth as an educational aim. From the work of Ludwig Wittgenstein "we have increased our awareness not only of the importance of concepts in human thought, but also of the need to analyze concepts and assess their power and limitations" (Paul, 1999, p. 3).

In the early part of the century, Bertrand Russell (1916, p. 163) believed that the passive acceptance of knowledge would be disastrous in later life and that it would serve to encourage a blind unthinking respect for the teacher and other authorities. Consequently, Russell "emphasized individuality, and the virtues of independence and critical judgment" (Hare, 1995, p. 2). Unfortunately, Russell's philosophy of learning was misinterpreted by the students and teachers of the time to infer that the teachers' knowledge could be negatively challenged by the students. Those teachers who functioned as knowledge transmitters were very uncomfortable in this situation. The concept of critical thinking took on a negative connotation implying "negative criticism of others' thinking."

Dewey realized that possessing **basic knowledge** was rudimentary to being able to think in a critical fashion. After all, you cannot "think in a vacuum." In accordance with Dewey, Case et al. (1996, p. xiv) locate "background knowledge" as the first of five intellectual tools for thinking critically. Unfortunately for the critical thinking movement, one of the prevalent notions of teachers and school boards, who are primarily concerned with test results, is that the purpose of education is not to understand concepts but simply to acquire a shared body of information. This "passive education" stance is challenged by those who claim that the school's task is, to foster critical thought, autonomy, and open-mindedness, rather than to promote the transmission of existing knowledge. Perhaps the purpose of basic knowledge is not a goal unto itself, but instead, its purpose is to become one of the cornerstones in the "tools" (Case & Daniels, 1996) required in support of critical thinking.

There is a connection between interest, learning and critical thinking. Dewey (1902, p. 99-100) believed that learning must start by knowing and as such, learning is facilitated when it is based on the interests of the child. A child's interest is naturally stimulated when they

experience a new idea that is so intriguing that questions come easily. Such questions may even

involve domains "where the answers are not already known and in fact may never be truly

defined" (Giroux, 1997, p. 49). In any case, being able to create patterns and connect ideas,

experiences, feelings and information to interesting new ideas is also one of the keys to critical

thinking.

Louis Rath adopted much of Dewey's problem-solving algorithm in his model for

"teaching for thinking" which was helpful in distinguishing better values from worse.

Unfortunately, his ideas were transformed by his followers into a model for "values

clarification" in which no value was considered any better or worse than any other. What had

begun as a model for critical thinking became a model of uncritical thinking (Lipman, 1991,

p. 107).

After World War ll ended, there was a movement to reform the educational curriculum.

In order to accomplish this, many of the cognitive psychologists who had previously worked

with the armed forces, were engaged to design and evaluate educational material (Encarta 97,

Piaget). The psychologists' position was that thinking and learning could be broken into discrete

pieces which could be studied in isolation and then reunited like building blocks to form a

whole which was not greater than the sum of its parts. Bloom's Taxonomy provides a model of

the thinking processes according to the psychological point of view. Bloom et al. (1956)

postulated that the process of application, analysis, synthesis, and evaluation were a

hierarchical, integral part of critical thinking. Education philosophers, such as Paul (1993), state

that: "in thinking . . . the whole is greater than the sum of its parts, and cannot be understood

merely by examining its psychological leaves, branches, or trunk. We must also dig up its

philosophical roots and study its seed ideas" (p. 443). So our journey continues on, but now the

newcomer, psychology, is adamant about making its presence felt in the critical thinking aspect of education.

During the 1950's, Bloom et al.'s (1956) <u>Taxonomy of Educational Objectives, vol. 1: Cognitive Domain</u> became a landmark move towards critical thinking because knowledge had been downgraded and evaluative thinking had been upgraded. The way seemed much clearer to establishing critical thinking as a major objective of the educational system (Lipman, 1991, p. 109). Unfortunately, Bloom's ideas were parachuted into an unprepared education system at a time when Piaget's ideas of developmental stages were still a dominant force. As an educational psychologist, Piaget was writing about his research in the early part of the century but it was not until the 1960's, that Piaget's ideas came into popularity. Piaget (1926) strongly influenced the learning environment of young children as a result of his theory of the stages of intellectual development. He commented that children under the age 7 should be primarily engaged in the accumulation of knowledge. Piaget (1926) also postulated that a child, before the age of 7, can not present arguments because it does not use a knowledge system in which justifications of causality become a necessity. Furthermore, according to Piaget (1926), before the child can become concerned with causal justification it must be capable of recognizing that "its own interpretation of a sensory input is a private, not-necessarily-shared interpretation" (Mancuso & Hunter, 2000. p. 3). Generally, this phenomenon was thought to occur at about 7 years of age. Subsequently, Piaget's theory of intellectual development influenced the age level at which critical thinking was introduced and consequently a debate regarding the **appropriate age to begin critical thinking** was fueled. It was expected that it would be "late secondary school or maybe even college before students could be expected to handle ideas (Lipman, 1991; McPeck, 1990). According to Lipman (1991), the prevailing thought was that "given the

longitudinal, developmental interpretation, young children were not capable of monitoring their own thought, of giving reasons for their opinions, or of putting logical operations into practice" (p. 110).

In the early 1970's, educators began to suspect that children were capable of reasoning and philosophy. Soon, critical thinking was being considered appropriate for all ages (Beyer, 1995, Case & Daniels, 1996). Case &Daniels (1996) developed "Critical Challenges Across the Curriculum," which consisted of a series of critical thinking exercises for students of all ages. In 1999, The National Council for Excellence in Critical Thinking, stated that "the earlier that children develop sensitivity to the standards of sound thought and reasoning, the more likely they will develop desirable intellectual habits and become open-minded persons responsive to reasonable persuasion" (1999, p. 2). However, it appears the there has been very little research on critical thinking and very young children. How would young children use critical thinking as an opportunity for thoughtful analysis of issues or problems that are of interest to them? The question became the thesis for my own research.

In the late 1970's, Michael Scriven became the founding father of the **informal logic movement** (Lipman, 1991, p. 110). Like critical thinking with its roots in Socrates and the Sophists, informal logic had its roots in the philosophic traditions of Aristotle. Because it emphasized the **persuasive** force of argument, informal logic was more attuned to natural language than formal logic, which emphasized the **logical** force of argument. The informal logic movement allowed more people to become involved with the critical thinking movement because it dealt with real life situations and issues in common terms that people could generally understand. However, the rules of logic were still in force, thus informal logic was not to be treated lightly.

Critical thinking and philosophy were again heavily intertwined in the 1980's. Matthews (1980) suggested critical thinking may be motivated by puzzlement and puzzlement usually "rests on an unease about not having enough evidence, or maybe not enough evidence of the right sort, to draw a common sense conclusion" (p. 2). **Philosophical whimsy** came into play. Can critical thinking be play and reflect playful possibilities? Can you be big and little at the same time? On a more serious note, the 1980's signaled the start of teaching philosophy to school age children. Lipman's (1991) concept of philosophy and thinking for children gained popularity and young children were being applauded for their capacity to think and reason. With this rise in the popularity of philosophy came a warning that refers back to Plato (428-354 BC). In Theaetetus, Plato describes Socrates as engaging young minds in philosophic discussions but with the warning that "such an inquiry must be conducted fairly" (Turner & Matthews, 1998, p. 4). In other words, philosophy is not to be treated as a game of contradiction (e.g. sophistry) for to do so would discredit the perpetrator in the eyes of others. It was recognized that philosophy is a serious matter and thus must be guided by trained adults (Turner & Matthews, 1998, p. 4). Lipman also holds with this belief, and thus his Philosophy For Children program is backed by extensive training sessions for teachers.

In 1983, the United States National Commission on Excellence in Education published a report, A Nation at Risk, which was to have great repercussions in the American education system. Among the concerns of the Commission was the fact that many 17 year-old students did not have the higher-order intellectual skills that were expected of them (National Commission, 1983, p. 4). This concern led to a flurry of interest in higher order thinking skills and critical thinking skills. At about the same time, the influence of applied philosophy was felt in education. The goal was to produce students with "improved proficiency in reasoning and

judgment" (Lipman, 1991, p. 112). Critical thinking had become the topic of great intellectual debate. In North America, the following theorists were prominent figures in critical thinking discussions of this era: Adler, 1985; Beyer, 1985; deBono, 1984; Ennis, 1987, 1980; Giroux, 1988; Johnson, 1983; Lipman, 1988, McLaren, 1989; McPeck, 1981; and Siegel, 1988.

During the 1980's and 1990's, the philosophical approach to critical thinking advocated using an open-ended or inquiry approach to learning for all school aged children. The young students were successfully questioning former knowledge and heading out in new directions to support their learning, but they needed some way to judge the worth of the evidence and arguments, etc. that they presented to justify their decisions. Critical thinking provided the tools and dispositions that supported their inquiry-based learning. At this point, the "roots" of the **community** aspect of critical thinking were being formed. The classic picture of the isolated thinker was being transformed into a picture of a community of learners. It was recognized that thinking through a problem by our selves could be an unnecessarily difficult task. Instead, testing our ideas in conjunction with others meant we could benefit from "collaborative reflection" (Case & Wright, 1997, p. 18). The difficulty with this approach was that the classroom environment had to be conducive to open-ended discussion and risk-taking in a "safe" atmosphere and not all teachers were receptive to encouraging a climate that would be appropriate for critical thinking. Nurturing the appropriate classroom climate was an orientation that pervaded critical thinking situations (Case et al., 1997, p. 19). During this period, prominent philosophers, such as Giroux (1988), hooks (1994), and McLaren (1989) were encouraging teachers to use transaction and transformation philosophies to guide their teaching. They were actively promoting using critical thinking in problem-solving, decision-making, and reflective thinking.

The reaction, to the inquiry, problem-solving, decision-making, reflective thinking, curriculum movements was a "back to the basics," transmission movement where critical thinking was at the low end of curriculum priorities and content, studying (and even memorizing) prior knowledge, was at the forefront. There is an explanation for this movement: when you feel threatened, return to your "safe place." Most "educational" systems, from tribal societies to technological societies, "fall imperceptibly into a role devoted exclusively to the conservation of old ideas, concepts, attitudes, skills, and perceptions . . . because of the unconsciously held beliefs that these old ways of thinking and doing are necessary to the survival of the group" (Postman & Weingartner, 1969, p. 207). This is a relevant position if the group inhabits an environment that is changing very slowly (p. 208). Postman & Weingartner (1969) make the following relevant comment:

> A paradoxical situation develops when change becomes the primary characteristic of the environment . . . survival in a rapidly changing environment depends almost entirely upon being able to identify which of the old concepts are relevant to the demands imposed by the new threats to survival, and which are not. (p. 208)

Postman & Weingartner (1969) suggest that for a group to survive, "selective forgetting" of irrelevant concepts must occur for if it does not take place then the "concepts themselves become threats to the group's survival" (p.208). In order to cope with rapid change and in addition to the selective forgetting of irrelevant concepts, people require a way of thinking which will allow them to make decisions about what to believe and do. If the concept of critical thinking includes the following definition of critical thinking as

> purposeful, self-regulatory judgment which results in interpretation, analysis,

evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. (Facione, 1990, p. 12)

and if Facione's definition is supplemented by the following additional characteristics, **caring** (Wheary & Ennis, 1998); **critical spirit** (Facione, 1997; Siegel, 1989); **emotion** (Gallo, cited in Haroutunian-Gordon, 1998; Siegel, 1989); **fair-mindedness** (Ennis cited in Beyer, 1995; Marzano, cited in Beyer, 1995; Paul 1982); **imagination** (Gallo, cited in Haroutunian-Gordon,1998; Paul, 1990); and **intuition** (Paul, 1990); Walters, cited in Haroutunian-Gordon, 1998), then, unlike the "back-to-the-basics" movement, critical thinking will allow people to thrive in a rapidly changing world. In Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World, Paul (1990) concludes that in order for the United States to increase productivity and thus be able to compete successfully on the world market, the education system will need to produce people who can "rationally examine situations and make intelligent, judicial decisions . . . the kind of skills fostered by critical thinking" (Stevens, 1995, p. 355. During the past 20 years, the education system has gone through a fair amount of turmoil and critical thinking has been in the midst of the confusion, sprinkling itself here and there in a way that simply added to the melee.

The Present

The critical thinking movement is still visible and still very confused. Perhaps this concept is best illustrated by McPeck's explanation of the problem.

The problem has not been a dearth of literature on critical thinking: on the contrary, journal discussions and pre-packaged curricula are legion. The problem is that there is no precise way of assessing this material in the absence of an

understanding of what the concept entails and what it precludes. At the moment,

the persistent vagueness of the concept supports curriculum proposals ranging

from courses in Latin to logic and clever puzzle games. (p. 2)

McPeck's point is still valid today. According to Lipman (1991) many factors influence critical

thinking. Informal logic features the persuasive force of argument. Rhetoricians accent critical

thinking's logical force. Philosophers stress the reasoning component. Non-philosophers

emphasize the problem solving approach. What is consistent is the general agreement that

critical thinking is an important and worthwhile endeavor. However, there is still no common

definition of critical thinking. Consequently, there is no common agreement about whether it

should be taught, encouraged or left to be a natural outcome of a good education.

The Definitions

Contradictions are valued as part of the learning process,

part of what one struggles to change - and that struggle is often protracted.

bell hooks, Teaching to Transgress: Education as the Practice of Freedom, 1994

"Critical" comes from the Greek work *kriterion* which means a benchmark for judging.

In its broadest sense, critical thinking is judging the quality of anything according to some

predetermined criteria. When evaluating a researcher's conclusion, the flavor of a new culinary

dish, or the accuracy of a television report, we are engaged in critical thinking or thinking

according to a previously established set of criteria. Amidst our socially induced biases and

pressures, we are weighing the evidence for a claim and accepting it or rejecting it on the basis

of the evidence (Salmon, 1995, p. 1).

Beyond this broad sense of critical thinking, there seem to be as many definitions of critical thinking as there are philosophers who are involved in the subject. The most widely used definition of critical thinking is attributed to John Ennis (1987) who describes critical thinking as "reasonable reflective thinking that is focused on deciding what to believe and do" (p. 10). Another common definition belongs to Richard Paul who defines critical thinking as "the extent to which a conclusion is plausible or warranted by the evidence" (Beyer, 1995, p. 9).

Some people interpret critical thinking to imply pointing out errors. This negative point of view may lead to a foolish attitude: if there are no errors, then the thinking must be right (deBono, 1984, p. 16). In general, critical thinking is thought to have a positive purpose such as deciding what to believe and do in order to prove a point, solve a problem, interpret data etc. Walters' (1994) concept of "first wave" and "second wave" critical thinkers provides a way to categorize some of the currently used definitions. According to Walters (1994), the first wave of critical thinkers reduced critical thinking to understanding and using the skills of **logic.** Originally, Ennis (1962) was convinced that critical thinking simply required the ability to manipulate the rules and procedures of logic.

Characteristic of the first group, Lipman (1988b) defines critical thinking as "skillful, responsible thinking that facilitates good judgment because it: 1. relies upon criteria, 2. is self-correcting, and 3. is sensitive to context" (p. 39). Scriven (cited in McPeck, 1990) states "reasoning ability is, operationally and pedagogically, a finite set of skills using a finite box of tools" (p. xi). In support of critical thinking as a rational activity, Walters (1994) quotes Siegel (1988) as saying that "critical involves bringing to bear all matters relevant to the rationality of belief and action" (p. 32). Missimer (1990) remains convinced that critical thinking is

accomplished by skill alone. Also typical of the "first wave" group is Facione's (1990)

description of critical thinking as having the following characteristics:

> purposeful, self-regulatory judgment which results in interpretation, analysis,
>
> evaluation, and inference, as well as explanation of the evidential, conceptual,
>
> methodological, criteriological, or contextual considerations upon which that
>
> judgment is based. (p. 12)

But all is not black and white in this battlefield. Even Facione (1990) more or less bridges the

gap between the this first wave and the next wave because although "critical spirit" is not part

of his definition, he refers to it in the same article as a personal trait of one who would be apt to

use their critical thinking skills. After 1988, Siegel (1991, 1993) also appeared to join the

second wave with his references to "critical spirit," a subject not usually found in logical

writing.

The "second wave" used a **contextual approach** that focuses . . . on normative

assumptions and world view presuppositions" (Haroutunian-Gordon, 1998, p. 412). The

"second wave's" definition of critical thinking also included character traits such as

fairmindedness, creativity, intuition, and emotion.

