THE UTILIZATION OF CRITICAL THINKING 'TOOLS' IN SOCIAL STUDIES BY GRADE 9 GIRLS

by

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Abstract

This qualitative study describes, interprets and offers an evaluation of how 13 and 14 year-old girls utilize the critical thinking 'tools' of the conception of critical thinking put forward by Sharon Bailin, Roland Case, Jerrold Coombs and Le Roi Daniels in 1993. Tools include background knowledge, strategies, concepts, criteria for judgement, and attitudes. Eight girls enrolled in grade 9 social studies were observed, audiotaped and videotaped while completing a critical challenge prior to and after a month long social studies unit on the Industrial Revolution which involved instruction in critical thinking. The girls were of a variety of backgrounds, and were receiving between C+ and A letter grades in their social studies course. The critical challenges required the participants to write fairminded accounts of particular historical topics; the first challenge focussed on the French Revolution, while the second topic centred on the Industrial Revolution. Each girl was interviewed regarding her experiences. Results demonstrate that the conception is applicable to the utilization of the tools of critical thinking by girls. Secondly, findings show that there is no set procedure or apparent order, nor specific combinations of tools utilized in order to complete critical challenges. Background knowledge is used in an integrated fashion with all of the other thinking tools. The research findings also suggest that the attitudes explicated in the conception are conducive to critical thinking; these attitudes were not applied consistently or consciously by the participants. The study shows that criteria for judgement are the tools which are the least understood and utilized by the girls in their critical thinking. The girls' thinking demonstrated some 'feminine' elements of thinking. In addition, some evidence pointed to the level of confidence of the girls playing a role in the direction and depth of their thinking. These findings can be used to guide teachers and educational policymakers in the creation of subject curricula, teaching resources, classroom experiences, and assessment measures.
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Chapter 1
Introduction

In 1995, at a meeting about critical thinking which included several academics and secondary social studies teachers, Ian Wright noted that the teachers there "were asked to describe what they did in teaching critical thinking. In all cases, the teachers were encouraging students to think, but not one of their descriptions involved critical thinking. They were not clear what this constituted" (p. 67). In sharing his observation that these teachers were not providing critical thinking opportunities in their classrooms, Wright raised important questions, questions which initiated my study.

I am a secondary social studies teacher and I attended this same meeting. The meeting included a presentation of a recent conception of critical thinking after which we completed an activity based upon the presented conception. The latter part of the meeting consisted of small groups of teachers and academics discussing how we defined and encouraged critical thinking in our classrooms, with particular reference to how the presented conception might be drawn upon in this process.

In concurrence with Wright's remarks about the teachers, I was not familiar at the time with the conception of critical thinking presented; nor had I any personal connection to, or predisposition to use the language or concepts or standards of this or any other conception. I realized that when I did encourage critical thinking in my classroom, as defined during this meeting, it was less by conscious effort than by good fortune. These facts both embarrassed
and intrigued me simultaneously.

Four years later, I now look at the reasons for my lack of awareness. My only previous exposure to critical thinking of which I am aware, had been a 4 hour presentation, which was primarily a set of experiential tasks, during my teacher education program. My previous schooling had consisted of didactic type lessons with an emphasis on memorizing information.

Although I have no memory of being helped to think critically, lack of memory does not necessarily mean my teachers did not provide critical thinking opportunities. Moreover, even if I was not exposed to critical thinking, this lack of experience does not necessarily mean that I, or others like me, are not able to, or do not think critically. However, as Richard Paul claims, the "human tendency ... to stick to spontaneous and weak thinking patterns" is more likely because "the discipline of thinking of alternate points of views and of pursuing a 'good' judgement is not [a] natural but an extraordinary process" (no date, p. 1). Paul implies that intervention is needed to reduce those weak patterns of thinking. Bailin, Case, Coombs and Daniels (1993) in a recently published conception, the one presented at the meeting, agree. (Throughout the rest of the thesis, Bailin et al. will refer to the conception of critical thinking developed by Bailin, Case, Coombs and Daniels for the British Columbia Ministry of Education and Ministry Responsible for Multiculturalism and Human Rights, 1993.) They state that critical thinking opportunities must be consistently provided through meaningful, complex challenges to show students that critical thinking is necessary in and applicable to all facets of life. Without these opportunities, the result could be that "even the 'best' students enter and leave college as largely miseducated persons, with no real sense of what they do and do not understand, with little sense of the state of their prejudices [and] with little command of their intellectual faculties" (Paul, 1993, p. 320). I am just one example of a university-educated person who, following a completed Bachelor's degree and teacher training, had little understanding of critical thinking and how to apply it to classroom practice.

It is not enough to scrutinize one teacher's experience with critical thinking. The fact that I, and the other secondary social studies teachers at the meeting, did not have a strong
understanding of critical thinking after at least seventeen years of schooling, one year of which was dedicated to explicit teacher training, has implications regarding students, teachers, academics and educational institutions.

One implication is that students are not being encouraged to think critically in social studies classrooms. Because school is the only place all students can be expected to attend, this is where the opportunity exists to expose them to critical thinking, and encourage them to think critically. Grant argues that “no other social organization - not the peer group, the family, religion, or the work site - requires analytical thought in any sort of systematic manner” (Grant, 1988, p. 3). Therefore, if “higher order thinking” is not promoted in the course of learning to read, compose, and calculate, a student may never have an opportunity to move beyond the literal interpretation of information.

The aforementioned meeting also points to the likelihood that teachers are not receiving the training necessary to promote consistent, well-founded critical thinking in their classrooms. Today’s educators for the most part would not have been exposed to the detailed, theoretical and philosophical work which has delineated the concept since the 1980s (Paul, 1993, p. 43). Writers of curricula, program materials and textbooks, and school leaders have not traditionally emphasized critical thinking and have not remained up-to-date in its promotion. Furthermore, as Grant (1988) postulated ten years ago, it might remain true that teacher educators assume that beginning teachers will develop the sophisticated knowledge that experienced teachers presently have through a process of trial and error. However, the problem is one which perpetuates itself; if educators do not have the background and training to promote critical thinking, then their students are not being provided the opportunities to think critically and those students, in their professions, are less likely to promote critical thinking. As Paul notes, “No substantial change can occur in education without a substantial change in the thinking of educators” (1993, p. 45). Wright’s scenario would likely have been the same at any meeting with whichever teachers.