However, Missimer (in Haroutunian-Gordon, 1998), a "first wave" philosopher suggests

that **context** is a factor in critical thinking when she claims that the "most impartial and able

critical thinker could not assess the force of reasons of an argument torn from its social fabric"

(p. 417). The concept of studying an incident without reference to the historical or social

context from which it was derived is unreasonable according to Missimer (1988). The concept

of **worldview** as a force in critical thinking was made known by people such as Walters (1994)

who believes that the "thinker is always present in the act of thinking" (cited in Haroutunian-

Gordon, 1998, p. 417), thereby resisting **subject-neutral cognition**. Siegel (1993) challenges

Missimer's point of view (1993) and proposes a **"character" point of view** for critical thinking

thereby locating himself in the "second wave" by changing his original "first wave" (1988)

point of view which relied on the skill of logic as the cornerstones of critical thinking. In this

instance, one can picture the thinker "asking questions to make sure he or she has understood

the proffered evidence, systematically reviewing apparent counter evidence . . . acting in

accordance with the conclusions reached" (Haroutunian-Gordon, 1998, p. 415). Knowledge

leaps into action! Features such as **imagination, intuition** and **fair-mindedness** are added to

the definitions or intent of critical thinking. Clinchy (cited in Haroutunian-Gordon, 1998, p.420)

proposes a form of "uncritical thinking" in which the observer uses imaginative attachment to

get behind the eyes of the observer, to look at events from their point of view. Gallo proposes

that **"imagination** and **emotion** are necessary for effective critical thinking" (cited in

Haroutunian-Gordon,1998, p.420). Assuming that it is possible, Siegel (1989, p. 1) allows that

it may be rational to allow oneself to be moved into action by **emotions** or to act as the

circumstances may justify. Siegel (1991) also refers to **"critical spirit"** (a phrase which was

first coined by John Passmore in the 1970's) as does Facione (1997), who defines critical spirit

as "a probing inquisitiveness, a keenness of mind, a zealous dedication to reason, and a hunger

or eagerness for reliable information" (p. 6). Paul (1990, p. 36) argues that if one means by

intuition the process by which one "translates the abstract into concrete, based on insight into

the principles upon the basis of which one is thinking, then not only are critical thinking and

intuitive thinking compatible, they are necessarily conjoined" (p. 36). In addition, Paul (1990)

states that: "solid critical thinking always requires fundamental insights and fundamental

intuitions to guide it" (p. 36). Walters argues in favor of incorporating not only **intuition**, but

also **imagination** in critical thinking (Haroutunian-Gordon, 1998 p. 421). The concept of **fair-mindedness** was brought to the forefront by Ennis (in Beyer, 1995), Paul (1982), and Marzano (cited in Beyer, 1995). In conjunction with Wheary, Ennis (1995) modified his view of critical thinking by suggesting that **caring** about making sound arguments and caring about the ideas of others, "which would seem to involve **imagination** and perhaps **intuition**" (p. 414) were important features of critical thinking. In relation to critical thinking, Case and Daniels (1996) also use the designation "**habits of mind**" which include being **open-minded, fair-minded, independent-minded** and having an **inquiring or "critical"attitude**. Is it any wonder that teachers are unclear what is involved in critical thinking (Wright, 1995, p. 67)?

Critical thinking can be defined in many ways but the importance of any definition is that one gain a fundamental understanding of the concept involved. Basically, critical thinking involves the "formulation and use of criteria to make warranted judgments about knowledge claims, normative statements, methods of inquiry, policy decisions, alternative positions on public issues, or any other object of concern" (Patrick, 1985, p. 1). Critical thinking is an "essential element of general cognitive processes such as problem solving or decision making, but is not synonymous with them" (Patrick, 1985, p. 1). Critical thinking implies: curiosity, skepticism, reflection and rationalism. Dependent on the definition used, critical thinking may also imply imagination, intuition, fair-mindedness, emotion, caring, and critical spirit. Ironically enough, a person who strives to make use of critical thinking would first have to use critical thinking in order to define the term before using it.

The Philosophy/ Critical Thinking/Classroom Connection

And must not an animal be a lover of learning who determines what is or is not
friendly to him by the test of knowledge and ignorance?
Most assuredly.
And is not the love of learning the love of wisdom, which is philosophy?
They are the same, he replied.
And may we not say confidently of man also, that he who is likely to be gentle to
his friends and acquaintances, must by nature be a lover of wisdom and
knowledge?
That we may safely affirm.
Then he who is to be a really good and noble guardian of the State will require to
unite in himself philosophy and spirit and strength?
Undoubtedly.
Then we have found the desired natures; and now that we have found them, how
are they to be reared and educated?   Plato: The Republic

It is not uncommon for young children to enjoy philosophizing because, stripped of all else,

philosophizing is an attempt to make sense of their world. Children naturally express wonder

and curiosity, especially when confronted with new and puzzling information. How often have

you heard a child ask, " How come . . .?" Children naturally seek explanations for that which

they do not understand. When children arrive in school they are already equipped with an "if-

then" logical reasoning form. For instance, **if** you listen politely **then,** you will have a turn to

talk too. Children also understand how to make inferences. For example, if mom is cranky,

don't ask her to help you clean up a mess. Children's natural ability to seek understanding and

truth needs to be acknowledged and strengthened if they are to become critical thinkers.

What are the links between philosophy, critical thinking, and the classroom? The Greek

term, philosophy, means "the love of wisdom." Both philosophers and critical thinkers share a

desire to gain understanding and wisdom and they are both committed to "following reason

wherever it may lead" (Johnson, 1987, p. 61). This notion provides the underpinnings to an

inquiry-based style of learning. Both philosophy and critical thinking are disciplines in which issues can be debated from many points of view through dialogical and dialectical exchanges.

In a classroom situation, if one contends that critical thinking must follow the formal rules of logic (Siegel, 1988), then philosophy tends to be the theoretical vehicle for making ideas and concepts problematic. This approach may contain its own set of problems for the classroom teacher. According to McPeck, (1990), the standard formal logical approach to critical thinking would be as follows:

1. Take an existing argument and examine it for any fallacies, formal or informal that might attest its validity.

2. When the fallacies are not found suggest looking for unstated assumptions and or question the truth of given premises.

3. If fault can be found in any of these facets of the argument, then one has objective grounds for rejecting the argument. (p. 7)

Even if a fallacy is discovered, it doesn't necessarily mean that the general point of view is untrue. Thus, detecting fallacies is not all that practical because one still hasn't concluded what is right, true or correct. What's valid is not necessarily what's true. Therefore, when deciding complex questions its usefulness is limited. Since there is no method for determining what the author had in mind, it is difficult to see what unstated assumptions the argument is based on – bias, etc. False presuppositions are far more important because they can destroy the validity of the argument. After working through McPeck's method for engaging critical thinking, it is easy to understand why he concludes that what he understands as "critical thinking" is inappropriate for 6 to 8 year olds. A formal logic approach contains rules that are well beyond the thought processing capabilities of young children. If one suggests that informal logic would be useful in

the classroom then this would be in keeping with using concrete instances of reasoning, argument and debate which are taken from newspapers, television and mass media. Although informal logic makes possible the analysis of ordinary reasoning using natural language, emphasis continues to be placed on using both a general theory of argument and a procedure for applying it (Groarke, 1998, p. 5). For those teachers not well versed in logic, using informal logic may not be in keeping with their goal to teach students to reason well in a social, political, or work related context. Teaching through the use of logic in an informal format may prove to be too challenging for those teachers not well versed in philosophy.

In an elementary classroom, in keeping with an emphasis on using concrete examples of reasoning, critical thinking can be regarded as a practical vehicle for taking an idea to its roots by "probing its sources and foundations, pursuing its ramifications across domain and subject areas, relating it critically to a personal experience, and honestly assessing it from other points of view" (Paul, 1993, p. 472). Typical of this practical, schoolroom form of critical thinking is the encouragement of the competent use of five types of tools for thinking (Case & Daniels, 1996):

Background knowledge - the information about a topic required for thoughtful Reflection.

Criteria for judgment - the criteria or grounds for deciding which of the alternatives is the most sensible or appropriate.

Critical thinking vocabulary - the range of concepts and distinctions that are helpful when thinking critically.

Thinking strategies - the repertoire of strategies, heuristics, organizing devices, and algorithms that may be useful when thinking through a critical thinking problem.

Habits of mind - the values and attitudes of a careful and conscientious thinker.

<div align="right">(p. xiv)</div>

With its roots in both formal and informal logic, the aforementioned critical thinking approach provides a practical format for working with students of any age. Thus, the main differences between critical thinking and philosophy lie not in the ultimate goal, of attaining greater wisdom, but simply in the methods that are used in the pursuit and the client that is involved in the challenge. While philosophy is usually relegated to the theoretical arena of scholars, critical thinking, which involves both practical skills and humanistic attitudes, is available to the person in the street. My research will investigate how young children can work within the practical notion of critical thinking.

Is Critical Thinking Generalizable

The debate circles around whether it is better to teach thinking skills in conjunction with context or whether it is more beneficial to teach some general principles of critical thinking, as a separate curriculum. Critical to this discussion is the question of whether or not thinking skills taught in one context can be generalized or transferred to another discipline or subject.

Case & Daniels (1996) do not support the view of critical thinking as a "set of generic skills or processes that can be developed independent of content and context" (p. vii). McPeck (1990) also maintains "specific subject content determines the required ingredients for thinking critically in each case" (p. xvi). Reasoning is viewed as a "crucial clarification process" about some specific thing (Scriven, cited in McPeck, 1990). McPeck (1990) suggests that since one cannot know everything about everything, the standard approach used by many other people, such as Lipman, is to teach students the general skills they need to apply informal logic rather

than teach students using a knowledge and information based approach. According to McPeck (1990) there are two main reasons for using a general skills approach: 1."knowledge and information lack the transfer potential of general skills; 2. one cannot predict what knowledge and information an individual may need for the future" (p. 13). The objective of the general skills approach is to provide maximum transfer to multiple problem domains. However, there is a weakness in this method. If you maximize something, you minimize something else. In this case, the general skills approach maximizes the number of problem areas to which it can be applied while sacrificing the effectiveness of all of them. The more general a strategy is, the less effective it is when solving any particular problem. Consequently, according to McPeck (1990) the notion of teaching general critical thinking skills in isolation is largely meaningless. Among others, Missimer (1988) and Newman (1988) also hold with the notion that critical thinking should be taught in relation to context.

Lipman seems to suggest that critical thinking may be either generalizable or course specific. In an attempt to avoid redundant instruction, Lipman (1991, pp. 263-264) suggests that philosophy, which is the basis for critical thinking, should be taught as a specific course focused on teaching the generic logic and scientific method skills that will be found in academic disciplines. But Lipman (1988b) contends "just as critical thinking is sensitive to uniformities and regularities that are generic or intercontextual, it [critical thinking] is sensitive to situational characteristics that are holistic or content-specific" (1988, p. 42). Thus, Lipman suggests that critical thinking skills are both generalizable and content specific.

In general, even though the skills and dispositions of critical thinking may be seen as specific to the course content, many of the skills and dispositions thus taught are common to many areas of the curriculum. Adler (1991, p. 61) claims that when teaching critical thinking as

a generalizable skill, significant improvements in learning in other areas remain once the content and areas of study have been discounted. Touting a view of thinking skills and attitudes as being generalizable, Seymour Sarason (1971) contends that thinking is not something that happens only in class. So, according to Sarason's position, one might assume that the skills and attitudes of critical thinking are generalizable even beyond the wall of the classroom to the real world.

If one assumes that all students, regardless of age, ambition, or ability, have some degree of potential to think critically, then infusing critical thinking throughout the curriculum is effective in terms of learning and efficient in terms of time. As such, there would be more opportunities for "academic achievement, socioeconomic advancement, and effective citizenship" for the student population (Patrick, 1986, p. 2). If critical thinking is relegated to an elective course, then many students would not have the opportunity to take it.

Unfortunately, when infusing critical thinking into the curriculum, there is a potential for a possible "hit and miss" situation. Will all teachers actually use critical thinking in their courses? Several areas of potential difficulty come to mind: 1. not all teachers understand what is meant by critical thinking; 2. not all teachers have the prerequisite knowledge required to be able to pick and choose which critical thinking skills and attitudes are appropriate for their subject and age level; 3. not all teachers are able to provide a "classroom climate" conducive to critical thinking. Nevertheless, since critical thinking provides rich opportunities for linking school life and real life, then working to overcome the aforementioned pitfalls may be worth the effort.

In conclusion, student's capacities to use critical thinking will most likely increase if they practice the skills and attitudes systematically over a wide range of issues and

circumstances. Subject-specific teaching of critical thinking may provide the most effective means to develop their ability to transfer the skills and dispositions to similar subjects in school and real-life situations outside school (Patrick, 1986, p. 2). On the other hand, courses specifically on critical thinking "seem to be a rather weak means of developing cognitive strategies and skills" (p. 2).

In my classroom, my goal is to use the skills and dispositions of critical thinking to provide "continuing opportunities for thoughtful analysis of issues or problems that are central to the subject matter" (Case & Daniels, 1996, p. vii). My hope is that through encouraging critical thinking skills and dispositions in the classroom, I will be providing the students with some of the tools necessary to help them make decisions elsewhere in their lives. The role of an education is to provide all students with the tools they will need in order to cope with the realities of the real world. Since one cannot possibly predict the future, one can only prepare for problem solving and change.

What is the Place of Moral Values in Critical Thinking?

Should schools teach moral values? This issue has undergone serious debate. In terms of a fundamental educational ideal, according to Siegel (1996 p. 115), there is a powerful moral justification for including critical thinking. His reasoning includes the following argument: "critical thinking is the relevant agent of empowerment, which as such has important moral dimensions" (p. 115). The question remains: Whose morals will be the dominant feature of the moral dimensions? Insofar as "treating students with respect involves respecting their independent judgment and autonomy," (p. 115), then perhaps from Siegel's view point, the morals of the individual student rather than the society will be paramount. From Adler's (1985) point of view, "there are no objectively valid and universally tenable moral standards or norms"

(p.xviii). If one takes the position that there are universal moral standards, then this "undermines the whole doctrine of natural, human rights, and, even worse, lends support to the dogmatic declaration that might makes right" (p.xviii). This gets back to the notion of education as a potential liberation tool. The myth that "we all agree on some fundamental aims of society can no longer hold up (Koli, 92, p. 33). Thus according to these arguments, it is untenable to consider teaching moral values in schools.

On the other hand, if schools are viewed in more instrumental terms as places to explore the values, social practices and skills needed for the dominant corporate order (Giroux, 1997), then teaching moral values would be in order.

Is Critical Thinking Biased?

The goal of critical thinking is thinking from which all bias, egocentricity and self-deception have eliminated (Lipman, 1991, p. 56). Although this may have been Lipman's goal, he fully realizes the limits of what is possible because all thinking takes place from someone's point of view, regardless of that person's intention of eliminating all personal biases. This notion brings up the question of whether a judgment can be rendered objective despite the influence or bias of the individual thinker. Bias is produced on the basis of social history emphasizing some facts and minimizing others. Hostetler (in Haroutunian-Gordon, 1998, p. 418), like Missimer (1988) and Siegel (1989, 1988), acknowledges the role of objective standards that would apply to situations where the truth of statements occurs. Context deeply affects the understanding acknowledged by critical thinking. For instance, Hostetler maintains that there are nonneutral standards, which may pertain only to a specific community, which are in question. In this case the rules of logic are of no use. For Hostetler, judgments depend on the events and the social values at a given time and place. In both cases logic may not be sufficient

to render an unbiased ethical judgment. Paul (in Haroutunian-Gordon, 1998) suggests that to engage in critical thinking is to gain a perspective of the perspective that one is presently immersed in (p. 419).

Balin comments that the "exercise of bias in critical thinking is conditioned on charges that 'normative' views of epistemology are not only not natural but exclusionary and therefore discriminatory toward alternative views of thinking and knowing" (in Alston, 1995, p. 228). If one views bias as being an inclination to value certain kinds of activities, ideas, etc. above others, then critical thinking can be viewed as biased. However, if one limits or qualifies one's critical thinking according to historic, geographic, and social contexts then one has made an honest attempt to qualify one's position by stating one's existing biases.

If one views bias in a negative sense as sexist, racist, and elitist, then this would undermine the spirit of critical thinking because it would exclude the practices of some groups. For instance, the claim that "critical thinking is aggressive and confrontational" could be construed as a charge of bias because since some people, such as women or members of certain cultures, prefer to work in a collaborative non-aggressive manner thus they would be excluded from using critical thinking because of its aggressive, confrontational nature. Norris (1995) brings up an interesting point regarding cultural differences and bias:

> The Inuit consider intellectual faculties [ihuma] to be the sine qua non of socialization and of adult competence. However, the key is that *ihuma* must be present and used in moderation: most inappropriate behavior is thought to be due either to the absence of *ihuma* or to too much *ihuma*. According to the Inuit, too much intellectual facility leads to too much concentration on one idea or thought, which can lead to a lack of consideration of people and, worse, to anger and brooding. (p. 202)

According to Norris (1995), cultural bias may strongly influence critical thinking.

If the purpose of a charge of bias on the basis of being exclusionary is to encourage a softening of a previously held definition of critical thinking, then the inclusion of the factor under question such as collaboration, inclusion, care, compassion or concern into the critical thinking domain would be effective (Alston, 1995, p. 231). Critical thinking would thus reflect a humanistic attitude. According to this line of thinking, "critical thinking is biased as currently conceived of or practiced but could be otherwise" (Balin, 1995, p. 194). Some of the main claims of bias in critical thinking fall under the foregoing category.