How is this deficit of critical thinking to be rectified? First, a consistent approach is
needed. While there are a number of competing definitions, I will point out that there are some basic similarities between them, and one model which can provide the needed consistency. Without a consistent approach, teachers and students are likely to become more confused than able to effectively use concepts and standards.

Some agreement on what critical thinking entails has emerged recently. Wright and La Bar (1987, p. 5) explain their view of the general dimensions that critical thinking 'seems' to have:

a) knowledge of the rules and standards used to evaluate arguments and claims;
b) understanding of such concepts as "assumption," "inference," "value judgement" and so on;
c) knowledge of and proficiency in various procedures such as concept clarification and argument analysis; and
d) having certain dispositions, attitudes and tendencies such as being open-minded, considering seriously someone else's point of view, being persistent and so on.

Walters (1994, p. 11) has more recently referred to a 'second wave' of critical thinking which incorporates the dimensions above, as well as the exercise of nonanalytical modes of thinking, such as imagination and empathic intuition. These second wave concerns are taken into account somewhat in the Bailin et al. conception. It is this conception, produced for the Ministry of Education and Ministry Responsible for Multiculturalism and Human Rights, that is being incorporated into the social studies curriculum. It is the one which provides the framework for this study, and it will be described in detail in Chapter 2.

Yet, as noted above, teachers are still not clear about critical thinking and how to teach it, despite the abundance of theory and emerging commonalities. Perhaps this points to the lack of relationship between theory and practice, hereafter referred to as praxis. Another implication of this meeting is that the current knowledge is not inspiring present-day classroom practice.

There is evidence that praxis might be lacking and there are some reasons for this
situation. While teachers appear to support critical thinking as an educational goal, some evidence demonstrates that practice does not reflect this support. In British Columbia, at least in social studies, less than half of the teachers in grades 4, 7, and 10 attended in-service activities and only 37% of secondary teachers belonged to the provincial social studies association (Cassidy and Bognar, 1991). Such numbers are significant findings, Wright (1995) says, when it is considered that in-service and membership in a professional organization are the likely avenues for practising teachers to remain acquainted with recent educational findings. The British Columbia Assessment of 1996 (Bognar, Cassidy & Clarke, 1997) reports an increase in the number of secondary social studies teachers attending social studies in-service - 78% in comparison to 46% of grades 4 and 7 teachers; 61% of secondary social studies still do not belong to the provincial social studies association. The significant increase in in-service attendance likely results from the averaging of the grades 4, 7, and 10 teacher findings is heartening. Still, in 1996, teachers show “widespread support for encouraging critical thinking in their classrooms, although they indicate that they still need support to do so” (Cassidy, Bognar & Clarke, 1997, p. 134).

Lack of contact with educational research is not the only reason why teachers may not be promoting and implementing critical thinking. Sears (1991) refers to the lack of dialogue which occurs between academics and teachers as well as distrust between the two groups. Hargreaves (1993) argues that impetus for educational change and improvement usually is viewed by teachers as prescriptive, and thus ignores, mis-understands, or overrides teachers' own desires. Teachers judge change by their practicality, which does not just mean measuring abstract theory against the tough test of harsh reality, but asking whether the changes fit the context, whether they suit the person, whether they are tuned with their purposes, and whether they help or harm the person's interests (Deighton, 1971, p. 6208).

Another possibility for the lack of marked change to incorporate critical thinking in the delivery of instruction, even in the face of large efforts to reform curriculum and instruction, has been described by Cuban (1991, p. 206). He suggests that it is the difficult condition and the multiple expectation of the classroom, as well as the lack of incentives, which reduce the
likelihood that teachers will embrace new theories and pedagogy.

Furthermore, to teach critical thinking successfully a teacher must have certain beliefs about education. For example, teachers have to be committed to inquiry, and encourage questioning. “A mismatch between the beliefs and assumptions about teaching and learning held by teachers and those held by curriculum architects can be expected to result in a novel curriculum being altered ... to the point of being unrecognizable” (Munby, 1979, p. 246; Miller and Seller, 1990). Nevertheless, one indicator of a positive change for praxis and the development of critical thinking classrooms in social studies does exist. That indicator was the meeting described above, where academics and teachers met to exchange notions of critical thinking and true interest on both sides emerged as a result of the state of critical thinking in the classroom.

The Research Question

This research study further extends and deepens our understanding of how thirteen and fourteen year olds think through problematic situations by investigating eight female secondary students enrolled in grade 9 social studies in a public secondary school in Burnaby, British Columbia. Before discussing the research study itself, the context in which it took place must be established.

This research focussed on the following question:
How do 13 - 14 year old social studies students, prior to and after instruction in the Bailin et al. conception of critical thinking, utilize the tools for thinking in their responses to critical challenges which require fairmindedness?

My particular, content domain is social studies, a subject conducive to providing critical thinking opportunities. John Passmore agrees. “The fact remains,” he wrote, “that history and literature classes provide the teacher with opportunities for encouraging critical discussion of a wide variety of human activities, as well as of literature and history themselves” (1967, p. 208). The context of social studies seems like a promising place to explore the critical thinking of
What are students doing when we, as teachers, want them to think critically? Are they accessing tools of thinking, and developing thinking strategies? Are they becoming better equipped to critically view and act in the world around them? Do our teaching practices, those meant to encourage critical thinking, influence students? If they do, how do they influence them? These are some general questions which have not been sufficiently addressed in educational research to date. The recent Bailin et al. conception of critical thinking was intended to provide teachers with a model upon which to base their teaching and from which to simultaneously promote critical thinking. We need to know what students do when they are confronted with a critical thinking activity. Only by understanding this can we organize our instruction to best teach critical thinking. My qualitative study will describe, interpret and offer an evaluation of the kind of thinking that goes on when students are encouraged to think critically. In my study, I observed eight female students from my grade 9 social studies class tackling a challenge prior to and after instruction.

Theoretical and Historical Context

Over two thousand years ago, Socrates asked his students for “clear, unambiguous definitions, alternative explanations, and called into question hypotheses that most people accept without thinking” (Zevin, 1992, p. 13). Socrates influences present teaching practices through a teaching technique called Socratic questioning which promotes critical thinking.

Interest in how to teach students how to think, or in the necessity for students to be thinking critically, has been evident in the public schools of North America at least for the last century. For a contemporary perspective of critical thinking, John Dewey’s work in the first half of the 1900s inspired ‘progressive education’. Of Dewey’s influential conception of thinking in education, Leonard Carmicheal said, “[Dewey] mirrored the changes of his times, but he was also one of the few individuals whose new outlook on man and society did more than a little to accelerate the movements which have made the 20th century intellectually what it is” (1902, p.
vii). Dewey's philosophy centred around reflective thinking which he believed is, “not just any kind of mental activity [but] active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends” (as cited in Frankena, 1965, p. 145).

From Dewey's writings came the progressive model of education, which advocated critical thinking and decision making. Dewey later denounced the progressive movement as it had become, because he did not believe that it held up the tenets of his philosophy of education. Dewey's work does, however, continue to provide the philosophical underpinnings of inquiry approaches to curriculum and thus is still molding educational thought (Miller and Seller, 1990).

In the 1950s, Benjamin Bloom addressed the cognitive objectives and the skills needed to achieve specific educational goals. Teachers have interpreted his Taxonomy of Educational Objectives to mean that the higher objectives require critical thinking, whereas the lower do not. Although many still find this taxonomy useful in focusing teacher attention on the degree to which the tasks designed require students to think critically (Schrag, 1992), objections to Bloom's work have been raised against his view that thinking consists of differentiated and segregated tasks. There is also criticism that logical reasoning is not included.

In 1879, Wilhelm Wundt, who is considered to be the founder of experimental psychology, used what he called "introspection" to observe the mental processes or the building blocks of thought that occurred when he carried out his own mental tasks (Garnham and Oakhill, 1994). Gestalt psychologists in the early 1900's described how people solve complex problems. Experience, or at least the reapplication of previously successful solutions, was seen to help or hinder people in their attempts to solve problems. It is interesting to note that Gestalt psychologists also believed that there was a general carry-over effect from one thinking activity to another. Since World War I, the psychometric approach to thinking, or mental testing, has been prominent of which IQ tests are one example. The methods of 'measuring' the mind which have been developed demonstrate how people solve problems of certain kinds under test
conditions; however, they cannot provide an account of the mental processes by which people solve those problems.

By Dewey's time, two models of critical thinking were forming: one based in the field of cognitive psychology and the other within philosophy. The distinction between these two models is often viewed to be that of process versus product. While critical thinking from the philosophical perspective is seen as being closely connected with rationality and the appeal to good reasons, the psychological model focuses on thinking skills and the processes of thinking, for example, the steps involved in problem solving. The influence of the psychological model of critical thinking and its emphasis on thinking skills can be seen in the work of Edward DeBono, while, with the exception of Matthew Lipman's Philosophy for Children, there are relatively few programs based on the philosophical model. Philosophers have criticized psychological accounts on the grounds that it is impossible to specify any particular set of mental events which an individual must go through in order to think well, and, moreover, that good thinking is determined by the quality of the reasoning produced (Bailin, 1994).

Recent philosophical research has resulted in the existence of competing theories of critical thinking, a situation which Johnson (1992) calls "cognitive dissonance". Norris (1992) refers to the conceptions of five philosophers for an understanding of critical thinking. He describes their conceptions as "theoretically funded" - the result of an historical development and integration of ideas which have come to inform critical thinking. From the concepts, principles, arguments and assumptions, and the common focus on the quality of reasoning produced by thinkers of this Group of Five, Robert Ennis, John McPeck, Richard Paul, Matthew Lipman, and Harvey Siegal, a sixth conception of critical thinking has recently emerged (Bailin et al., 1993). This conception was heavily influenced by the work of Jerrold Coombs who was studying critical thinking as early as the late 1950's.
In the Context of Social Studies

While many define social studies as the study of history, topics within anthropology, sociology, geography, economics, political science and any issues which concern human behaviour have also been included. Because of such diverse purposes, it is difficult to determine if social studies is a subject, discipline, field or domain. I will refer to social studies as a subject. My use of the word subject is in keeping with the Webster’s Dictionary definition—“any of the various courses of study in a school or college, a branch of learning (Neufeldt & Guralnik, 1988, p. 1333)”.

In social studies, the emphasis on critical thinking is dependent upon the goals which teachers set for their students; these goals reflect teachers’ views of the importance of critical thinking. A useful approach to viewing how teachers teach social studies, and thus understanding where critical thinking is situated within the subject, is through Zevin’s description of three of what he calls major, interrelated dimensions or goals of teaching: the didactic, reflective, and affective. Zevin (1992, p. 4-5) explains that content is most typically organized around goals such as

a) the didactic [which] concerns lessons and curriculum with a predominantly information-processing orientation that promotes the acquisition of data and the transmission of knowledge; b) the reflective [which], encompasses lessons and curriculum with a predominantly problem-finding and problem-solving orientation that fosters reasoning skills and the formation and checking of hypothesis; and c) the affective [which] includes lessons and curriculum with a predominantly ethical and policy-making orientation that encourages the examination of values and the testing of beliefs and belief systems.

The likelihood, then, of critical thinking being taught in the social studies class depends to a large extent upon which goal or combination of goals lessons are based upon. Social studies teachers by the nature of their subject curriculum, infuse their instruction with content. Those
who believe that the goal of social studies are to transmit facts, skills, and values to students hold a philosophy which is didactic or within the transmission philosophy. Using the lecture as an instructional method is an example of this philosophy. As Wright (1995) states, the lecture is not appropriate for teaching critical thinking in general, although lectures on particular topics might be useful.

Those of the reflective approach would emphasize strategies that facilitate problem-solving, application of problem-solving skills within social contexts in general and within the context of the democratic process (Miller and Seller, 1990). Teachers of this approach believe that information must be digested, analyzed, and applied in order to be useful (Zevin, 1992). Reflective instructional methods encouraging students to draw conclusions after analyzing information provide opportunities for critical thinking. A teacher oriented firmly within the affective position would consistently teach for critical thinking. Themes of affective teaching tend to be controversial and include an examination of values (Zevin, 1992). It is through a philosophical approach like the affective which Sears states is the only “hope to influence prospective teachers to adopt the ethic of and teach a critical social studies” (1991, p. 65). Few social studies teachers are rooted completely in one of the approaches or positions described above, but the majority of teachers are apt to emphasize one approach over the others (Miller and Seller, 1990).