Claims that critical thinking neglects or down plays emotions, deals in abstractions, down plays lived experience, does not recognize one's situatedness and so on have been answered in part by the changed definitions of critical thinking by the members of the "second-wave" of critical thinkers (Case, 1996; Missimer, 1998; Paul, 1982, 1999; Siegel, 1989; Walters, 1994). According to the "second wave" the characteristics of a critical thinker may include empathy, imagination, intuitiveness, fair-mindedness, and open-mindedness.

It must be recognized that at this time there are no universal standards of judgment, which is why critical thinking is based on content-specific criteria. Critical thinking is an attempt to avoid the uneven application of the existing standards or criteria, but the people who are implementing critical thinking are themselves biased, thus making it almost impossible to achieve a truly unbiased situation. Again, this brings up the question of whether a judgment can be rendered objective despite the influence or bias of the individual thinker. In conclusion, in critical thinking, the self-correcting aspect, that allows for the possibility of correcting biases, provides an argument for attempting to answer the charge of bias (Balin, 1995, p. 196).

The Assessment of Critical Thinking

The majority of the formal testing of critical thinking has been done in conjunction with high school and college students using instruments such as the Cornell Critical Thinking Tests, Levels x and Z (Ennis and Millman, 1985), and the Watson-Glaser Critical Thinking Appraisal, Forms A and B (Watson and Glaser, 1980). The Cornell Tests are based on a foundational knowledge of Ennis' definition of critical thinking as "reasonable reflective thinking that is focused on deciding what to believe and do" (1987, p. 10). The test items are designed to indicate whether examinees have knowledge of certain principles of thinking (Ennis, 1980) and their basic application. The Watson-Glaser Tests are designed to measure "the ability to recognize assumptions, to evaluate arguments and to appraise inferences" (Norris, 1985, p. 41). As Norris (1985, p. 44) notes, in the United States, on both of the tests (the Watson-Glasser and the Cornel tests) the students' level of critical thinking was not extremely high. Low- test results, that reflected a decline in performance in areas that measured the decision-making and problem solving processes, were also noted by the Canadians, Bogner, Cassidy, & Clark (1997, p. 134). However, it is interesting to note that Bognar et al. (1997) were testing students from grades 4 to 10 rather than just high school students. However, in general, Norris (1985) comments that, "critical thinking ability is not widespread" (p. 44).

From a psychological point of view, critical thinking is not tested per se. Rather, the focus has been on errors in thinking or examining how the quality of thinking bears upon social relations such as obedience to others and authority over others (Norris, 1985, p. 41). Stanley Milgram's Behavioral Study of Obedience is an example of assessing the affects of quality of reasoning on social relations. Milgram's study assessed the degree to which people will allow their commitment to obey someone in authority to override other competing moral principles.

Against all predictions, "obedience to authority led to frightening and telling results" (Norris, 1985, p. 41). Because the subjects knowingly acted immorally, regardless of the absence of the threat of enforcement and punishment, the results of the experiment point to a breakdown in the link between critical thought and action.

In a classroom, critical thinking is evaluated in accordance with predetermined criteria and the context in which it occurs. Explicit indications of the students' reasons for their conclusions are usually required in order to "differentiate between deficiencies in thinking and deficiencies in background beliefs and assumptions between the examineer and the examinee" (Norris, 1985, p. 42). According to Case & Daniels. (1996, p. 5) a critical task might be to "take a photograph within the school grounds (or in the neighborhood community) that captures the particular quality of the community that you have been assigned." The assessment would entail evaluating the following: "how well each photograph fits the identified criteria for a good picture [and] are students able to give [appropriate] reasons for choosing a picture to go with a particular caption?" (p. 6). The focus of the evaluation does not imply that there is a correct answer, but simply a reasonable or justified response according to predetermined criteria.

Making a Difference: The Teacher's Role in a Critical Thinking Classroom

Critical thinking has a solid reputation amongst philosophers who have a deep understanding of its history and powers. However, it has not enjoyed such success amongst teachers. In Social Studies in British Columbia: Results of the 1996 Provincial Learning Assessment, Sodolsky, (cited in Bogner et al., 1997) makes the following suggestion:

> The particular decline on Higher Order and Critical Thinking items suggest a lack of
> teacher preparedness, and a need for increased in-service. It is not easy to teach
> critical thinking, and there are not many satisfactory resources available. Satisfactory

resources would be issue-focused, and based on controversial and challenging data. Given the various pressures on classroom teachers, it is not surprising that they rely extensively on social studies texts, but text-based methods are not the most effective methods for stimulating critical thinking. (p. 46)

Critical thinking is not a skill or disposition that can be learned in one in-service day as a "quick-fix." Critical thinking is not a piece of curriculum that can be successfully picked up and scanned the night before it is implemented because it involves both the philosophy in the actual discipline of critical thinking (content) and the philosophy involved in teaching it (practice). Critical thinking is more than a piece of curriculum, it is "somewhat like a way of life" (Taba, 1950, p. 45). What is a solution to this training dilemma? Paul (1992) suggests the following answer:

Only with quality long-term staff development that helps the teachers, over an extended period of time, over years, not months, to work on their own thinking and come to terms with what intellectual standards are, why they are essential, and how to teach for them.

(p. 2)

Another practical solution is put foreword by Case & Daniels (1996) who suggest that if critical thinking is to "take a central place in the classroom then critical thinking must be seen as a way of teaching the content of the curriculum" (p. vii).

Why don't teachers make use of critical thinking in their classrooms? Perhaps teachers have failed to ground their practice on sound philosophical ideals but have instead chosen to react to a crisis by instituting a new fad. When using critical thinking, perhaps some teachers are not comfortable feeling vulnerable when their role is not that of an expert but a mentor. Perhaps the beliefs implied in critical thinking run counter to the existing beliefs of the teacher.

Perhaps some teachers lack the disposition required to trust someone and in turn be trusted. Whatever the reason for not including critical thinking in the curriculum, the result is that education has failed to "foster rationality, independent judgment, and critical thinking" (Siegel, 1996, p. 121). Education has also failed to foster the ideals such as treating students with respect, and being knowledgeable about what is involved in so treating them (p. 121). In fact, education has even failed to recognize the foregoing traits as basic to education for critical thinking (p. 121). Would any amount of training give the teachers a critical thinking disposition? If this new critical thinking is successful then perhaps more teachers will feel more comfortable copying the way that their critical thinking colleagues have been teaching for years. Success breeds success. Change occurs when one becomes dissatisfied with one's practice. Maybe change will occur when teachers note the successes that their critical thinking colleagues are experiencing and thus more teachers will take the chance to see what philosophers of education have been saying about critical thinking for years.

What Has to Be in Place Before Critical Thinking Can Flourish

To take a stranger's vantage point on the classroom is to look inquiringly and wonderingly at the world in which one teaches.

Teachers have been vested with the responsibility of wielding enormously powerful influence. Everyone in the community has experienced the influence of teachers at some time during their lives. Some of the teachers are remembered with fondness and gratitude, others are remembered with hatred and fear. The teaching community has the potential to have a positive, or negative, transformative impact on their students, their families, and the community which surrounds them. How is it possible to have a positive effect in preparing students to meet the challenges of the world around them? What encourages students to "seize the moment," to

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strive for understanding, or put their ideas into practice? What gives the students the courage to "raise and explore questions about beliefs, claims, evidence, definitions, conclusions, and actions" (Patrick, 1986, p. 1). What will encourage students to have a "desire, a willingness, and a preparedness to learn [for] without this . . . nothing of consequence will be learned" (van Manen, 1991, p. 77)? The answer to some of these questions may involve creating an atmosphere of trust, humility, and respect in the classroom.

A Philosophy of Trust

What kind of trust transpires between students and teachers? Trust that you will be there for them when they need you. Trust that you will be with them as a fair and reasonable guide, advisor, and instructor throughout their journey. Trust that you will help them acquire the personal and academic skills needed to succeed to the best of their ability. Trust that you have their best interests at heart. In a moral society, trust is a way of affirming each other's moral worth. Our morals reflect our core beliefs. Our core beliefs are reflected in our worldview. In critical thinking, our worldview colors our perception of the evidence of critical thinking. If our worldview does not correspond in some way to that of the society in which we find ourselves, the conflict we experience "rattles" our core beliefs and causes us to feel great discomfort or rebellion: we experience a definite lack of trust in those around us. Trust is built when people share common moral "core beliefs" to which they repeatedly and publicly adhere. The critical exploration of ethical and moral questions is part of the fabric of classroom dialogue. Thus the profound effect of trust or lack thereof on a learning community is indisputable. Without trust, communication, inquiry, and critical thinking are limited. Lecturing usually prevails. According to Applebaum (1995), trust promotes trust; trust is contagious; trust is an integral part of the

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social and moral fabric of life regardless of the ethnic and religious heritage of the people. Trust is what keeps a moral community together.

Because trust makes one vulnerable and open to injury, trust is not to be given or taken lightly. Teachers can choose whether or not they wish to be vulnerable (as a human being possessing passions, imperfections, and emotions) as opposed to students who, by the very nature of being a student in a position of less power, are already in a vulnerable position. Since the students are more vulnerable than teachers, it is the teacher who must initiate trust. What do teachers have to lose by displaying trust through humility and compassion in combination with fairness and authority? Do teachers gain or lose power, prestige, respect or control? What is the price of trust?

A Philosophy of Humility

Humility is the most difficult of all virtues to achieve;

nothing dies harder than the desire to think well of oneself.

T. S. Eliot, Shakespeare and the Stoicism of Seneca (1927)

Now and then one reenters the classroom because one cannot remain a stranger forever. Very early in my teaching career, about the time that my advisor commented that if I was going to teach children, I might as well learn how to spell "children," I realized that I might as well be a little bit humble because I certainly wasn't perfect. I've never regretted being humble about the fact that I could be wrong or that I didn't know everything. It is actually a stress-free, sometimes humorous, way to increase your knowledge. My students do not seem to mind that I am not perfect because they know they are not perfect either. As a matter of fact, being able to laugh at our mistakes often strengthens our connections of trust and respect for one another. We are all

human beings capable of having an infinite number of imperfections as well as our "solid gold" attributes.

When engaged in critical thinking, humility is one of the "solid gold" attributes that encourage students to venture going beyond their store of "safe knowledge" to explore areas of learning that are new and thus somewhat risky and challenging. As part of humility we learn to treat each other with dignity and respect. Part of the "spirit" of critical thinking involves showing kindness, compassion and understanding for other points of view. These dispositions are also part of the circle of humility, trust, and respect. Humility can be a challenging disposition for some teachers. Some teachers may expect "uncritical deference" from their students as a sign of respect for their superior knowledge. However, if a teacher's self-esteem is based on being an expert then what kind of psychological damage occurs to that teacher when he or she is mistaken? Part of critical thinking is the ability to be open to the possibility of new knowledge. After all, knowledge is ever changing and thus, interpretations, claims, and arguments may be advanced or rejected as we advance our understanding (Hare, 1993, p. 39). How do teachers manage to balance between knowing and not knowing? Hare (1993) offers the following encouragement and advice:

> Teachers who embrace fallibalism recognize the possibility of improving their present knowledge and understanding. Their humility takes the form, not of despair with respect to knowledge, but of difference to reason and evidence. It is not the view that they have nothing to offer their students, but the Deweyan view that the learned can still learn. (p. 39)

Thus the classroom becomes a community of learners. Hopefully, the humility teachers and students display is near Aristotle's "golden mean"- somewhere in the center between arrogance

and self-depreciation. When faced with the dilemma of my own humility and critical thinking, I have enjoyed reflecting on the words of T. S. Eliot:

> We can at least try to understand our own motives, passions, and prejudices, so as to be conscious of what we are doing when we appeal to those of others. This is very difficult, because our own prejudices and emotional biases always seem to us so rational.

Trust, Humility and Respect for Students and Their Ideas

Do teachers care about what their students think or feel (Aoki, 1991, p. 3)? Put yourself in this hypothetical situation. Jane has come up with a theory that is different from anything you have ever heard of: should you shut her down or should you encourage her to think critically by inviting her ideas to become part of the class discussions? Do you want to encourage the reiteration of present knowledge or do you want to be adventuresome and allow the discussion to flow into unknown possibilities? Is your comfort zone more important than a student's struggle for understanding? How do you build trust with your students so that they will share their ideas with you? Do you care? Is curriculum lived experience as well as planned experience? (Aoki, 1991, p. 7) Many questions and concerns flood through a teacher's mind on a continual basis. Trust is a key element in encouraging student participation in learning. Palincsar et al. (1998) make the following comment about the role of trust:

> Interaction among diverse community members is likely to be high only if there is trust that what is shared will be valued by others . . . trust can be established if the community assumes that responsibility for the understanding is shared, and authority for knowing is internal and collective. (p. 9)

Working together to learn and understand is a very powerful tool. The risks that the students will take are directly proportional to the amount of trust that they have in the learning community. This point is particularly important for "students who have been traditionally silenced by the school system" (Applebaum, 1995, p. 449).

Are students capable of bringing new perspectives or knowledge to a discussion? How often have you heard the comment: out of the mouths of babes come truths? If we, as teachers, make the effort to listen, we can constantly learn from our students regardless of their age. Under these circumstances, teachers may experience "an unaccountable humility - a humility not easily defensible on any rational ground, and yet somehow nearer to wisdom than the easy self-confidence of many parents and teachers" (Russell, 1916, p. 147). For instance, when we were discussing geology and plate tectonics and related topics, Lenny, aged 7, asked me if lava was like the rocks in his sweat lodge. Not only did I learn how children make sense of new concepts but I also learned how a sweat lodge is built and the reasons why one might make use of it. By building a reputation for being a "somewhat humble," caring person who is interested in learning and understanding, I have also built strong bonds of trust and respect with my students. The problem with people not taking advantage of the students' multiple sources of knowledge may be a question of ego rather than rational thought.

In conclusion, the world of a critical thinking classroom is based on trust, humility, and respect. It is not based on power. Teacher modeling of the skills and dispositions of critical thinking is an effective way for students to develop a positive attitude towards critical thinking. Accordingly, there is a strong relationship between an "open, supportive, and structured classroom climate, where opinions on issues may be explored and expressed in a free and disciplined manner, and the development of critical thinking and attitudes supportive of it"

(Patrick, 1985, p. 3). Discipline in this case refers to orderly classroom discourse. Mutual trust, humility, and respect are paramount to establishing the climate for such a learning community.

The Pedagogy of Critical Thinking

The common view of promoting critical thinking is to provide students with opportunities to practice thinking (Case et al., 1997, p. 14). The assumption is that practicing thinking will improve students' critical thinking competence. However, unless instruction is given in the use of intellectual resources, then the practice may only serve to reinforce bad habits such as overgeneralizations and close-mindedness. For example, assignments like "take a position on . . .," may only serve to give credence to a student's existing prejudices. As such, practice may be counter-productive to the original goal of promoting critical thinking. Many of the "critical thinking" assignments may only invite "vague challenges" rather than critical thinking. Case et al., (1997) provide an explicit example of the foregoing problem:

> Social studies teachers are frequently urged to provide two or more competing
> accounts of a historical event and invite students to write their own history. Yet the
> tools for critically addressing this task are profoundly contextual. At least, three
> underlying issues may be at stake, each requiring different tools. Perhaps the
> problematic issue is the credibility of the authors of the documents. In this case
> students need to employ criteria for judging appeals to authority (i.e. the author has
> studied the topic, is a recognized expert in the field, is not in a position of bias).
> Alternatively, the issue may hinge on the reliability of individual observations
> described in the documents. If so, students need to employ criteria for assessing
> observational accounts (e.g. the observer is not in conflict of interest, is functioning at
> a moderate level of emotional arousal, has a reputation for being honest and correct,

has no preconceived notions of how the observation will turn out, made the report close to the time of observing). Or, the underlying issue may be a matter of deciding upon the most plausible inferences based on the body of accepted facts. This requires that the students be able to distinguish inferences from direct observations, and learn to assess inferences for their consistency with the body of evidence. (p. 14)

In general, the course materials commonly found in classrooms do not address the prerequisite "tools" needed to confront problems (Case et al., 1997, p. 14). Thus, the teachers, themselves must be knowledgeable about how critical thinking could be infused into the classroom curriculum.

Neither the hand nor the mind alone would amount to much

without aids and tools to perfect them

Francis Bacon, <u>Novum Organum</u> 1859

In response to the current pedagogy of critical thinking, Case et al. (1997) recommend that teachers work on three fronts:

1. directly and systematically teaching, in context, the range of intellectual tools, that include background knowledge, criteria for judgment, critical thinking vocabulary, thinking strategies, and habits of mind;

2. scrutinizing the questions and tasks asked of students to ensure that students frequently engage with bona fide critical challenges e.g. rich invitations to think critically;

3. developing communities of thinkers where critical reflection is valued and reinforced by infusing expectations and routines to think critically in every aspect of student' school lives. (p. 14)

If critical thinking is conceptualized as a quality, not as an activity, then it will guide any task that a person under takes. Under these circumstances, critical thinking could well be viewed as "a way of life" (Sears and Parsons, 1991; Taba, 1950). Crucial to this point of view, is the development of the dispositions of a "careful and conscientious thinker [for] no amount of skill will overcome the limitations of close-minded, prejudicial thinking"" (Case & Wright, 1997, p.14). While many teachers appear to support critical thinking as an educational goal, there is some evidence that their practice does not reflect this support (Wright, 1995, p. 66).