A social studies teacher’s philosophy is not the only factor which affects teaching for critical thinking. Among other things, the curricula mandated by governments defines secondary instruction on a practical level, and therefore plays a role in whether or not critical thinking is emphasized. Wright and La Bar (1987) maintain that all curricula in Canada in social studies include objectives concerned with the development of critical thinking; in British Columbia the extent to which they exist has not been large, until recently, with the institution of a new social studies curriculum.

The didactic position has dominated the British Columbia social studies curriculum for some time. Prior social studies assessments called for more effective implementation of critical
thinking and stronger emphasis on teaching students to apply the knowledge they learned to the real world (Cassidy and Bognar, 1989; British Columbia Ministry of Education, 1988). The 1996 Assessment of Social Studies goes further to state, “there may 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” (Bognar, Cassidy, Clarke, 1997, p. 136). The Ministry of Education, Skills and Training (1996) recently developed the Social Studies Integrated Resource Package Grades 8-10 and 11, which upon full implementation will replace the Social Studies Curriculum Guide Grades 8-11. Although there is no reference to a specific conception of critical thinking, it appears that the ministry recognizes to some extent the value of critical thinking and seeks to encourage teachers to build critical thinking strategies into their repertoires. In this proposed curriculum, the overarching goal of social studies is “to develop thoughtful, responsible, active citizens who are able to acquire the requisite information to consider multiple perspectives and to make reasoned judgements” (British Columbia Ministry of Education, Skills and Training, 1996, p. 1).

Organization of the Thesis

The purpose of this thesis is to explore what eight 13-14 year old female secondary social studies students are doing when we, as teachers, want them to think critically. By exploring the nature of the students thinking, educators might gain some insight into how students respond to a problematic situation or what it means to think about something critically. In using qualitative research, the research question can be explored, and data analyzed and recorded in a rich and detailed way to show a realistic view of what critical thinking might entail in a secondary social studies classroom.

This chapter included an introduction explaining my personal and the historical origins of the research question, the research question itself, the context of critical thinking within social studies, and an outline of the organization of the thesis. Chapter 2 is a review of current
literature pertaining to the thesis question. After beginning with a review of the definitions and elements of critical thinking embodied by prominent philosophical conceptions, literature regarding the measurement and evaluation of critical thinking are surveyed. Then, the existence of critical thinking in programs and curricula, and through the eyes of teachers, is reviewed. Finally, relevant research studies and their findings are examined. The third chapter describes the qualitative methods used to acquire the data, along with a discussion of the audio-recording, video-taping, interview and transcript/voice considerations. Chapter 4 describes the responses of the students to the critical challenges, both written and oral. The chapter traces their thinking from their first introduction to challenges based on the Bailin et al. conception, to their final challenge after having a month long social studies unit on the Industrial Revolution which involved instruction in critical thinking. The final chapter includes implications of the research and some reflections.
In order to address the central research question of this study the following branches of the extant critical thinking literature must be considered. One important branch of the research literature concerns the definitional question. A second branch of literature is concerned with empirical studies into peoples' critical thinking. Lastly, a branch of the literature concerns the measurement and evaluation of critical thinking.

An important branch of the research literature about critical thinking is centred on how it should be conceptualized. There are a variety of attempts at answering the definitional questions demonstrating its complexity. Even with this deliberation into critical thinking, there remains no fully accepted definition especially as there are two differing areas of academic study - the psychological and philosophical - which have exemplified differing conceptions.

Although skepticism and prejudice exist between psychology and philosophy, a call for an integration of the inherent strengths of the two approaches to thinking has been put forth. Paul (1993) describes the views of cognitive psychologists about thinking as “scientific” and in need of correction by the insights of philosophers, for the whole truth about thinking to be apprehended. “In thinking, if nowhere else, 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 as ideas: the ‘stuff’ that
Some conceptions of critical thinking have emerged as prominent. There are some consistencies in these. In five of the prominent conceptions - those of Ennis, Paul, Lipman, McPeck, and Bailin et al. - there is a consistent belief that critical thinking does not include all forms of thinking; for thinking to be critical it must have specific purposes. Paul, for example, defines critical thinking as “a unique kind of purposeful thinking in which the thinker systematically and habitually imposes criteria and intellectual standards upon the thinking” (1993, p. 21). Ennis describes critical thinking as “reasonable, reflective thinking that is focussed on deciding what to believe or what to do” (1991, p. 6). McPeck, and Bailin et al. go further to state, rather than imply as Ennis and Paul do, that the purpose of thinking includes resolving a problem. For Bailin et al. the specific context of critical thinking is called the critical challenge. Critical challenges are the tasks, questions or problematic situations that provide the impetus and context for critical thinking.

All theorists see critical thinking as producing beliefs. In contrast to the other four, however, Lipman’s definition reveals more about the defining features of critical thinking than the outcomes, and he does not specify the context (i.e., problematic situations) in which the thinking must take place. Lipman defines critical thinking as “skillful, responsible thinking that facilitates good judgement because it a) relies upon criteria, b) is self-correcting and c) is sensitive to context” (1988, p. 3).

An important feature of all of these conceptions is that a critical thinker needs to have knowledge of the subject or topic being thought about; the degree of knowledge needed in order to think critically is, however, in question. McPeck represents the position that much knowledge must be acquired regarding the problematic situation before a person can think critically about the matter. Conversely, Ennis (1991) believes that while background knowledge is essential for critical thinking, a person can rely upon an expert for that knowledge, or critically think through the problem with available background knowledge and decide that further knowledge of the situation is needed before a conclusion can be formed.
The five conceptions also emphasize that a critical thinker is disposed to thinking critically. Lipman (1988) believes that a critical thinker draws upon "responsible thinking" for self-correction and is disposed to be analytical and use good reasons. McPeck (1990) labels being 'disposed' to thinking critically as the "critical component", and describes it as the "ability to reflect upon knowledge and beliefs, to question effectively, and to suspend judgement or belief about the required knowledge composing the problem at hand" (1990, p. 28). In keeping with McPeck's critical component, Paul (1993) describes a number of intellectual traits, while Ennis (1991) outlines twelve dispositions, and Bailin et al. discuss several habits of mind, all of which refer to awareness of and commitment to certain attitudes which will foster critical thinking. For example, Bailin et al. refer to "faimindedness" which means a willingness to give fair consideration to alternative points of view and commitment to open, critical discussion of theories, practices and policies. Ennis (1991), in his list of dispositions of the ideal critical thinker, includes items similar to fairmindedness:

6. to look for alternatives and  
9. to be open-minded: consider seriously other points of view  
   than one's own (Ennis, 1990, p. 8).