What can be done about the lack of critical thinking in classrooms? Perhaps the solution is to build on what already exists. Perhaps the solution is to encourage those teachers who are already engaged in good critical practices to work with their colleagues toward building a community of critical thinkers whose successful ventures may encourage others to join them. Perhaps the solution is to decrease the tension between curriculum as planned and curriculum as "lived experience." Again, more questions surface. Will teachers accept their roles as teachers capable of teaching and not just technicians capable of implementation? Will teachers recognize that "one's way of knowing, thinking and doing flow from who one is" (Aoki, 1991, p. 21), and thus will teachers have the "intellectual courage, humility, integrity and perseverance" (Paul, 1990) to become critical thinkers themselves? In a perfect North American school, each teacher's classroom will be a "unique and precious place, a hopeful place, a trustful place, a careful place, essentially a human place dedicated to ventures devoted to leading out . . . from the 'is' to new possibilities yet unknown" (Aoki, 1991 p. 9). In a classroom, or anywhere else for that matter, critical thinking provides a way to venture into the unknown and decide what to reasonably believe and do in the face of enormous change and challenge. Sometimes in life, it is the simplest terms that remain in one's mind as being the most common-sensical explanations

for things that are complicated. Thus, I will conclude with Postman & Weingartner's (1996) words in reference to the "new education" which is heavily based on critical thinking concepts: "The purpose [of the new education] is to help all students develop built-in, shockproof crap detectors as basic equipment in their survival kits" (p. 218).

In Chapter 2, I have examined both the historical background of critical thinking and what the academic community is currently saying about critical thinking. Although there is a great deal of discussion concerning teaching philosophy to primary aged children (Johnson, 1987; Matthews, 1995; Palermo, 1995), there is very little research which concerns teaching critical thinking per se to primary aged children and so I became interested in finding out just how young children view the concerns, issues, and problems of their world. In Chapter 3, I provide a description of the following components of the research study: the design; the rationale behind the selection of the participants; and the method of collecting, organizing, and analyzing the data.

Chapter 3

Methodology

We do not need theories as much as the experience that is the source of the theory.

R. D. Laing, The Politics of Experience, 1927

What is missing from the knowledge base of teaching, therefore, are the voices

of the teachers themselves, the questions teachers ask, the ways teachers use writing

and intentional talk in their work lives, and the interpretive frames teachers use to

understand and improve their own classroom practices.

Cochran-Smith & Lytle, Research on Teaching and Teacher Research, 1990

As a graduate student in the fall of 1999, I was writing a proposal for a bid to evaluate

the BC social studies curriculum when I read the document: Social Studies in British Columbia:

Results of the 1996 Provincial Learning Assessment (Bognar et al.,1997). Bognar et al.'s (1997)

work contained the following information in relation to grade 4 students (grade 4 was as low as

they tested):

> The Research Team finds student performance on the open-ended problem solving
>
> forms disappointing, since there is still a large percentage of students showing
>
> weaknesses in various stages of the decision making model, and particularly at the
>
> final stage of actually reaching a decision and providing reasoned justification for the
>
> decision. In fact, the proportion of students doing well on these exercises has declined
>
> since 1989. (p. 46)

Bognar et al.'s (1997) statements piqued my interest. Why were the test results low? I began to

wonder if, in fact, children as young as 6 to 7 years of age, were capable of using critical

thinking skills and critical thinking dispositions. I wondered if critical thinking was a matter of

natural ability, opportunity, and environment or if critical thinking had to be taught via specific lessons. I wondered if critical thinking was more suited to being a "way of life" or ethic (Sears & Parsons, 1991; Taba, 1950). Perhaps critical thinking was something that was embedded throughout the curriculum rather than the focus of a few lessons. Foremost in my thoughts, I wondered how young children, age 6 to 7, could be involved with critical thinking.

Research Question

The purpose of my research was to enhance my understanding of whether or not young children, age 6 to 7, use critical thinking as an opportunity for thoughtful analysis of issues or problems that are of interest to them. I support the view that critical thinking is a way of helping students work within the content of the curriculum and as such, there is a set of intellectual tools that will aid in developing the student's reflective competence (Case et al., 1996. p. xiv). Approximately 13 to 15 students from a class other than my own, (in this case, Mrs. Joy Antonia's grade 1 students), were introduced to a problem or question requiring investigation through literature in Language Arts. To help students think through the problem or question and to assist them in understanding and developing as a critical thinker, I discussed the following areas with them: the background knowledge required to reflect upon the problem; new vocabulary; the criteria or grounds for deciding which of the alternatives is most reasonable or appropriate; the concepts of being open-minded, fair-minded, and independent-minded; and the different ways of thinking about the problem or question. The study, which involved approximately 9 hours of student time, was conducted during the months of May and June 2000. This research project is the culminating feature of my Master of Arts degree from the University of British Columbia.

The Participants of the Study

The participants of the study were chosen according to practical factors. Being a full time teacher in a medium sized elementary school; it was practical, in terms of time and location, to select students from my school. This particular school, Dallas Elementary, is located in the outskirts of Kamloops, British Columbia, in a predominately Caucasian, middle-income neighborhood. Most of the families are interested in becoming involved in some aspect of their child's education, especially during the first 3 years of their schooling. Those students who are struggling with learning to read receive consistent support from an internal school team and discipline problems in the school are handled with firm, consistent, sensitivity so the student moral is generally positive, helpful, and cheerful. The participants for the study were selected from a class other than my own in order to satisfy the concerns expressed by the Research Ethics Review Committee at the University of British Columbia. The committee's concerns were based on the fact that if I used my own students in the study, it might be construed as jeopardizing the student's later classroom situation in terms of different report card comments based on my deepening knowledge of their performance or differential treatment or feelings of alienation for the non-participants. Rather than set out to prove that these concerns had no basis in my particular instance, I chose to avoid the problem by selecting someone else's class. This proved to a wise decision for I was then able to observe the students from an researcher's objective viewpoint rather than from the viewpoint of someone who knew these particular students well.

I chose the students from Joy Antonia's grade 1 class for several reasons. First, their age was consistent with the age group that I was curious about. Second, Joy and I had been successfully working together in the field of critical thinking for almost two years and thus her

interest, input, and advice would serve as a "sounding board" for my ideas and findings. We were both interested in doing research concerning how young children use critical thinking as an opportunity for thoughtful analysis of issues or problems that are of interest to them. Third, I was aware that since September of 1999, both Joy and I had been simultaneously teaching the basics of the critical thinking tools and dispositions that we would be using for our research studies which were scheduled to take place from April to May of 2000. Thus, when we exchanged classes to do our research, both groups of students had some prior experience in thinking critically. In general, we had similar educational and behavioral goals and expectations for our students. Fourth, Joy's class contained an almost equal number of boys and girls, so gender was not an issue. Her class also contained a full range of students from those who found academic and social skills to be a challenge to those who were academically above average according to the normal expectations for this age group. Fifth, I was familiar with the members of her class and they were comfortable working with me because Joy and I team taught them in Gym period and Joy and I exchanged classes so that I taught them during Computers and Story Time. Thus, the naturalness of the research situation could be preserved.

The number of participants in the study varied from 13 to 16 due to absenteeism, commitments to other programs such as Learning Assistance, and a lack of parental consent to participate in the study. The students, who did not wish to participate in the study or whose parents did not sign the consent forms, took part in the instruction and activities and although their data was originally recorded on the blackboard etc., their particular data was not later documented for the purposes of the study. In actual fact, none of the grade 1's realized that the activities etc. that they were doing were part of my research so no one felt any discrimination. It appeared that the students just thought that it was fun to stay longer than usual and do some

interesting things in my classroom. I never gave them any indication that they were being observed for research purposes.

After beginning the first of the three studies, I quickly realized that the written responses of the grade 1's would be limited by their ability to express their thoughts in writing. I had two choices: one was to tape record their thoughts on an individual basis and the other was to find a way to help them write their thoughts and ideas. The tape recording option would give me depth but was limited to a few case studies and was constrained by time commitments. The second option was to get people to scribe for the young students. This way I would have a broader cross section of answers with which to work. Consequently, I enlisted my own class of grade 2's to work as scribes for the younger children. My students were already familiar with the concept of "helping" meaning "rendering assistance" not "giving out answers" so, in order to work within the guidelines of my study where the data collected was specific to Joy's class, I taught my class simple questioning techniques such as asking: What makes you think that . . .? or Is there any other reason that you believe that . . . ? My class took their scribing task very seriously. There was a huge surge in enthusiasm and interest on the part of both the grade 1's and the grade 2's. The grade 1's were delighted to have someone honoring their ideas by actually taking time to write them down and read them back to confirm that what was written reflected the original intent of the speaker. The grade 2's were aware that I was relying on them to be responsible, trustworthy, members of the project and they rose to the occasion with flying colors. The added unexpected benefit to using the grade 2's was that they were able to keep the grade 1's focused on the tasks until they felt they had met the specific criteria. The overall result was a lot of happy people and some great data.

The Classroom Environment

The study took place in my bright and cheery classroom. The physical environment consists of the following: one teacher desk and chair, the teacher's stool, 22 student desks and chairs which are constantly rearranged, at the discretion of the students, into groups ranging from 2 to 8 members; a 6 foot, low, round table with chairs; 4 recovered motor home cushions which will seat 12 to 15 people in a friendly fashion; a large number of shelves, cupboards, and counters; a long windowsill with 6 colorful pots of plants in various stages of experimentation; and in one corner, resided a 16 foot by 16 foot section of gray carpet which is used for sitting during discussions..

Previous to beginning the study, my goal was to provide an environment in which students would have the opportunity to communicate with each other and thus gain new understandings using the skills and dispositions prevalent in critical thinking. I met this goal by establishing a situation of trust and rapport with the participating students. All of the students knew me well and were comfortable working with me.

Rationale For Using Qualitative Research

In the context of my research, I used Lawrence Stenhouse's (1975) definition of action research as a "self-reflective process that is systematic, critical inquiry made public" (in Feldman, 1998, p. 28). My goals were to improve my practice and to improve my understanding (meaning making) of the educational situation in which the practice is located.

Qualitative research, in the form of teacher research, provides an opportunity to question, experiment with and assess the "lived world" of the classroom. Huberman (1996) suggests the classic criteria for all interpretive research generally include the "provision of evidence, consistency, freedom from obvious bias, and perceptions of the people involved"

(p. 128). My research reflects these criteria. The constructivist paradigm, which influences my work, is based on the following Huberman's (1996) argument:

> Our values and biases dictate many of our methods and findings; our knowledge is purely situation specific and socially constructed, and so there are many plausible "truths," corresponding to many a priori assumptions and methods of investigations.
>
> (p.127)

The Dallas Elementary School accreditation goal year for the "school year" 2000/2001 is to encourage both staff and students to increase everyone's ability to think critically. Consequently, I chose teacher action research as a qualitative method of study because I wanted to focus on the practical inquiry nature of the investigation as a way to generate or enhance practical knowledge (Anderson et al., 1994; Clandinin & Connelly, 1995). My hope was that by understanding more about the relationship between young children and critical thinking, then I would be able to facilitate more critical thinking opportunities within my classroom and school. Carson (1990) supports this ambition by commenting that "despite the different forms it takes, all action research has a common intention: the belief the we may develop our understandings while at the same time bringing about change in concrete situations" (p. 167). Teacher action research allowed me to explore the "lived world of teachers and students" (Aoki, 1991, p. 18).

By using an inductive approach, I attempted to make sense of the situation without imposing preexisting expectations on the phenomena under study (Mertens, 1998, p. 160). I found it difficult to be able to let go of the "understandings that claim correctness and to approach with bowed humility, with an attitude of surrender, the sound of the voice that calls" (Aoki, 1991, p. 22). The influence of my earlier scientific training kept prompting me towards forming a hypothesis that I would attempt to prove or disprove. However, I knew that a

scientific method would limit both the scope of my investigation and the breadth and depth of my understanding. So, I began with an idea, something that piqued my interest and caused me to wonder. Rather than proving or disproving a particular hypothesis I wanted to see what was already happening or what would happen in an "if-then" situation. Consequently, I either found or provided the situations in which the idea could be studied. It was like dropping a stone into the water and watching what would happen. After reflecting on the outcome of a study I would come up with a new idea or question as a result of what I had learned or observed. My purpose was to learn and be guided by my inquiry. Qualitative research supported my study because it is generally naturalistic, realistic, and concerned with understanding phenomena from a participants' perspective with the assumption that "multiple realities are socially constructed through individual and collective definitions of the situation" (Shumacher & McMillan, 1993, p.14).

Field study was included as part of my method because, according to Huberman, (1996) "theory is generated from a continuous interaction between field work and emerging explanations for what is happening there" (p. 137). Thus, using a qualitative teacher action research model in combination with field studies was appropriate for the purposes of my research.

Preference for using a teacher action research approach reflects my belief that this study of critical thinking is best served by this type of data collection and analysis. In my research, the participants are not representative of society or of all human beings. The descriptions of events, writings and discussions are researched and reported by me - with my biases and assumptions. The descriptions thereof can be studied meaningfully, given that they

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take place within real-life situations. For this reason, they can be used as a basis for further research.

My Research Design

In a technical sense, there were three aspects to the study. The first aspect included observing all the students as they engaged in small/large group discussions involving specific critical thinking activities as a result of listening to literature that was based on a current topic or theme. The critical thinking activities were based on questions, tasks or problematic situations which invoked critical reflection in order to "assess the reasonableness of plausible options or alternative conclusions - in short, the task[s] . . . require [d] more than retrieval of information, rote application of a strategy or mere assertion of a preference" (Case et al., 1996 p. xiii). For example, one of the activities involved the concept that "things are not always what they seem." The critical question was: Is the Wolf in The True Story of the Three Little Pigs, by Jon Scieszka, good or bad? In order to make a decision, small groups of students initially identified all the evidence from the story that told them about the wolf's character. Next, the class reconvened on the carpet where they shared, and at times, defended, their ideas concerning the moral character of the wolf. After sharing all the information the students re-thought their original conclusions and decided whether or not they wanted to change their original decisions about whether the wolf was a good or bad character. In the end, the students each produced their own critically justified opinion about the wolf's moral character.

As a facilitator, I kept the flow of conversation "on task" in the large group situations, but this role was redundant in the small group situations as the students seemed to have very little difficulty keeping the conversation appropriately focused on the issues. It helped to have

specific types of required outcomes and time lines in place. The times were adjusted, as needed, much like a fisherman paying attention to the habits of his "catch" before landing it. In general, I watched, listened, wrote notes, made reference charts of their ideas and asked for clarification when the meaning or intent of their reasoning was unclear. I did not use any intervention beyond prompting or probing during the observation tasks. Care was taken to ensure that each student had input into the discussions through various strategies such as passing around a "talking stick," taking turns in a circle format, checking off the names of those who had spoken, or simply asking, "Who hasn't had a turn?" The option to "pass" and remain silent was available but not generally discussed in the hope that this "bypass" option would not be needed. As it turned out, everyone spoke freely.

The second aspect of the study involved asking all the students to express their justified conclusions or reflections through writing or drawing about one area of the problem or challenge. The criteria for writing was specific to the task involved. The students were asked to explain their work if the spelling, meaning, or intent was unclear.

At this time, the students could choose whether to work in a group or by themselves. When involved with critical thinking tasks, Bailin, Case, Coombs and Daniels (1993) maintain that group work is useful when clarifying meaning, talking through a problem, or sorting out a confusing issue. Furthermore, as Lipman (1991) notes there could be some limitations to one's field of thinking if one was to remain by oneself because "our deductions are derived from premises we already know" (p. 4). On the other hand, there is value in being in a quiet place and thinking things through on your own in order to make sense of all that you have heard or thought. Thus, in the study, the choice to be alone or with others was usually given as an option. Most of the students chose to work with at least one "buddy."

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At no time during my work with Joy's grade 1 students did I make any comments that would be interpreted as value judgments. For the most part, my contributions to discussions consisted of probing or prompting questions in search of more information in order to ensure that everyone understood the point that was put forth.

The third aspect of the study was based on an oral inquiry process (Cochran-Smith & Lytle, 1993; Feldman, 1999) that included collaborative conversations (Feldman, 1999, p.125) and dialogical reflections (Huberman, 1996, p. 128). Two doors down the hall from my classroom, I was fortunate to have a "critical friend" and colleague, Joy Antonia, who actively listened, questioned, problem-solved, and generally extended my thinking in a positive environment. Joy is also an experienced teacher who is completing her Master of Education degree with a focus on critical thinking. Consequently, our frequent conversations were rich in knowledge and insight. Since Joy was also involved in a similar research project, I, in turn, acted as her critical friend thus I could look at the issues through both points of view. These collaborative discussions extended our thinking immeasurably.

The Limitations of the Research Design

One of the limitations of this research design is that the outcome of the research is limited to the context in which it was derived. Huberman (1996, p. 137) suggests that "the more contexts explanations fit, the more 'law like' we can consider them, while remaining fully aware that they are neither value free of paradigm independent" (p. 137). Perhaps this study could be extended into other contexts as part of another research project.

Some people may view the fact that this research does not assume that "knowledge" in the traditional, formal sense will be gained from this study could be construed as a limiting

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feature. However first and foremost, this particular research is intended to generate a "qualitatively distinctive body of understanding, skills, and dispositions" (Huberman, 1996, p. 124) in regard to critical thinking.

Another limitation is the ability of the teacher to also assume the role of the researcher. As Huberman (1996) points out, it is very difficult to look at events as a researcher when one is participating as a teacher. However, with practice and self-discipline, I have found it not only possible, but highly interesting and challenging to change roles at will. In preparation for this study, I engaged in several "practice studies" with my own class in order to successfully learn how to disengage myself as a teacher and assume the role of a researcher. Even using a class other than my own for research purposes did not completely eradicate the teacher/researcher dilemma, because as a teacher, I was still involved in presenting the "lessons" even though as a researcher, I was taking "field notes."

Possibly the grade 2 scribes (even though they took their work seriously) may have shaped the "data-gathering" too, in a way that could be construed as a "limitation."

An additional limitation of the research is the strong influence of the disposition of the teacher (see Chapter 2) and the influence of the learning environment thus provided. Consequently, the results of this research are severely tied to the particular context in which it was studied.

Chapter 4

Data Collection

The Setting

Before getting started on a challenge, the students were seated on the carpeted section of the floor in random fashion or in a semi-circle facing the reader or speaker in order to facilitate discussions. When working in small groups of 2 or 3, the students would gather to discuss their topic at any and all areas of my classroom. Large group discussions took place back on the carpeted area. Individual work was accomplished anywhere and everywhere in the room. Although the assignments were produced on an individual basis, the students tended to group themselves for social and discussion purposes. Because there were often as many as 40 students working at the same time, it was not uncommon to see them sprawled out on their tummies while writing or drawing. The general atmosphere was comfortable, relaxed yet charged with an intensity that was highly interesting. There was a general buzzing sound much like you hear in a flower garden with lively bees. I have heard this sound before, mainly when I have managed to come up with a perfect situation where the students are happily, independently and thoroughly engaged in their activity.

Throughout the small group work, the chatter was friendly, focused and lively: the large group discussions were thoughtful, enthusiastic, and respectful.

As we worked our way through the critical challenges, I discussed the following critical thinking features where appropriate: new vocabulary; the criteria for deciding what would constitute being reasonable or justified answers; the concepts of being open-minded, independent-minded, and fair-minded; the influence of new ideas or evidence; and the concept that decisions may also have consequences.

Knowledge Base

Before beginning on the actual study questions, I ensured that the students already possessed sufficient background knowledge so that the knowledge aspect of the task was not an issue. In this case, knowing is assessing the "kind, quality, and quantity of information based on a given topic, subject or issue" (McLaren, 1988, p. 22). A typical query might include the following: What have you heard about this question (problem, name of subject) before? Tell me something you already know about it (the subject). According to McLaren (1988):

> Many adults assume (wrongly) that primary children are 'empty' of knowledge or what they have learned to date is either trivial or wrong . . . young children may not have sophisticated language, and they may not have assembled facts into concepts, but they do often have knowledge about a topic. (p. 22)

Many adults tend to view young children as "empty vessels" waiting to be filled with knowledge. It has been my experience that this attitude towards children does each party a disfavor. The children lose out because the ensuing discussion may or may not be at a level suited to their needs or ability and the adults lose out because they do not have the opportunity to view the issue or problem from the child's point of view based on their existing knowledge base.

The "Scribes"

During large group discussions, I recorded the student's ideas on charts fastened to the black board or on note- paper that was kept in a folder. When the activity required keeping notes in a small group situation, the students did their own writing on sheets of paper that were

collected when they were finished. I listened to their conversations and probed or prompted for further information or clarification when necessary.

After one written activity, I changed strategies and instead of each person writing their own idea, I had the older students (who had been "trained" how to probe for information and were not actual participants in the study) sit with the younger students in order to scribe their answers for them on an individual basis. Both parties took their job very seriously and thoroughly enjoyed the task. The data collected via my "helpers" generally contained a more detailed description of the participants' reasoning than I was able to collect via group discussions or written work. As well, the flow of the student's ideas was not frustrated by the student's weak writing skills.

The Preservation of "Naturalness"

In order to preserve the naturalness of the research situation, the targeted group was included as part of a larger group and everyone participated in all the activities. As I mentioned previously in Chapter 3, no one was aware of who was, or was not, part of the targeted group. As a matter of fact, I believe that the younger students were totally unaware that what they were doing was actually part of my research study. They seemed to think the activities were just a natural part of their regular school day. Again this was to preserve the naturalness of the situation. However, my grade 2 students were aware that this was research because of the training they received in order to scribe for the younger students. In order to preserve everyone's sense of community, all the students' responses were initially recorded. Later, I privately deleted the responses of those students who were not officially participating in the study. When recording information, I focused on selecting only the data that was pertinent to

the topic and not reporting anything and everything so that the reader would not be overwhelmed by a "vacuum cleaner approach" (Wolcott, 1990, p. 35).

Time

The time slot for the research study was the same period that I normally met with the students for "story time." This timetable and the fact that I was reading books, was used to continue to preserve the naturalness of the situation. The observations required about 9 hours of class time over a period of 6 weeks. The class time ranged from 40 minutes to 80 minutes, depending on the task and the degree of student interest and involvement.

Data Analysis

The data consists of observations recorded in "field studies," students' writing/drawing and records of my "collaborative" conversations with my "critical friend," Joy Antonia. The data was triangulated according to the corroboration of evidence as shown by the three data sources.

The stories and critical thinking activities in Critical Challenges for Primary Students by MacDirmid et al. (1996) provided the inspiration for the three challenges that were undertaken by the students. Throughout the study, I edited the students' work for spelling and punctuation. Additional comments were added in square brackets when I felt that the intent of the comment or evidence was not clear.

Critical Challenge - Study #1

I Wondered

I wondered if the students would be able to justify their opinions with evidence. I wondered if the students believed everything that they saw or heard at face value. With this in mind, I began the first study.

Overview

First, the students considered the traditional story of The Three Little Pigs, which describes the wolf in terms of being a bad character and the pigs as lacking in common sense. The moral of the story is generally: use your common sense and things will turn out fine. Then they heard The True Story of the Three Little Pigs by Jon Scieszka, which contains the same basic story line but it is told from the wolf's point of view. The story is reminiscent of someone coming up with a great story in order to extricate themselves from a tough situation and, as such, the wolf gives substantial evidence to make his points. The story supplies plenty of "food for thought." Using the evidence found in the story, on an individual basis the students decided 1. if the wolf is of good moral character and 2. if the evidence presented by the wolf is believable.

Study 1 .1

Method:

After coming together and sitting on the carpeted floor as a large group, I began the period by having many students take part in the retelling of the original story of The Three Little Pigs. Next, I reviewed the concept of evidence or proof. While the students brainstormed for evidence of the wolf's character (character as being "distinguishing features" rather than a "moral trait"), I quickly jotted down the students' points:

Data for Character Traits and the Evidence Thereof

The wolf was:
Stupid:

- He forgot to see if there was anything at the bottom of the chimney;

- He didn't even know if the brick were strong or not; he thought he could blow them down;

- He asked if he could come in [to the pig's house]; he should of just got a disguise;

- He climbed down the chimney; I would climb up the chimney if I felt something hot.

Grumpy:

- Maybe people were starving him; maybe he woke up early.

- He wanted the pigs but they just ran away.

Mean:.

- He didn't have any breakfast he only had one tiny toast [being hungry makes him feel mean].

- He wanted to eat the pigs up.

Hungry [Driven]:

- He was so hungry; he had to do it.

Tricky:

- He fooled the pigs by going down the chimney.

Fierce:

- He tried to eat the pig.

Envious:

- Instead of him having the food; the pigs had the food.

Bad:

- The pigs made their houses and did all that work and he just blew them down.

Analysis

The students certainly had no difficulty giving relevant evidence to justify their conclusions about the wolf's character. No one was hesitant about speaking; the students were adamant about their points.

Reflection

What I found fascinating was that no two students' answers were the same; the students all enthusiastically expressed their own unique points of view. The students were definitely "independent minded" (Case et al., 1996). No one asked, "Am I right?" They apparently didn't feel any need to view themselves as right or wrong. The students seemed pleased that I was taking the time to write down their answers in my book. They were tremendously patient when waiting for their turn to speak. When they realized that I was really honoring their points of view, they seemed to put extra effort into the task.

An unobtrusive tape recorder may have speeded the process up, but I was reluctant to use one as when I tried a similar activity with my own students, the novelty of the recording aspect completely threw them off their original focus, thus forced them into an unnatural situation. Their speech became stilted and many of them just plain acted "goofy." Rather than risk repeating this situation, I simply wrote the answers by hand.

The other area that I found fascinating was the students' natural ability to display some of the "character" aspects of critical thinking. For instance, they showed: imagination; caring/empathy; intuition; and fair-mindedness. It was interesting to see that only one student judged the wolf on a moral basis by labeling him "bad" although it could be argued that there was lots of implicit moral content in the judgments of "mean, envious" and even "stupid."

Study 1.2

Method

Next, we discussed the issue of how people could have a shared experience and yet get different interpretations of the events according to their personal points of view. The students related their experiences in similar types of situations. I was confident that they understood the concept. After asking the students to keep the previous concept in mind, I read aloud The True Story of the Three Little Pigs by Jon Scieszka. At this point they were listening to the story for details, evidence of the wolf's character, and enjoyment. In the True Story of the Three Little Pigs, the evidence that the wolf gives could be construed as plausible or even reasonable on one hand or completely false on the other. It depends on what you are willing to believe according to how you view his moral character. After a brief group discussion, I asked the students to give me all the evidence from the text that they could remember which indicated the wolf's character could be considered "good" or "bad". Some of each trait was not an option. **Working in groups of 3**, they again had to support their decisions by giving evidence. The following results were collected:

Data Concerned with Being Able to Arrive at a Morally Justified Conclusion

The wolf was:

Bad:

- Because he blew the house down. (It was just an oops!);

- Because he eats the pigs;

- Because he tried to eat the pigs;

- Because it said in the real story, "I will try to blow your house down."

Good:

- Because he had to eat or he will die.

- Because he wanted to eat the pigs. They were dead anyways.

- He made a cake for his grandma to be nice.

- Because he needed a cup of sugar: he was going to make a cake for his grandma.

- I think he was not lying because he just wanted a cup of sugar for his grandma.

- Because he was just a little hungry.

- Because he covered his mouth when he sneezed; it's ok to eat the pigs when they are dead.

   [The wolf's sneeze knocked down the house which killed the pigs.]

- Because maybe he was hungry. It's good to eat when you are hungry; it makes you grow.

Analysis

Again the students had no difficulty making a decision and supporting it with evidence. They are very aware of what they consider to be right or wrong.

Reflection

   What interested me was again, the use of the "character point of view" in their display of critical thinking. For instance, the following traits were again displayed: empathy (this was not to say that all the students agreed whether the wolf was good or bad, but simply that they empathized with the circumstances in which the wolf found himself); fair-mindedness; open-mindedness; and emotion. Only 3 students judged the wolf on a completely moral basis, i.e., if you do something considered wrong by someone's moral rules, then you are bad regardless of the circumstances. I was amazed that even when the students were asked to judge the wolf on a moral basis, they complied, but in a way that still reflected a natural form of critical thinking. They were willing to look at extenuating circumstances.

Study 1.3

Method

Two days later, the students and I met again as a group on the carpet in my room. After rereading <u>The True Story of the Three Little Pigs</u> to the students and discussing the appropriate critical thinking vocabulary for the next activity, I asked the students to see if they could find any inconsistency between the wolf's statements and his behavior. Because they were only grade 1's, some of whom were not too comfortable printing much on paper, I gave the grade 1 students each a grade 2 "scribe" for the duration of the writing activity in hopes of getting a clear picture of their thoughts. This next activity involved writing down something that the wolf said or did and giving evidence that supports the wolf's position or giving evidence that questions the wolf's version of what happened. The grade 2's were advised not to give the grade 1 students any hints, suggestions, or possible answers. However, if their "grade 1 friend" was stuck or if what their "friend" said was unclear then the grade 2 "scribes" were allowed to prompt or probe for further information. It was delightful to see the serious dedication that both sets of students brought to the task. The grade 1's were thoroughly pleased to have someone write down their thoughts. They seemed to swell with pride at the importance of the occasion. The results are as follows (my editing regarding spelling and punctuation):

Data Concerning the Inconsistency Between the Wolf's Position and His Statements

1. The wolf said he was making a cake for his granny.

> ### Supporting Evidence:

- He had no more sugar; he went to get some.

- The wolf said he needed a cup of sugar for his granny's cake.

- He would need a cup of sugar if he ran out.

Questionable Evidence:

- That he would make a birthday cake for a wolf.

- The cheeseburger [in the illustration] –It had bunny ears and a mouse mouth; he doesn't make cakes.

- Wolves don't eat cake because they eat cute little animals like bunnies, sheep and pigs.

- The bunnies and stuff are already in the cake [illustration].

- Does the wolf have a grandmother? I don't think the wolf has a granny.

- He blew the house down when he went to his neighbor's house [to get the sugar].

2. The wolf said. "Hey Mr. Pig, are you in?" [He wanted a cup of sugar.]

Supporting Evidence::

- It's true because it said [in the story].

Questionable Evidence:

- I think the wolf was lying because he had rabbit ears in his lunch; he wanted to eat the pigs.

- Wolves can't talk.

3. The wolf blew the house down [but not on purpose].

Supporting Evidence:

- He had a great sneeze and blew the house over. I think it was an accident.

- He said it was because he sneezed a lot. [The wolf's sneeze blew down the house.]

- Straw is light and fluffy.

Questionable Evidence:

- I think the wolf blew the house down because he wanted to eat the pig. He liked eating pigs.

- He didn't have a cold.

Analysis

The activity was very difficult for them to understand at first. Throughout the time that we worked together, I went over the criteria twice and they seemed to get the idea. When it came time to decide whether the evidence was supporting or questionable the students put their reasons in what seemed like the wrong boxes·but after further individual clarification of their intent, I could see that their point of view was reasonable under the circumstances. An activity of this degree of difficulty is probably better suited to discussions on an individual interview basis at this age. This is not to say that the students did not understand the concept but simply to comment that it was difficult for the students to put their thoughts in words.

Reflection

Originally, I considered giving the students the pieces of evidence and then having the students judge the pieces accordingly. However, I opted out for letting the students do both aspects of the task - both the choosing of the incident and the judgment of the evidence. That way I felt the students would choose what was meaningful to them personally. I was very pleased when they managed to work with this challenge. Although I am fairly certain that the grade 2's did not give the grade 1's any answers (the content and style of the answers is definitely indicative of grade 1 work), I am sure that having the grade 2's act as scribes has allowed the grade 1's to give me written work that more accurately reflected their thoughts. Using the older scribes had the added bonus of keeping everyone focused long enough to complete the task in one sitting. It was kind of a "working" social occasion.

On the whole, the grade 1's are not easily fooled. They do not believe everything they see and hear if the evidence is not there to back the statements. Thus, they are quite capable of

judging evidence as being reliable or not in the foregoing context. Because the students were familiar with the wolf in The Three Little Pigs, the wolf did not have a whole lot of *"prima facie* credibility."

Collaborative Critical Reflection of Challenge #1

Joy Antonia, who was acting as my critical friend, and I were amazed at the length of time that the students were willing and able to sustain their focus on the challenge. Both periods were an hour and twenty minutes long. Under most circumstances, 30-40 minutes of almost anything would be the maximum length of their attention span. We agreed on the positive value of using scribes to help record the grade 1 students' thoughts.

Because of the sincere, convincing nature of the wolf in the story, The True Story of the Three Little Pigs, we thought many more of the students would function on a superficial level and now see him as the good guy. It was interesting to note that they realized that the wolf probably did eat the pigs but the students were very "fair-minded" in the final aspect of their character judgments.

Critical Challenges - Study #2

I Wondered

I wondered how the students could use critical thinking in a situation where an action is morally wrong but the reasons for it are understandable.

Overview

The book, It's So Nice To Have a Wolf Around the House, by Henry Allard, evokes a huge range of emotions from empathy to outrage. The wolf, Cuthbert Q. Devine, answers a newspaper ad requesting a housekeeper and thus comes to live with a sad old man and his

somewhat lethargic pets. Through a series of kind and thoughtful acts, the wolf manages to liven up the household. After a conscience attack, the wolf, who had previously robbed a bank, turns himself into the police to ask for forgiveness. The story ends with the wolf becoming very ill and the man and the pets deciding to forgive the wolf for his past actions.