In fact, most theorists agree upon the major dispositions required for critical thought. In addition, all of the conceptions illustrate that a critical thinker uses appropriate standards to guide their thinking. Lipman (1988) describes standards as specific kinds of criteria which guide cognitive practice and are employed in the making of judgments. He believes that critical thinkers should be able to cite the criteria by which their practice is guided. Paul (1993) uses the term intellectual standards. He gives examples of standards such as relevance, clarity, and depth. Paul sees such standards as being part of what distinguishes critical thinking from other thinking because the thinker is aware of the systematic nature of high quality thought, and is continuously checking up on himself or herself, striving to improve the quality of thinking. Bailin et al. outline numerous standards.

Major inconsistencies among the prominent conceptions present themselves in the areas of ethics or morality, scope or outcome, and the generalizability of critical thinking. The lack of accord about the relationship of critical thinking to morality is a part of what Johnson (1992)
calls the network problem - how to sort out the relationship between critical thinking and terms such as problem solving, decision making, metacognition, reasoning and intelligence, to name a few. According to Johnson, it can be argued that critical thinking does not involve moral consideration. However, Paul (1993) believes that morality plays a part in every critical thinking context. Lipman (1988) suggests that while critical thinking is needed to make a moral judgement, morality is not necessarily part of every judgement. McPeck, Bailin et al. and Ennis acknowledge the role morality plays in some contexts but not others. Wright and LaBar (1987) argue that morality plays a crucial role in judgments about what to do, or what they term practical reasoning. Coombs (1989) believes that understanding the standards of good moral reasoning and deliberation will at least help people to think critically about moral problems.

While all theorists see the scope of critical thinking as affecting or producing beliefs, Bailin et al., Paul and Ennis view critical thinking as potentially affecting actions as well. Lipman points out that teaching critical thinking does not necessarily have any effect on belief or action, although the effects are possible. He believes that “teaching reasoning does not mean students will have better judgement, as judgement bettered won’t always be followed by better actions” (1991, p. 160). It is important to distinguish between the outcomes of action and belief because a thinker may use his or her critical thinking abilities to come up with a good judgement but he or she may not necessarily choose to act on that judgement.

Generalizability is another main area of contention among the theorists. According to Norris (1992, pp. 1-4), generalizability is the extent to which

1. some commonality exists in the critical thinking needed from field to field, subject to subject, topic to topic, concern to concern; and
2. critical thinking provides a significant fund of resources for dealing effectively with each of these various fields, subjects, topics, and concerns; and
3. the ability to think critically as learned in one field, subject, topic, or concern has a positive influence on thinking critically in other fields, subjects, topics, and concerns.
All theorists agree that critical thinking can take place within a particular subject or discipline area. However, McPeck (1990) adamantly rejects the possibility that critical thinking can be measured independently of context and subject or discipline matter or that it can be deployed generally across different subjects or tasks. Grant agrees that critical thinking is context-bound and that effective strategies vary "by subject matter, by an individual teacher's conception of that subject matter, by the way that conception is reflected in work tasks for students, and by a teacher's ability to engage and sustain student attention in those tasks" (1988, p. 2). Ennis (1991), on the other hand, believes that the kinds of abilities a critical thinker has are general, but that the way each ability, or standard, disposition and strategy, is used within a subject area or discipline is unique. Lipman, Paul and Bailin et al., hold views similar to that of Ennis.

Pressing to the debate about the conceptualization of critical thinking are the post-modern charges that critical thinking is a biased or incomplete method of viewing human reasoning. Some of these charges have collectively come to be known as the feminist critique of critical thinking. In her review, Bailin (1995) breaks down the feminist critique into the categories of those which charge that

1) the practice of critical thinking is biased, or that
2) the definitions or conceptions of critical thinking are biased.

Bailin also clarifies that the term 'bias' has been defined in two ways by critics:

1) as the uneven application of existing standards, and
2) as the exclusion or detriment of particular groups by the standards which are chosen.

Bailin does not articulate her own beliefs regarding bias, although the fact that she addresses the issue of bias demonstrates either her openness to the idea or her perception that there is bias in existing conceptions. Bailin et al. also do not overtly mention feminist modes of thought in their conception, while on the other hand, these modes are not excluded. Regarding the practice of critical thinking, Orr (1989) believes that for a full range of human thinking to develop, the feminine mode of rationality must be acknowledged. The feminine mode is narrative, indirect, and conciliatory, and stresses solidarity, while at the same time requiring a more active involvement on the part of its audience. Phelan and Garrison (1994) compare men's and
women’s ‘natural’ foundations of knowledge as being, respectively, “objectivity and detachment” and “closeness, connectedness, and empathy.” Orr, Phelan and Garrison call for the need to exercise empathy or emotion in the practice of critical thinking.

Warren (1988) explains that the conceptual frameworks which people use affects their thinking. She describes a conceptual framework as a set of beliefs, values, attitudes, and assumptions which explain, shape and reflect our view of ourselves and our world; frameworks are shaped by sex or gender, class, race or ethnicity, age, and nationality to name a few. Warren suggests that the prominent conceptions of critical thinking are biased because they reflect the features of the western oppressive conceptual framework towards women which serves to denigrate those things deemed as feminine and maintain men’s superior position above other groups. Wheary and Ennis (1995) concur by stating that it is men who are associated with the prominent conceptions of critical thinking, so the possibility exists that these conceptions do not represent feminine approaches to critical thinking.