<u>Study 2.1</u>

<u>Method</u>

After coming together and sitting on the carpeted floor as a large group, I began the period by introducing the book, <u>It's So Nice to Have a Wolf Around the House</u>, by James Marshall, with the emphasis on paying particular attention to the character of Cuthbert Q. Devine. After reading the book, we discussed what a "conclusion" involved (an answer after all the evidence has been considered) and the difference between being a hero and a scoundrel. In groups of 3, the students brainstormed evidence from the story to support both the following conclusions - Cuthbert as a hero and Cuthbert as a scoundrel. The grade 2's continued to act as scribes. The results are as follows:

<u>**Data Showing Whether Cuthbert Is a Hero or a Scoundrel**</u>

1. Cuthbert is a hero because:

- He helped the old man and the family.

- He paid the bills.

- He cooked for the old man.

- He helped the man to bed.

- He looked after the animals.

-He massaged his [the old man's] toes.

- He taught them [the old man and his pets] a lesson.

- He made the fish's tank nicer.

- He helped the fish move his bones.

- He gave the cat [some] catnip.

- He took the cat for walks.

- He had good manners.

- He helped make breakfast and he paid the bills.

- He made good desserts; he baked stuff.

- He let them have special days on Sunday.

- He helped them not to die.

- He helped them feel strong again.

- He told them he was a robber.

- He said he was sorry for robbing the bank.

- He told the judge he would never do it again.

- He didn't eat them.

- He told the truth [when he was asked about the paper].

2. **Cuthbert was a scoundrel because:**

   - He lied [he was a liar by error of omission – he never told anyone he was a bank

     robber}.

   - He robbed the bank.

   - He pretended he was good.

   - He didn't tell the old man he was a wolf.

   - He tricked the old man.

Analysis

Out of the 13 groups that presented evidence for Cuthbert being both a hero and a scoundrel, only 1 group came to the conclusion that Cuthbert was a scoundrel. One group felt that Cuthbert was both a hero and a scoundrel and 11 groups felt that Cuthbert was a hero.

The students were unquestionably able to decide whether Cuthbert is a hero or a scoundrel. After coming up with evidence showing both sides of a question the students were able to give more credence to one side than the other and thus come to a justified conclusion. The group that decided that Cuthbert was both a hero and a scoundrel was able to present evidence for both points of view and gave each side equal weight. Only one group did not give evidence for both aspects of the wolf's character. The cause was probably not due to a lack of thought but more likely it was the result of a scribe being notoriously lazy about "putting pencil to paper."

Reflection

From a "lived world" perspective, it was interesting to note that the majority (11.5 out of 13) of the groups thought that Cuthbert was a hero. This finding could be interpreted as showing that the students understood the concept of "forgiveness for past actions" and the benefit to being given a "second chance," the acceptance of "worth based on present actions," or it could be that the students just want to think the best of everyone. According to their past record, I would tend to believe that the students opted to forgive a reformed wolf. Neither of the concepts of forgiveness, reformation, and the acceptance of worth based on present performance had been previously discussed in my presence. I wonder where these ideas originated. Could it be that these ideas are an intrinsic part of the acceptance process in a community of learners. Forgiveness and acceptance are certainly part of building a sense of

family and trust in a classroom. Like the concept of trust promoting trust (Applebaum, 1995), maybe the concepts of forgiveness, reformation and worth or acceptance based on present actions are part of a hidden curriculum.

Study 2.2

Method

Seated on the carpet, in a large group, the students shared all their evidence from their small group experience. Simultaneously, I recorded everybody's evidence on large paper T-charts under the headings HERO and SCOUNDREL. Fastened by magnets to the wall, the charts were in plain view everyone to read. As each piece of evidence was given, we discussed the point so that the intent of the speaker was plain to everyone concerned.

Analysis

There were no additional suggestions or pieces of evidence for either category. The group suggested 14 different reasons why Cuthbert was a hero and 5 different reasons why Cuthbert was a scoundrel.

Reflection

Since no individual group had previously listed all the possible evidence, it was interesting for the students to see the different points of view that were expressed. The students were very focused during the discussion. This could have been because the students were adamant about having all of their group's particular evidence included on the chart. They had strong feelings about the importance or worth of their contributions. Trust was not an issue. The students seemed to trust that I would honor and respect what they had to say and thus they were very open and honest in their discussions. While someone was talking, the rest of the group was very polite and showed good listening skills. Some of the students who were thoughtfully

considering each point made helpful categorization suggestions like: "Well, being good to them is the same as helping them so it could be included in that area." Before moving data around, I always asked for and received permission from the person who put forth the evidence. I wanted to make it clear to them that this was really their project and all I was doing was facilitating their work.

Study 2.3

Method

The last activity in Challenge # 2 was to see if students would be willing to change their minds based on the implications of new evidence. This task was accomplished on an individual basis rather than group basis so that all people would have their private opinion registered. On a completely separate sheet of paper, the grade 1 participants answered the questions by themselves without reference to the sheet that their group had originally used. There was no outside help except for one person. He found it extremely difficult to put his thoughts on paper so I scribed for him.

Analysis

Out of the 16 students 12 held fast to their original positions citing the same sorts of answers that their original group of 3 came up with. Four students changed their opinion of Cuthbert from a "hero" status to that of a "scoundrel." The reasons given for the change reflected the fact the Cuthbert lied and robbed a bank. Thus, Cuthbert was bad. At this point the judgment was based on morals without reference to extenuating circumstances. None of the students who originally thought Cuthbert was bad changed their mind to say that he was good.

Reflection

It was interesting to see that 12 of the students stayed with their original decisions which either indicates that they were satisfied by their original decision or that they were stubbornly refusing to change due to egocentrical considerations. This refers back to Piaget's (1926) ideas on cognitive development. Piaget (1926) suggested that a child, before the age of 7, couldn't present arguments because it does not use a knowledge system in which justifications of causality become a necessity. Furthermore, according to Piaget (1926), before the child can become concerned with causal justification it must be capable of recognizing that "its own interpretation of a sensory input is a private, not-necessarily-shared interpretation" (Mancuso & Hunter, 2000. p. 3). In this particular piece of research, I would tend to go with the first option that indicates that the students were satisfied with the quality of their original evidence. Thus, their decision to remain with their original conclusion was based on quality factors and not egocentric considerations. Since the students did not have access to their original lists of reasons and since they did not have a grade 2 student scribing for them, the grade 1's must have felt secure and determined in their convictions because they took the trouble to find their personal evidence contribution on the posted chart and thus fairly accurately copy the words themselves. I know that they did not just randomly copy down reasons because I crosschecked back to their original group evidence and their answers correlated. The students exhibited powerful convictions.

The results of the past exercise could be interpreted as showing the majority of the students overriding their sense of moral sense of right and wrong with a more humane, forgiving, compassionate attitude. On the other hand, what I was seeing could be the result of a basic form of arithmetic: If you do more "rights" than "wrongs" then you are considered

"good." Nevertheless, the previous "math" theory doesn't explain why some of the students stayed with the "bad" person designation regardless of how many rights were on the page. I wondered if the student's attitude was just a matter of coincidence, my interpretation of their action, or if their reaction was even typical of this particular group of students.

Collaborative Critical Reflection of Challenge #2

I asked Joy Antonia, their regular teacher, what she thought about the reactions of her students. She explained that, as a class, they can be really mean or unkind to each other and it was this sort of attitude that prompted her to consider splitting them up into different classes when we have our placement meeting for next year. On the other hand, she mentioned that there were times when her students could be really nice to each other. This situation brought up more questions than answers and so it was not particularly helpful to my analysis of this study. However, it did raise some interesting questions about the relationship between behavior and circumstances surrounding the behavior. I decided to leave the discussion at this point and return to critical thinking.

The important feature for this study is that through the glasses of their emerging worldview, the students are able to make decisions based on substantial evidence of their own choosing. The process of beginning to express values was reflected in their affirmed decisions (McLaren, 1988, p. 23). 4 of the 16 students expressed a need to change their original decision based on new evidence while the remaining students felt the new information was not substantial enough to cause them to change their original decision.

During another conversation with Joy Antonia, we both expressed amazement that the grade 1's could sustain their focus for 1 hour and 20 minutes with no breaks other than to move between different thinking activities. This was especially interesting when we considered that

all the activities were dependent on a high level of thinking and concentration. This phenomenon was probably not due to the novelty of the situation because this was the third occasion in which this particular phenomena occurred. We were at a bit of a loss to explain their sustained interest beyond the fact that the content, method and environment must have been right on target with this age group. What was also interesting was that the students were beginning to show "critical spirit" in that they persisted with the activity until they were satisfied that their written work satisfactorily made their points. When given the opportunity to choose between stopping now and carrying on at a later date or finishing now, they insisted on getting finished before leaving the classroom.

Joy and I discussed the fact that it was intriguing to note how some children/people cannot find it in themselves to forgive what someone had done. After all was said and done in this particular study, 11 of the students believed Cuthbert was a hero and 5 of them believed Cuthbert was a scoundrel. The 5 students who believed Cuthbert was a scoundrel equated doing something wrong with being a bad person. The ones who thought Cuthbert was a hero acknowledged that Cuthbert had made some bad decisions, but he had certainly redeemed himself by doing good things so in their eyes he was a hero. Somewhere in their lives they had learned that even though you make a mistake, it is possible for people to love you if you are sorry for what you have done and you now are doing good things. Thus, according to their way of thinking, love and acceptance are conditional on behavior. Is this indicative of how society thinks as a whole or is it a matter of maturity to be able to recognize that such a thing as "unconditional love" may exist in your environment? If the students do "bad" things at home, are they considered "bad" people and vice versa if they do something "good"? Can the same phenomena hold true in some classroom situations? I wonder if their parents or teachers know

or care that this is the message that they may be receiving. I wonder what effect this message has on their self-esteem? These queries would provide the kindling for another research project about our society, as it exists today.

Critical Challenges - Study #3.

I wondered:

I wondered if the students could display "connected thinking" (McLaren, 1988, p. 24) which would involve "cause and effect" and some governing criteria. In practical terms, I wondered if the students realized that their actions or decisions would have an effect on others and I wondered if they knew if their actions or decisions would have a long-term effect or a short-term effect on people or situations.

I also wondered if the students could come up with some criteria from which to judge an action.

Overview

The piece of literature, that was used to inspire reflective thinking, was a picture book by Monica Hughes called <u>A Handful of Seeds</u>. It tells the story of a young Latin American girl, Concepcion, who through very unfortunate circumstances, loses the security of living in a home with her grandmother and finally ends up alone in the outskirts of a big city. There she learns to make a better life for herself and her street friends in the city's dump. The handful of seeds that she brought with her from her former home held the key to her survival. It is a very powerful story.

<u>Study 3.1</u>

<u>Method</u>

In preparation for the challenge of coming up with criteria and judging an action according to the criteria, I first wanted to know if the students would be comfortable coming up with evidence which indicated that they could compare and contrast two things. Milt McLaren (1988), comments that "taking stock of what individuals or the class as a whole knows honors the thoughts of young children" (p. 22). So, in conjunction with checking their background knowledge of what it is like to be poor, I checked out their level of knowledge and understand of the vocabulary to be used in the study. The concepts of criteria, compare, and contrast were somewhat familiar and easily enhanced with a short review. Similar to the other challenges, I used the same story throughout all the parts of Challenge # 3.

After coming together and sitting on the carpeted floor as a large group, I began the period by investigating the degree to which the students understood the concept of being "poor." The students had a good idea what it was to "need" something as opposed to "want" something but no one had really experienced being poor. Most of the students had no recollection of needing something beyond situations like the times when they needed food when the cupboard stock was low or new shoes or clothes when they had outgrown the old ones. All of the students come from homes where the basic survival needs such as food, clothes, and shelter are adequately taken care of by an agency or family member.

After discussing the background to <u>A Handful of Seeds</u>, I read the story aloud to the students. We discussed what Concepcion's life was like, what their own life was like and what features they had in common. The focus was to see if the grade 1's could use the concepts of comparing and contrasting so that they would start to look at things in relation to themselves

beyond a superficial level. The students were introduced to using a Venn diagram as a way of representing their life, Concepcion's life and the areas that they had in common. The grade 2's again acted as scribes and paired up with the Grade 1's to fill in the diagrams. The data contains individual responses rather than group responses even though the grade 2's acted as scribes. For the purposes of this document, I simply listed the data rather than draw all the diagrams. "My life" refers to the student's life.

Data Comparing Concepcion's Life to the Student's Life

Concepcion's Life:

- She has seeds.

- She knew how to grow plants.

- She gets it [food] from the garbage.

- She has no food, no bathroom, no houses, no toys, no electricity, no cow[products], no money to get dairy, no skates, no gym, no school.

- She has not enough food for her friends.

- Her friends got hurt.

- Her friends helped her.

- Her grandma died.

- She doesn't have a mom and dad.

- She has no warm bed.

- She had to leave the house.

- She had to live in a dump, she has a junkyard.

- She has dirt floors.

- She doesn't have much shelter.

- She's poor.

- She is pretty.

- She has no bikini.

- She has no shoes.

- She doesn't have a lot of dresses. She has no nice clothes.

- She doesn't get warm.

- She isn't safe.

My Life (Students' Life):

- I have parents.

- My [new] dad yells at me.

- My friends leave me.

- I get hit.

- I get hurt.

-We have mom and dad.

- I play with my brothers and sister.

- We watch TV.

- We have pets.

- We have video games, bikes, and toys.

- We have almost everything.

- We have instruments.

- We read lots of books.

- We know how to write.

- We don't live in a box.

- We have pencils and paint.

- We have umbrellas to keep the rain away.

- I have clean clothes.

- I go camping with grandma and grand-pa.

In Common:

- We both have friends and birthday parties.

- We have someone to love.

- We have lots of fun.

- We both have gardens.

- We know how to plant stuff.

- Sharing.

- We have beans, onions, and corn.

- We both have a sand box.

- We can sing.

- We have a house.

- We have pets.

Analysis

On the average, the students presented strong evidence to show that they knew how to compare and contrast something. Out of 15 students 3 experienced difficulty "sorting" the evidence into the appropriate section of the diagram. Further practice would probably clear this problem up quickly since the students had never used a Venn diagram before. The only other problem with the evidence was in the case of one set of data. The data represents the thoughts

of both a grade 2 and a grade 1 student because the two girls worked as a team, not as a scribe and an orator. Since the grade 2 student was 7 years old and thus within the age range of the study, I let the data stand.

Reflection

The first focus of Challenge #3 was to see if the grade 1's could use the concepts of comparing and contrasting so that they would start to look at things in relation to themselves beyond a superficial level. The students were able to accomplish this task and from their point of view, the answers were not superficial but reflected what they felt were some of the most important features in their lives. The concept of superficiality is value laden and dependent of viewpoint so what may appear superficial to the reader may, in fact, be of paramount importance in the life of the student.

It was obvious that the students realized how lucky they were to be living in their present situations. However, it was interesting to note that all was not completely wonderful in their lives either. Some of them made comments about being hurt or hit. Nevertheless, most of the students focused on the things that were near and dear to their lives like family, food, pets, friends, clothes and special items like their bicycle, or toys. The students commented on Concepcion's life in a way that reflected empathy for her because they had a lot more than she did but the students also realized they both (including Concepcion) had some very important things in their lives like food, friends, someone to love, pets, and some sort of place to live. Again, the students were able to come up with evidence to support their positions and they showed empathy for someone in a difficult situation. The students demonstrated an understanding of the words "compare and contrast."

Study 3.2

Method

The next phase of the challenge involved considering the critical question: What could you do to make a lasting contribution to someone? The students, with some assistance from me, came up with the following criteria against which to judge their answers:

1. The contribution should be long lasting- anything more than a temporary influence (only for the present time) was considered to be long lasting.

2. The contribution should respect the dignity of people - their feelings should not be hurt by someone's actions.

3. The contribution should be meaningful (important) to both people involved.

In preparation for the final task, the group remained on the carpeted area and brainstormed for ideas or circumstances where people might need help. The students were then asked to select up to 7 of the suggestions and analyze them according to the criteria.

The data was recorded on the sheets by the grade 1's with the help of the grade 2's where written information or reading was required. The sheets had 4 columns consisting of: the **action**; whether or not the action would have a **long term or short-term effect**; whether or not they would respect the **dignity** of the people involved; and whether or not the action would be **meaningful** to the people involved. The sheet had boxes under each of the last 3 categories that the student could tick to indicate if their answer was "yes" or "no." There was space on the sheet for 7 actions to be listed and considered according to the criteria. The concepts and methods were reviewed several times during the period of time that the students worked on the task.

Data Concerning Who Might Benefit From Some Help

Some People Who Might Need Help:

- Blind people.

- Keeping people out of danger.

- People who need help walking.

- People in wheel chairs.

- Kids who are in the hospital.

- People with injuries.

- People crossing streets.

- Grandma and grandpa with chores.

- Helping your brother or sister put their stuff away.

- Help clean up your playroom.

- People who need to help cleaning pools.