It is interesting to note that of the prominent conceptions of critical thinking in the philosophical tradition, four assume universal standards for men and women in thinking. Only Ennis concedes that his conception could possibly be missing components which could be attributed to feminine thinking; an omission such as this is likely limiting for both men and women, because both sexes’ thinking might include the ‘missing’ components (Wheary and Ennis, 1995).

Norris (1995) agrees that any practice of, or any conception of critical thinking, would be culturally or gender biased if it undervalued a culture or gender on account of alleged deficiencies in the thinking of persons of that culture or gender. He acknowledges that some groups have different approaches to solving problems than those described within modern conceptions. However, he believes that more evidence is needed to prove “bias” exists.

Bailin et al. have provided a model which takes into account some of the questions raised by other models. They view critical thinking as:

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thinking through problematic situations about what to believe or how to act where the thinker makes reasoned judgements that embody the attributes of quality thinking. (1993, p. 4)

Bailin et al. (1993, p. 5) explain that critical thinking has three dimensions:

1) "critical challenges" - the tasks, questions or problematic situations that provide the impetus and context for critical thinking;

2) "tools for thinking" - the background knowledge and critical attributes - the array of knowledge, strategies and attitudes required for quality thinking - that are drawn upon when responding to critical challenges;

3) "critically thoughtful responses" - responses to particular critical challenges that demonstrate appropriate use of relevant tools for thinking.

Bailin et al. (1993, p. 5) summarize the relationship between the dimensions as:

to think critically is to respond thoughtfully to a particular challenge by making appropriate use of tools for thinking.

Bailin et al. argue that this conception has important advantages over other ways of describing critical thinking. In TC2: The Critical Thinking Cooperative (no date, p. 3), they describe that:

1) it focuses attention where it belongs - on the quality of thinking, and not on prescribed steps in thinking;

2) it resolves uncertainty over the tension between the general and the context-specific nature of thinking;

3) it illuminates the full range of "tools" that a critical thinker needs, including subject matter knowledge and attitudes, and does so in a way that enhances our ability to promote them in our students;
4) it indicates how critical thinking applies to academic study, to technical and creative production, and to ordinary life.

A second branch of the literature concerns empirical studies into critical thinking. Kuhn (1991) shows that the major shift towards better thinking occurs across the sixth to ninth grades. Her research also shows that ninth graders in a college-bound upper socioeconomic private school environment performed significantly better in critical thinking tasks than ninth graders in a non-college bound inner-city parochial school. Kuhn’s findings that early adolescence is the age level at which the ability to reflect on one’s own thought first emerges is congruent with the formal operations stage of Piaget’s developmental theory. He claimed that children’s understanding is limited by the stage of intellectual development they have reached, and that they cannot be taught to think and function at higher levels until they have passed through the lower ones (Garnham and Oakhill, 1994). Not until the formal operations stage does Piaget state that children develop the ability to reflect on their own thoughts, think of possible outcomes, and relate actual outcomes to those that are possible. Although Piaget’s research methods have been questioned by some researchers, his theory provides insight into human development upon which others have built. Other findings show that the acquisition of more sophisticated strategies is limited by the child’s experience in particular domains and that it is possible for children to develop beyond a specific Piagetan stage (Siegler, 1993; Case, 1985). Siegler, 1993) regards cognitive development as a continuous process, where there is a potential of no difference existing between the thinking of adults and the thinking of children. Bailin et al. recognize in their conception of critical thinking that learning does not develop at specified ages in uniform steps following a predetermined sequence, but that students develop at varying rates in different ways depending on variables such as motivation, background knowledge and educational opportunities.

Research has attempted to determine whether or not it is possible for critical thinking programs to fulfil their objectives. In the case of Lipman’s Philosophy for Children program, a
year-long experiment showed significant improvements in reading, mathematics, and reasoning (Paul, 1993). However, Munby (1979, p. 246) argues that the results might have been better if “teachers understand its underlying assumptions about the nature of teaching and learning and are prepared to handle the philosophical and logical content of the program.”

While teachers may possess certain beliefs and knowledge about critical thinking, having such beliefs by no means guarantees that critical thinking practice is being implemented and that critical thinking is indeed taking place in the classroom. McKee (1988) illustrates the possibility that long-term in-service on critical thinking does not ensure the implementation of critical thinking if teachers view knowledge as ‘fixed.’

Though there are few empirical studies, there are many calls for further research into critical thinking. Kuhn (1986) saw that what was missing from all of the critical thinking literature is empirical data on the nature of reasoning that children and adults in fact engage in while thinking. She believed then that such approaches to research promise to build upon a usable base of knowledge about thinking and how thinking develops. In agreement, Lipman (1988), supportive of fostering and strengthening critical thinking in the schools and colleges, calls for researchers to go beyond current definitions of critical thinking which stress the outcomes of the thinking and to instead note the essential characteristics of critical thinking. It seems senseless to build more theory and develop curriculum materials around theories which are not based on the sound knowledge of the patterns of thinking in which people actually engage. Norris (1995) calls for research to facilitate the treatment of charges of bias, and he sees that the use of the narrative genre would be useful in this or any aspect of critical thinking research. Norris is not the only one to see the value in qualitative research into critical thinking. Candace Jesse Stout in her research of critical thinking in conversations about art believes that qualitative research allowed her to “provide a richness of description that help[ed] the reader see and understand, as closely as possible, the depth of sophistication and complexity of higher order thinking” (1995, p. 186). Though there is limited agreement in the information available about critical thinking and, as Ennis (1991) states, it does not tell us how and when to teach what, there appears to be a common understanding that research into critical thinking would be
Lastly, a branch of literature concerns the measurement and evaluation of critical thinking. This is important because, of course, if teachers are to teach critical thinking, there must be an appropriate, meaningful, and constructive means of evaluating it. First, there is the question of what to evaluate for evidence of critical thinking: the approach taken to the thinking or the product of the thinking. Norris (1987) says that it is not legitimate to base the evaluation solely on the products of students' reasoning, and instead, research should ascertain if the approaches to reasoning which students use are ones which reliably lead to good judgements. Bailin et al. agree that the key issue in judging a critically thoughtful response is not whether or not we agree with the judgement, or product, but rather the extent to which the reasoning that supports the judgement embodies the attributes of quality thinking. Bailin et al. describe what that reasoning might entail; critically thoughtful responses embody the appropriate use of tools for thinking in response to particular challenges. Tools for thinking in the Bailin et al. conception refer to the array of background knowledge and attributes that are drawn upon when responding to a critical challenge. Tools for thinking also include the critical attributes or characteristics which make a person more likely to be aware of, and adhere to, relevant standards and to be aware of concepts which help to make distinctions among different kinds of issues and thinking tasks. Critical attributes include also the characteristics of a person which make him or her committed to certain attitudes which foster critical thinking such as open- or fair-mindedness. Thus, in evaluating critical thinking, we have to be aware of all these dimensions.