- Helping clean a rabbit's cage.

- Someone with a sick dog.

- Helping pets in danger, feeding pets.

- People who lose things like glasses, balls, toys, car keys, and money.

- People who need to be taller [too short to reach things].

- People who need help building.

- Santa (and elves) needs help with presents.

- The Easter bunny with egg painting.

- Helping people to learn to read.

- Helping people learn to spell.

- Helping people with math.

- Helping people learn to tie shoes.

- Helping people learn handwriting.

- People who don't have food.

- Help people on the street who need money, food, toys, warm clothes, homes, and friends.

- Finding water for people.

Analysis

In all, 16 students filled out sheets of data which indicated that they understood whether or not the action would have a **long term or short-term effect**; whether or not the action would respect the **dignity** of the people involved; and whether or not the action would be **meaningful** to the people involved.

Reflection

The students were, by and large, able to judge which actions met each of the criteria and which did not. The 1 exception was the student who listed mainly short-term actions such as "helping people find their glasses" as having long-term consequences. To help this student be more successful would probably entail teaching this concept from a slightly different angle.

I was quite surprised and pleased to note that the students could analyze something this complicated according to a set of data. However, I realize that the concepts of dignity and meaningful actions are heavily value-laden as was my own marking. What I was looking for was not solid "indisputable" data, but simply an indication of whether or not the students were developmentally able and ready to attempt such a task given that the other factors such as the

possession of a firm knowledge base, some rudimentary critical thinking skills and dispositions, and an environment conducive to thinking were in place.

Collaborative Critical Reflection of Challenge # 3

Joy Antonia concurred with my reflections on the data. She suggested that having the grade 2's, who were generally only a few months older than the grade 1's but who had more experience with reading and writing, were a great asset in gathering data. What we both found interesting was that young students, age 6 to 7, do not necessarily have to be primarily engaged in the accumulation of knowledge. Not only can they be engaged in activities that involve thinking, they appear to enjoy the challenge of doing the activities. I am aware that part of their motivation could have been derived from the novelty of working in an academic situation with me in conjunction with my class, but I am discounting that fact as their primary motivator because by the end of the first session the novelty would have worn off because a lot of what we did was just plain hard work. What I am surmising is that the students enjoyed the challenge of thinking both on their own and as part of a group. They also enjoyed the fact that someone was listening to their ideas and thus they felt they were making an important contribution. We worked very hard but it was fun and satisfying for all concerned.

In Summary

The purpose of this study was to enhance my understanding of how young children use critical thinking as an opportunity for thoughtful analysis or problems that are of interest to them. I supported the view that critical thinking is a way of helping the students understand the content of the curriculum and as such, there is a set of intellectual tools that will aid in the development of the students' reflective competence.

The objective of this study was to collect and analyze data that would indicate the emerging competence of 6 to 7 year old students. The inquiry focused on 3 specific critical thinking skills and 2 specific critical thinking dispositions. The following skills were included: 1. being able to set criteria to judge if there is sufficient, reliable data available to make decisions; 2. being able to make decisions which are supported by reasons based on evidence, not opinions or emotions; and 3. being able to discuss the effect of the decisions on people and things other than themselves. The following dispositions were included: 1. being able to respect other points of view; and 2. being willing to change their decisions based on new evidence.

There were 3 parts to the study. The first part involved the observation of all the students as they engaged in small and large group discussions involving specific critical thinking activities that required them to make a decision or reach a conclusion. Field observation techniques were employed. The second part of the study required students to express their ideas through writing about one aspect of the problem that involved critical thinking. The students were asked to explain their writing if the spelling or intent was unclear. The third part of the study involved conversing with a "critical friend" in joint reflections about the successes or difficulties encountered during the study.

My overall conclusion is that in the environment in which the study took place, the young children, ranging in age from 6 to 7, who participated in the study were able to competently use the critical thinking skills and dispositions which were involved in the study. Having older children act as "scribes" facilitated the recording of the younger children's thoughts in a way that allowed the researcher to better understand what was intended by the young children's conclusions or solutions.

It was apparent to the researcher that the classroom environment and teacher's disposition played an important role in inviting critical thinking to occur. The environment would include the creation of an atmosphere in which inquiry was not only accepted but applauded and guided, facilitated critical thinking. As well, teacher modeling of the skills and attitudes of critical thinking was essential to the success of the study. Although I suspect that critical thinking could be facilitated, as a set of skills, by anyone who chose to accomplish this task, it is my opinion that to encourage both the critical thinking skills and the critical thinking dispositions, the teacher would have to be a critical thinker who valued and demonstrated these qualities themselves.

The question remains: If the children are indeed capable of using critical thinking skills and dispositions, then why are the results of the social studies assessments (Bognar et al., 1997) consistently showing lower than acceptable scores? Since the appropriate skills are included as a part of the social studies curriculum in British Columbia, then it may be suggested that a study concerning the delivery of the curriculum may contain some answers to this dilemma.

Chapter 5

The Last Links and Final Reflections

The more I know the more I know I do not know.

Ashton

<u>The Link Between Critical Thinking and Intellectual Development</u>

When researching the use of critical thinking in young students what becomes obvious is the fact that there are two different aspects of their intellectual development working in concert with one another. The **psychosocial** aspect of intellectual development involves the educative transmission of knowledge such as you would find in the didactic teaching of a lesson in some subject. Like the teacher instructing the violinist to replicate the music according to how it is written, so too, there are critical thinking skills that must be taught and practiced in order to be mastered. The **psychological** development of intelligence, or the "spontaneous aspect of intelligence" (Piaget, 1972, p. 2), is what children learn by themselves, what none can teach them and they must discover alone. Like a virtuoso violinist who gives life to the music through an intuitive understanding born of years of experience, so too the critical thinkers with critical thinking dispositions give a humanistic interpretation of the problem or concern which they are studying. The critical thinker looks through eyes laden with caring, emotion, empathy, imagination, and intuition. Although the critical thinking dispositions are part of the psychological spontaneous aspects of intelligence that take time to develop (Piaget, 1972, p. 2), there is evidence of their existence in the words of the 6 and 7 year old children. Thus, it is essential to recognize that both the psychosocial and the psychological concepts of intelligence are intertwined in critical thinking.

A Comment about the Role of Children's Voices in Research

Why would I want to seek out and listen to student voices? What kind of contributions would students' voices make? The answers to the first question are bound up with the answers to the second question. Attention to the voice of children is not uncommon. For instance, attention is paid to their voices in a **social/legal context,** such as choosing which parent to live with in a custody suit, or reporting an abusive or neglectful situation through children's HELP lines or counselors. The social context in which we place children is changing from viewing them as chattel property to viewing them as the inheritors of the future (Lincoln, 1995, p. 89).

Children, even in infancy, are also recognized in the **scientific context** as "active participants in learning about and constructing views of, the social world they encounter" (Lincoln, 1995. p. 89). Since school can be one of the student's major influences in shaping and acquiring a world-view, the power of learning to reason via critical thinking skills (which are teachable) and dispositions (which teachers can model but not teach) is undeniable. The value of listening to the students' dialogue, which reflects their worldview, is immeasurable.

In a **political context**, Canadian students are legally able to take part in the democratic voting process at 19 years of age. Normally, this is about the age that most of them finish their public schooling. Thus, the role of the school is to provide an environment in which the students are encouraged to use the skills and dispositions of critical thinking in preparation for exercising their democratic voting rights. Since in adult life, much of the debate involved in politics involves dialogue, therefore, the consideration of student dialogue becomes an important tool in preparation for this process.

If I didn't listen to a student's dialogue, then the scope and depth of my understanding would be severely hampered by their undeveloped printing and writing skills. The students can

express their thoughts orally more effectively than through any other medium. Conversing with students is like having a pipeline to their brain.

Therefore, the actual voices of the students are invaluable because they give rise to reflecting on the complexities of the world that surround us. My interpretation of the intent or meaning of their dialogue is based on my interest in people and my love of reason and thinking regardless of the age or aptitude of the person. Each person reading the student's words will form different conclusions according to their personal values and biases. Such is the construction of social knowledge. Although, this paradigm may shift, or I may change paradigms, for the time being, the constructivist paradigm constitutes the glasses through which I view the world.

Final Reflections

Several questions surfaced in Chapter 2 during my search for understanding the meaning and ramifications of critical thinking. The first question was: Are the skills and dispositions of critical thinking generalizable? Based on my research experience, I would answer "yes." The universal nature of critical thinking is obvious when one is using the following skills and dispositions over a wide range of issues and circumstances:

- Being able to set criteria to judge if there is sufficient, reliable data available to make decisions.

- Being able to make decisions that are based on evidence, not emotions.

- Being able to discuss the present (and possible future) effect of the decisions on people and things other than themselves.

- Being able to respect other points of view.

- Being able to change a decision based on new evidence.

The tools used in critical thinking are based on general skills and dispositions rather than knowledge and information and thus are not subject specific.

The next question, related to Chapter 2, involves contemplating the place of moral values in critical thinking. Based on my research, it is all but impossible for the students to remain morally unbiased when judging evidence or arriving at a conclusion. Even though the students do not know that they look at everything that they meet in terms of their past experience, it is evident that the way they create meaning out of their world is to look at things through their world view glasses. Their moral values are evident throughout their evidence. This also brings up the question of bias in critical thinking.

The application of the rules of logic can render an unbiased decision. However, the rules of logic, as they apply to critical thinking, plus the critical thinking dispositions, such as fair-mindedness, creativity, intuition, and caring, create a situation in which the probability of arriving at an unbiased decision is highly unlikely, if not impossible. In this particular piece of research, I chose to soften the effects of bias by having the students attempt to look at the various situations through the participants' point of view. Is the student's critical thinking biased? Yes. Although the students were able to look at situations through the eyes of the participants, the interpretation of the events was viewed through their personal "world view glasses." The self- correcting aspect of critical thinking came into effect when the students held their evidence and conclusions up for all to inspect and discuss. This was done as an attempt to negate or reconsider evidence and conclusions that were blatantly biased.

How does one assess to what extent critical thinking is actually occurring? After reflecting on the results of the research, I have come to the conclusion that the assessment of critical thinking is best served by an informal procedure. You set the criteria for the activity and then you simply assess the results according to the predetermined criteria. If the criteria is met, then the participant is successful, if the criteria is not met then further instruction or clarification of the task is required.

What has to be in effect in order for critical thinking to flourish in a classroom? As evident in my research, the needs of a critical thinking classroom situation are best served by being a community of learners. This community would be one that prizes inquiry as a form of learning in an atmosphere of trust, humility, and respect for all concerned. Such a community of learners, which includes the teacher, would value critical reflection in every aspect of their school lives. The excitement and interest generated by the students involved in this particular piece of research can attest to the value of such a classroom.

The last question, which comes out of my research in Chapter 2, is: What can be done about the lack of critical thinking in a classroom? In my experience, the lasting effects of in-service education are very limited unless there are follow-up expectations and activities. Forming a group or teachers who share a common interest in the subject is like preaching to those who are already converted thus it is an inefficient way to reach those teachers who are not already involved in the subject. Therefore, the critical thinking message does not reach the targeted clientele. One of the best methods for reaching teachers may be to provide teachers with sample lessons which target the outcomes of the Integrated Resource Plans as put forth by the Education Department of

the province of British Columbia. These lesson plans would be infused with the strategies and attitudes prevalent in critical thinking. Thus, teachers would have a practical resource that would demonstrate how critical thinking could be readily infused into their particular curriculum. Perhaps one of the best ways to encourage critical thinking is to build on what presently exists, and encourage teachers who are already involved in the field to support, or act as mentors for others who show an interest in critical thinking. In this particular piece of research, having the encouragement and support of a "critical friend" was invaluable.

Throughout my research, it becomes obvious that the students, between the ages of 6 and 7, have a knowledge system already in place that allows them to use evidence as a justification of causality. The students are also most willing to recognize that their own sensory input was not necessarily shared by the rest of the group, a situation which Mancuso et al. (2000, p. 3) imply is the precursor to being ready to use justifications of causality. My findings support the concept that students, age 6 to 7, are quite capable of using the following tools (Case et al., 1996, p. xiv-xv) of critical thinking such as: **possessing background knowledge** or "the information about a topic required for thoughtful reflection" (p.xiv); **using evidence to substantiate a claim; using criteria for judgment** or "the criteria or grounds for deciding which of the alternatives is the most sensible or appropriate" (p. xiv); critical thinking vocabulary (p.xiv); **using thinking strategies** (p.xv) - although the students were not asked to come up with thinking strategies on their own, they were able to make use of the ones that I suggested; **habits of mind** or "the values and attitudes of a careful and conscientious thinker"

(p. xv), i.e. being **open-minded, fair-minded, independent-minded, and inquiry-minded**. The students were enthusiastic and thoroughly engaged in the work that we completed. This was a case of **"critical spirit"** in action! My findings support the idea that even though young children are unable to develop elaborate moral arguments or use the technical terms of logic to support an argument, young children have definite ideas about what is good or bad and they are capable of judging something according to a set of criteria. Young children are also able to consider all ideas and multiple points of view when making a decision. This ability to consider all evidence and ideas in a fair and just manner opens the path to considering all options and thus being able to reflect on the possible consequences of their decisions. During this study it has been clear that the students enjoyed being critical thinkers!

In Parting

Part of the ultimate challenge of teacher researchers is to attain "conceptual mastery over the visible and unseen processes that account for pupil's learning" (Huberman, 1996, p.138). This is a lifelong process and after 31 years of teaching and learning, I feel like I have only just begun to make the connections. I have arrived at a place aptly described by Dr. Seuss (1993) in a book entitled Oh the Places You'll Go:

> You will come to a place where the streets are not marked.
> Some windows are lighted. But mostly they're darkened.
> A place you could sprain both your elbow and chin!
> Do you dare to stay out? Do you dare to go in?
> How much can you lose? How much can you win? (p. 20)

This particular piece of the research is finished. One window is lighted, but there are still a lot of dark windows! There are more questions than answers. Probably, for the moment, the biggest question is: What will I do next?

Final Reflections on Critical Thinking For Young Children

In The Significance of Theory, Terry Eagleton (cited in hooks, 1994) makes the following comment:

> Children make the best theorists since they have not yet been educated into accepting our routine, social practices as "natural" and so insist on posing to those practices the most embarrassing general and fundamental questions regarding them with wondering estrangement which we adults have long forgotten. Since they do not yet grasp our social practices as inevitable, they do not see why we might not do things differently. (p. 59)

Children often see with clarity that adults' lack. When sailing, it is the quality of the journey, not the destination that becomes important. In critical thinking, the quality of the journey or the "process which leads to the belief is more important than the belief itself" (Norris, 1987, p. 35). In my thesis, I did not set out to prove or disprove anyone's theory. Instead, I wondered what a particular group of young students, who had volunteered to become participants in my research, were capable of doing in the circumstances in which they found themselves. As I observed the young students working their way through the critical challenges, I felt a deep sense of shared pride and enthusiasm. The quality of their journey surpassed my hopes. The students are indeed capable of thinking critically.

An education, which involves critical thinking, has as its purpose the development of a new kind of person. As a result of internalizing a different series of concepts, this person is an

"actively inquiring, flexible, creative, innovative, tolerant, liberal [in the sense of liberating] personality who can face uncertainty and ambiguity without distortion, who can formulate new meanings to meet challenges in the environment which threaten individual and mutual survival" (Postman & Weingartner, 1969, p. 219). This "liberal" form of education culminates in principled, reflective judgment about what to believe and do (Ennis, 1987; Facione, 1997). Critical thinking involves both the intellect and the heart. Critical thinking is a questing-questioning, meaning-making process that culminates in the creation of life-long learners.

The original roots of critical thinking were laid down more than 2500 years ago. Over the ensuing years, additional firm roots have been established in philosophy, science, psychology, and education. Critical thinking is not an end unto itself but a pathway. It is a way of thinking --- a way of life. Through critical thinking, a dialogue of hope can develop --- a hope that there will be a way to make the changes required to make this world a better place for all to live.

So What Do You Do Now

You are a teacher in an ordinary school, and the ideas in this paper make sense to you . . . . what can you do about it, say tomorrow? Postman & Weingartner, (1969, p.193) have some suggestions that they applied to teaching as a "subversive activity" in 1969, but their suggestions are equally applicable to teaching as a critical thinking endeavor in the year 2000.The following suggestions are loosely based on Postman & Weingartner's suggestions:

1. Your first step might be to write these questions on a scrap of paper and post them in a handy place:

   - What am I going to have my students do today?

- What's it good for?

- How do I know?

At best, the questions will make you uneasy and drive you to reconsider almost anything you are doing.

2. Your second step will be to try to avoid telling your students any answers, but instead rephrase their questions in such a way as to extend their thinking. Don't expect answers immediately; give the students time to think or reflect. Shift the intellectual activity back onto the students. Be prepared for resentment; thinking may not be comfortable for those who are not used to it. Start with one lesson: then see what happens. However much you do is well worth the effort.