There is also the question which concerns what methods best evaluate critical thinking tasks. Methods suggested are essay tests, interviews with individual students or naturalistic observations (Norris, 1987; Bailin et al., 1993), each of which should be associated with an historically sound conception of critical thinking. Multiple choice tests are not seen as good tests of critical thinking. Norris (1987) states that multiple choice tests are not a complete way of evaluating critical thinking because they focus on reasoning products not process. Bailin et al. believe that multiple choice questions reduce complex learning outcomes to atomistic units, whereas critical thinking should encourage students to integrate what they know in realistic
situations. Essays, on the other hand, provide a more holistic measurement (Bailin et al., 1993) and yield higher quality information from which specific inferences about students' thinking processes can be more reliably made (Norris, 1987). Yet, some limitations have been described in the use of essays as measures of critical thinking. These criticisms include the fact that the level of critical thinking found within the essay are dependent on students' writing fluency. Newkirk (1989) argues that the use of a formal essay dulls the writers from being creative and impressionistic for the reason that each paragraph has been thoroughly planned ahead. The worth of using an essay as a measure also depends on the quality of both the critical challenge and the scoring system (Bailin, 1993). Thus, a naturalistic approach, coupled with an essay assessment, would reveal more interesting data. In situations of naturalistic observation, Mumford (1991, p. 192) gives clues as to what an evaluator should be looking for.

Students who are taught to use critical and reflective thinking skills are often able to ask productive questions that lead to useful data to ask further questions, judge and evaluate what is important, challenge the answers of the instructor and other students, attempt to understand why they are learning, have a respect for evidence and rational arguments, seek out problems and questions rather than topics and answers, and settle for temporary solutions, subject to modifications.

There is much existing discussion and study about critical thinking, but there is no rich, substantive research basis which teachers can use to provide students with opportunities to practice the vital ability of thinking critically. If, as assessment documents insist, the way to a successful future is through this ability, then teachers need greater guidance to make it become a reality.

There seem to be two important aspects of research, with regard to critical thinking, absent from the literature from which guidance for teachers and curriculum and policy makers might be established. As with the building of a house, or the growing of a tree, we want the end result to have a solid foundation. It seems to me that the foundation or
roots of our understanding of critical thinking would be the ‘what’ of critical thinking. We need to know what tools social studies brings to bear when students are confronted with a problematic situation, using the Bailin et al. conception of critical thinking. Only after the definition and how critical thinking takes place have been established, would it be time to investigate methods which will promote, implement and evaluate it. The definitional question has been answered in a variety of ways which demonstrate the complexity of the concept of critical thinking. It is the second foundational question above which has not been adequately addressed and will be addressed within this study.

The second aspect of research found inconsistently in the literature, refers to how this question might be addressed by research. The study which I have outlined in Chapter 3 is qualitative in nature; qualitative research has several advantages to offer the study of critical thinking. Lincoln and Guba (1985, as cited in Preissle-Goetz and LeCompte, 1991, p. 57) refer to qualitative as naturalistic and indicating a concern for studying human life as it proceeds unaffected by [those] interested in studying it. This type of research, then, allows one to understand critical thinking from the perspective of the participants who engage in it. Newmann (1985, as cited in Preissle-Goetz and LeCompte, 1991, p. 62) praises qualitative researchers for their ability to analyze complex relationships among factors such as students, teachers, classrooms, and curricula. In addition, qualitative research impels researchers to trace through what actually happens during something like critical thinking, rather than merely reporting the degree to which what was expected occurred or failed to occur. In these ways, the study of critical thinking can become holistic and focused on a search for an understanding of a broad context of critical thinking. Far more qualitative research is needed regarding critical thinking. As mentioned previously, Norris (1995, p. 211) suggests that qualitative research is necessary in order to attend carefully and listen to the story of others, in order to ascertain if critical thinking is biased.

In Chapter 2, I have examined the research literature which provides a context and some relevancy to my study. It is evident that while there is much written about the nature of critical thinking, there are few empirical studies to draw upon. In Chapter 3, I provide a comprehensive
description of the research design, selection of participants, the method of collecting, organizing, and analyzing data.
Chapter 3
Methodology

The Nature of Qualitative Research

The qualitative researcher is like a dancer in "seeking to describe, explain, and make understandable the familiar in a contextual, personal, and passionate way" (Janesick, 1994, p. 217). Janesick suggests the metaphor of dancer to illuminate the contribution that qualitative research can make to education. As the dancer becomes immersed in a dance, so should a qualitative researcher become immersed in a study with "passion for people, passion for communication, and passion for understanding people" (Janesick, 1994, p. 217), and express rejection for the depersonalization of social events resulting from quantitative research.

Qualitative research is seen by some not only as a research method but reflective of a social philosophy. As a method, it is concerned with understanding social phenomenon from participants' perspectives. As a philosophy it reflects one's view of the world: a view with the assumption that "multiple realities are socially constructed through individual and collective definitions of the situation" (Schumacher and McMillan, 1993, p. 14). In general, qualitative research is naturalistic, realistic, and flexible. In my research, the data gathered and conclusions are context-bound: eight grade nine students are not representative of society or all human beings. In qualitative research, the case is researched and reported by me - with my biases and assumptions. Nevertheless, cases can be studied meaningfully, given that they take place
within a real-life situation. Furthermore, they can be used as a basis for further research. This can be accomplished with an analysis of the statements from carefully done, rigorous long-term studies that Janesick (1994) suggests we should "get on with" to uncover the meanings of events in individuals' lives.