3. Try listening to your students not as a teacher who is there to instruct or judge but as someone who is interested in understanding or clarifying what someone perceives as relevant. Ask questions like: What makes you think that is true? The only way to know where a student is "at" is to listen to what he or she is thinking. You can't do this if you are talking.

4. Learning to ask questions is a major emphasis of critical thinking and most likely your students will need to learn how to do it. If you feel this is important, try this: For a specific time period, i.e. one class or one day, do not permit the students to make any utterances that are not in the form of questions. Then present the class with a problem and have them compile a list of questions whose answers might be helpful in solving the problem. At this point, the focus is quality. The person who produces the most questions wins! Next, have the students examine their questions to determine if there are certain criteria by which the quality of the question can be measured. For example does the question contain unwarranted assumptions. Does it leave important terms undefined? Does it suggest some procedure for .

obtaining an answer? The activity will lead naturally into seeking the answer to the original problem and analyzing the solutions according to some predetermined criteria. Carl Rogers' book, <u>On Becoming a Person,</u> is a source of information about what happens when a teacher refrains from giving answers.

That's it! You're on your way!

References

Adler, J. E. (1991). Critical thinking, a deflated defense: A critical study of John E. McPeck's Teaching critical thinking: Dialogue and dialect. Informal Logic, 7 (2), 61-78.

Adler, M. (1985). Ten philosophical mistakes. New York: McMillan.

American Philosophical Association (1990). In P. A. Facione (Ed.), Critical thinking: a statement of expert consensus for purposes of educational assessment and instruction (6). Millbrae, CA: The California Academic Press (ERIC Ed 315 423).

Anderson, G., Herr, K., & Nihlem, A. (1994). Studying your own school: An educator's guide to qualitative practitioners research. Thousand Oaks, CA: Corwin Press.

Aoki, T. (1991). Inspiriting curriculum and pedagogy: Talks to teachers. University of Alberta: University of Alberta Publication Services.

Allard, H. (1977). It's so nice to have a wolf around the house. Garden City, New York: Bantam Doubleday Dell Books.

Bacon, F. (1859). Novum organum. London: Bell& Daldy.

Balin, S. (1995). Is critical thinking biased? Clarifications and implications. Educational Theory, 45 (2), 191-197.

Bailin, S., Case. R., Coombs, J., & Daniels, L. (1993). A conception of critical thinking for curriculum, instruction, and assessment. British Columbia Ministry of Education and Ministry Responsible for Multiculturalism and Human Rights. Unpublished.

Beyer, B. K. (1985). Critical thinking. What is it? Social Education, 49 (4), 270-276.

Beyer, B. K. (1995). Critical thinking. Fastback, 385. Bloomington, Indiana: Phi Delta Kappa Educational Foundation.

Bloom, B. S., Krathwohl, D. & Masia, B. B. (1956). Taxonomy of educational objectives. New York: David McKay.

Bognar, C. J., Cassidy, W., & Clark, P. (1997). Social studies in British Columbia: Results of the 1996 provincial learning assessment. Victoria, BC: Ministry of Education, Skills, and Training.

Carson, T. (1990). What kind of knowing is critical action research? Theory Into Practice, 29 (3), 167-173.

Case, R. & Daniels, L. (1996). Critical challenges across the curriculum. Vancouver: The Critical Thinking Cooperative.

Case, R. & Wright, I. (Eds.). (1997). Taking seriously the teaching of critical thinking. Canadian Social Studies, 32 (1), 12-19.

Clandinin, D. & Connelly, F. (1995). Teacher's professional knowledge landscapes: Secret, sacred, and cover stories. In F. Connelly & D. Clandinin (Eds.), Teachers' professional knowledge landscapes (1-15). New York, NY: Teachers College Press.

Cochran-Smith, M. & Lytle, S. L. (1990). Research on teaching and teacher research: The issues that divide. Educational Researcher, 19 (2), 2-11.

Cochran-Smith, M. & Lytle, S. L. (1993). Inside/outside: Teacher research and knowledge. New York: Teacher College Press.

Cranson, l. (1995) (Project Coordinator). Demystifying thinking: A practical handbook. Scarborough, ONT: Prentice Hall Canada.

deBono, E. (1984). Critical thinking is not enough. Educational Leadership, 42, 16-17.

Dewey, J. (1902). The school and society. Chicago: University of Chicago Press.

Eliot, T.S. (1927). Shakespeare and the stoicism of Seneca: An address read before the Shakespeare Association March 18, 1927. London: Published for the Shakespeare Association by Oxford University Press.

Ellsworth, E. (1989). Why doesn't this feel empowering? Working through the repressive myths of critical pedagogy. Harvard Educational Review, 59, 297-324.

Ennis, R. H. (1962). A concept of critical thinking. Harvard Educational Review, 32 (1), 81-111.

Ennis, R. H. (1980). A conception of rational thinking. In R. J. Coombs (Ed.), Philosophy of Education. Normal, Ill: Philosophy of Education Society.

Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and abilities. In J. B. Baron (Ed.), Teaching thinking skills: Theory and practice. New York: W. H. Freeman & Company.

Ennis, R. H. & Millman, J. (1985). Cornel critical thinking tests: Levels x and z. Pacific Grove California: Midwest Publications.

Facione, P. A. (1990). Critical thinking: a statement of expert consensus for purposes of educational assessment and instruction. Millbrae, CA: The California Academic Press (ERIC Ed 315 423).

Feldman, A. (1998). Implementing and assessing the power of conversation in the teaching of action research. Teacher Education Quarterly, 25 (2), 27-42.

Feldman, A. (1999). The role of conversation in collaborative action research. Educational Action Research, 7 (1), 125-144.

Freire, P. (1968). Pedagogy of the oppressed. NewYork: Seabury.

Freire, P. (1993). Pedagogy of the oppressed: New revised 20th anniversary edition. New York: Continuim Publishing Company.

Freire, P. (1994). Pedagogy of hope: Reliving pedagogy of the oppressed. New York: Continuim Publishing Company.

Gelman, R. (1985). The developmental perspective on the problem of knowledge aquisition: A discussion. In S. F. Chipman, J. W. Segal, & R. Glaser (Eds.), Thinking and learning skills: Research and open questions (pp. 537-544). Hillsdale, New Jersey: Erlbaum Associates.

Giroux, H. (1988). Teachers as intellectuals: Towards a critical pedagogy of learning. Massachusetts: Bergin & Garvey.

Giroux, H. (1997). Pedagogy and the politics of hope: Theory, culture and schooling. Colorado: Westview Press.

Giroux, H. & McLaren, P. (1992). Writing from the margins: Geographies of identity, pedagogy, and power. Journal of Education, 174 (1), 2-30.

Grimmett, P. & McKinnon, A. (1992). Craft knowledge and education of teachers. In G. Grant (Ed.), Review of research in education, 18, 385-456. Washington DC: American Educational Research Association.

Groarke, L. (1998). Informal Logic. Stanford Encyclopedia of Philosophy (1-7). Retrieved July 26, 2000 from the World Wide Web:http://plato.stanford.edu/entries/logic-informal/

Haroutunian-Gordon, S. (1998). Some issues in the critical thinking debate; dead horses and red herrings, anyone? Educational Theory, 48, 411-425.

Hooks, B. (1994) Teaching to transgress: Education as the practice of freedom. New York: Routledge.

Huberman, M (1996). Focus on research moving mainstream: Taking a closer look at teacher research. Language Arts, 73 (2), 124-140.

Hughes, M. (1993). A handful of seeds. Toronto: Lister Publishers.

Horton, M. & Freire, P. (1990). We make the road by walking: Conversations on education and social change. Philadelphia: Temple University Press.

Janesick, V. J. (1991). Ethnographic inquiry: Understanding culture and experience. In E. C. Short (Ed.), <u>Forms of curriculum inquiry</u>. Albany: State University of New York Press.

Johnson, T. W. (1987). Philosophy for children and its critics: Going beyond the information given. <u>Educational Theory, 37</u> (1), 61-68.

Johnson, T. W. (1983). <u>Philosophy for children: An approach to critical thinking</u>. Southern Connecticut State University: Phi Delta Kappa Educational Foundation.

Kennedy, M., Fisher, M. B. & Ennis, R. H. (1991). Critical thinking: Literature review and needed research. In L. Idol & B. F. Jones (Eds.), <u>Educational values and cognitive instruction: Implication for reform</u> (pp. 11-40). Hillsdale, New Jersey: Hove & London.

Koli, W. R. (1991). To what ends our reform? Reclaiming the Ethical in education. <u>Educational Researcher, 21</u> (4), 32-34.

Laing, R. D. (1927). <u>The politics of experience</u>. Harmondsworth: Penguin. 1967.

Lincoln, Y. S. (1995). In search of student'voices. <u>Theory Into Practice</u>, 34 (2), 88-93.

Lipman, M. (1988a). Teaching students to think reasonably: Some findings of the philosophy for children program. <u>The Clearing House, 71</u> (5).

Lipman, M. (1988b). Critical thinking: What can it be? <u>Educational Leadership, 46</u> (1), 38-43.

Lipman, M. (1991). <u>Thinking in education</u>. Cambridge: Cambridge University Press.

McDiarmid, T., Manzo, R., & Musselle, T. (1996). In R. Case & L. Daniels, <u>Critical challenges across the curriculum</u>. Vancouver BC: Simon Fraser University: Critical Thinking Cooperative.

McLaren, M. (1988). Some thoughts on primary problem solving with primary children. <u>Prime Areas, 30</u> (2), 22-25.

McLaren, P. (1989). <u>Life in schools: An introduction to critical pedagogy in the foundations of education</u>. New York: Longman.

McLaren, P. & Routledge, L. (1993) <u>Paulo Freire: A critical encounter</u>. London: Routledge.

McPeck, J. (1981). <u>Critical thinking and education</u>. Toronto: Oxford Press.

McPeck, J. (1990). <u>Teaching critical thinking</u>. New York: Routledge.

Mancuso, J. C. & Hunter, K. V. (2000). Constructivist assumptions in the person theories of George A. Kelly and Jean Piaget. Albany: New York. Retrieved July 11, 2000 from the World Wide Web: http://www.capital.net/~mancusoj/piagkely.html

Matthews, G. B. (1995). In J. P. Portelli & R. Reed (Eds.), Children, philosophy and democracy (pp. 249-262). Calgary, Canada: Detselig Enterprises.

Mertens, D. M. (1989). Research methods in education and psychology: Integrating diversity with quantitative & qualitative approaches. Thousand Oaks, CA: Sage Publications.

Microsoft(R) Encarta(R) 97 Encyclopedia. (1993-1996). Piaget, Jean. Microsoft Corporation.

Missimer, C. (1988). Why two heads are better than one: Philosophical and pedagogical implications of a social view of critical thinking. Proceedings of the philosophy of education society (pp. 388-402).

Missimer, C. (1998). In S. Haroutunian-Gordon, Some issues in the critical thinking debate; dead horses and red herrings, anyone? Educational Theory, 48, 411-425.

National Council for Excellence in Critical thinking. Statement of policy and principles, (pp.1-2). Retrieved January 26, 1999 from the World Wide Web: http://www.sonoma.edu/cthink/ncect.nelk

National Council for the Social Studies, (1994-1995). Schneider, D. (Chair). Expectations of excellence: Curriculum standards for social studies. Washington, DC: National Council for the Social Studies.

Naylor, C. (1999). Teacher inquiry: Fraser Cascade teacher research. Vancouver, BC: British Columbia Teacher's Federation.

Newman, F. M. (1988, May). Higher order thinking in the high school curriculum. NASSP Bulletin.

Norris, S. (1985). Synthesis of research on critical thinking. Educational Leadership, 42 (8), 40-45.

Norris, S. (1987). Evaluating critical thinking ability. In I. Wright & C. La Bar (Eds.), Critical thinking and social studies. Toronto: Grolier.

North, S. (1987). The making of knowledge in composition: Participant emerging field. Upper Montclair, NJ: Boynton/Cook.

Palermo, S. G. (1995). Yes teacher, first graders can do philosophy. In J. P. Portelli & R. Reed (Eds.), Children, philosophy, and democracy (pp. 249-262). Calgary, Canada: Detselig Enterprises.

Palincsar, A. S., Magnusson, S. J., Marano, N., Ford, D., & Brown, N. (1998). Designing a Community of Practice: Principles and practices of the GIsML Community. Teaching and Teacher Education, 14 (1), 5-19.

Patrick, J. J. (1986). Critical thinking in the social studies. ERIC Digest, 30, 1-4.

Paul, R. W. (1982). Teaching critical thinking in the strong sense: a focus on self-deception, world-views and a dialectical mode of analysis. Informal Logic Newsletter, 592, 2-7.

Paul, R. W. (1990). Critical thinking handbook: K-3rd grades. Rohnert Park, CA: Center For Thinking and Moral Critique, Sonoma State University.

Paul, R. W. (1992). Critical thinking: Basic questions and answers. Think. April, 22. Retrieved February 5, 1999, from the World Wide Web: http://www.sonoma.edu/cthink/12library/questions.nclk

Paul, R. W. (1993). The contribution of philosophy to thinking. In J. A. Binker, Critical thinking: How to prepare students for a rapidly changing world (pp. 435-472). Santa Rosa, CA: Foundation For Critical Thinking.

Paul, R. W. (1999). A brief history of the idea of critical thinking. Retrieved January 1, 1999 from the World Wide Web: http//www.Sonoma.edu/cthink/university/univlibrary/history/chistory.nclk

Piaget, J. (1926). The language and thought of the child. (M. Gabair, Trans.). New York: Harcourt Brace.

Piaget, J. (1972). The child and reality: Problems of genetic psychology. English translation, 1974. London: Frederick Muller Ltd.

Portelli, J. P. & Church, S. (1995). Whole language and philosophy for children: A dialogue of hope. In J. P. Portelli & R. F. Reed (Eds.). Children philosophy and democracy (pp. 75-117). Calgary, Alta.: Detselig Enterprises.

Postman, N. & Weingartner, C. (1996). Teaching as a subversive activity. New York: Decorte Press.

Rogers, K. (1972). On Becoming a person. Boston Mass.: Houten Mifflin.

Salmon, M. H. (1995). Analyzing conversational reasoning. Informal Logic, 17 (1), 123.

Sarason, S. B. (1971). The culture of the school and the problems of change. Boston: Allyn and Brown.

Scieszka, J. (1989). The true story of the three little pigs. New York: Viking.

Schumacher, S. & McMillan, J. H. (1993). Research in Education: A conceptual introduction. (3rd edition). New York: Harper Collins College Publishers.

Sears, A. & Parsons, J. (1991). Towards critical thinking as an ethic. Theory and Research in Social Education, 19 (1), 45-68.

Seuss, Dr. (1990). Oh, the places you'll go. Toronto: Random House.

Siegel, H. (1988). Educating reason: Rationality, critical thinking, and education. London: Routledge.

Siegel, H. (1989). Why be rational? Thinking critically about critical thinking. Upper Montclair, NJ: Institute for Critical Thinking Resource Publication, 2 (1).

Siegel, H. (1991). The generalizability of critical thinking. Educational Philosophy and Theory, 23 (1), 18-30.

Siegel, H. (1993). Not by skill alone: The centrality of character to critical thinking. Informal Logic, 14 (3), 163-177.

Siegel, H. (1996) The role of reasons in (science) education. In W. Hare & J. P. Portelli, Philosophy of education (pp.107-123). Calgary, Alta.: Detselig Enterprises.

Siegel, H. (1997). Rationality redeemed. New York: Routledge.

Spring, J. (1994). Wheels in the head: Educational philosophies of authority, freedom, and culture from Socrates to Paulo Freire. New York: McGraw Hill.

Stenhouse, L. (1975). An introduction to curriculum research and development. London: Heinemann.

Taba, H. (1950). The problems in developing critical thinking. Progressive Education, 27-28.

Turner, S. M. & Matthews, G. B. (Eds.), (1998). The philosopher's child: Critical perspectives on the western tradition. Rochester, NY: University of Rochester Press.

van Manen, M. (1991). The tack of teaching: The meaning of pedagogical thoughtfulness. Albany: State University of New York Press.

Walker, M. (1993). Developing the theory and practice of action research: A South African case. Educational Action Research, 1 (1), 95-109.

Walters, K. S. (1994). <u>Rethinking reason: New perspectives in critical thinking</u>. Albany: State University of New York Press.

Watson, G. & Glasser, E. M. (1980). <u>Watson-Glasser critical thinking appraisal: Forms A and B</u>. Cleveland, Ohio: The Psychological Corporation.

Weate, J. (1998). <u>A young person's guide to philosophy: I think therefore I am</u>. Vancouver: New Millennium Books.

Wheary, J. & Ennis, R. (1995). Gender bias in critical thinking: Continuing the dialogue. <u>Educational Theory, 45</u> (2), 221-222.

Whitehead, A. N. (1929). <u>The aims of education</u>. New York: MacMillan Company.

Wolcott, H. F. (1990). <u>Writing up qualitative research</u>. Newbury Park: Sage Publications.

Wright, I. (1995). Critical thinking in social studies: Beliefs, commitments, and implementation. <u>Canadian Social Studies, 29</u> (2), 66-68.