My preference for qualitative or naturalistic research reflects my belief that this study of critical thinking is best served by this type of data collection and analysis, and narrative strategies. I wanted to ensure it was possible to note the essential characteristics of this highly complex and relatively unstudied phenomenon - the critical thinking of eight social studies students.

Preparation for the Research Study

I was free to choose those strategies which I deemed appropriate to meet the specific and unique focus of the research problem; my primary interest of the study was to observe the individual participants' critical thinking responses.

After formulating and analyzing the problem statement, with its anticipated research questions, I had to consider, actually in my case reconsider, the site and participants to be selected in order to establish a research design. Being a full-time teacher who works in a large, urban secondary school, I presupposed that my school setting would not only fit naturally with my proposed study, but that some students to whom I taught social studies would be suitable as participants. Subsequently, I determined specific criteria to select the site and participants and did find that my setting was a match. My first criterion was that the school be rich with potential participants for the study who were from a variety of backgrounds and academic levels. I wanted to study participants who were not necessarily already critical thinkers, but who could demonstrate their attempts to think critically. Secondly, access to the school had to be relatively easy given my schedule and work setting. Janesick sees access and entry to the site as "sensitive components" of the research which, accomplished satisfactorily, will lead to the
establishment of "trust, rapport, and authentic communication patterns with participants" (1994, p. 211). Thirdly, access to the participant group had to be convenient for the participants as well as me. Additionally, the participants had to have the motivation to undertake and complete the study which I was proposing.

I selected for my study the large public secondary school where I teach, located in an urban area. It is a facility with 2500 students of a mixed ethnic population, with upwards of 50% of the students speaking English as a second language. The school offers a range of courses suited to varying academic levels. The social studies department offers Honours, Regular and Alternate courses from grades 9 to 11, and Regular level courses only for grade 8. Alternate courses offer the same curriculum as each regular course, but at a lower level. Grade 12 students choose from several Regular level courses, such as History and Geography, as well as from the International Baccalaureate program, which offers the grade 12 courses at an accelerated rate.

The participants for the study volunteered themselves. I had planned to invite the participants to take part in the study from a regular level grade 9 social studies class, of which I had three in the year of my study. The class from which my case would come was evident after circumstances necessitated that a student teacher take on two of the classes. I explained to the third class the kind of study I wished to fulfil and my combined roles of teacher, student and researcher and asked that they consider taking some time to help me fulfill my research plans, as well as taking an opportunity to learn more about an historical topic and critical thinking. At the same time, I handed out a parental consent form which provided detailed information about the study, and the role of the students and the researcher within it. Nine students returned two days later with their signed consent forms. Eight were female. I speculated that the reason for this self selection of the same sex might be a result of my being female, and their subsequent identification with me. The ratio of males to females in this class was low, however, which likely also influenced the sample; only seven out of the twenty-seven class members were male. The one male volunteer came to the initial session, looked around the room at the other members, and immediately came to me, verbally declining from joining the research group. I can
only surmise, agreeing with a female participant, that "all of the girls scared him away."

The number of volunteers was in line with my initial design decision of having five to ten participants. If more had volunteered, I would have had to design a method to reduce the sample to ten. My decision to study five to ten subjects was based on two criteria: time and narrative considerations. For each session, I had planned a 75 minute group activity and a 20 minute individual interview. This group activity would be based upon what Bailin et al. label as a critical challenge. Critical challenges are "the tasks, questions or problematic situations that provide the impetus and context for critical thinking" (1993, p. 12). All of the data in this study were meant to come from these two group activities or challenges, and the interviews following them. (See Appendix A for the two challenges which were used within this study.)

I wanted to complete the interviews as soon after the activity as possible in order for all participants to be able to discuss it in as much vivid detail as possible. Interviewing them the next day or later was not a viable option. Secondly, I wanted to describe fewer participants in detail rather than superficially attempting to portray more.

My choice for the site, and my methods of selection, described in proposal form, raised concerns for the Research Ethics Review Committee at the University of British Columbia - mainly that the use of my own students as participants of the study would jeopardize the students' later classroom situation in some way. Perhaps they would receive higher, or lower, marks based on my deepened knowledge of their performance, or perhaps other students in the class would experience alienation as nonparticipants. I did go ahead and work with the students from my grade nine social studies class in this study and as far as I could ascertain neither of these two possibilities materialized. However, I believe the Review Committee stood on solid ground when they questioned my strategies for site and participant selection. My understanding of their concerns stems from a further analysis of my biases and assumptions as researcher in the study. Some limitations on my research may have occurred due to my students acting as the subjects of my study and me acting as researcher. With my previous history with the participants' personalities and achievement, and possible predisposed expectations of the
individuals, my interpretation of data may have been influenced. Though possible, I believe with the numerous methods I utilized to analyze and to interpret the data, as discussed below, that these biases were reduced to a minimum effect.

Craver notes that there are "possible contaminating influences of a teacher's personal pedagogical qualities or enthusiasm for the research project" (1990, p. 77). Yet, had I been an outsider to the class, the volunteers' motivation and willingness to share personal information may have differed. As seen in Chapter 4, it is evident that the students were motivated to participate in the study in a whole-hearted way, providing much detailed information during the interviews. I believe it was helpful to have developed a relationship with the eight girls.

In addition, my biases may have affected my interpretation of the data. Wheary and Ennis (1995, p. 217) believe it is possible that even though I am a female, I could still be comparing female subjects to a male standard of thinking, overlooking characteristics of female thinking or misunderstanding them. On the other hand, being female, and aware of a possible gender-basis in theories of thinking, I may be overly sensitive to some of the 'feminine' characteristics of their thinking, when the data may not warrant it. Given that this research concerns critical thinking through challenges requiring "fairmindedness", one would hope that I would achieve a high standard of objectivity with regards to the students and to all of the data. With duplication of this research, the question of bias may be answered.

My researcher role in this study is a combination of many roles due to the fluid nature of the naturalistic setting being studied. This will become evident as the research design is understood.

Collection of the Data

The data collection in my study extended over a period of fifty-two days. Jascine, Sonny, Avery, Amy, April, Minya, Katherine and Nicolette met at the end of one school day in our
regular social studies classroom for our first research session. To meet the confidentiality requirements of my research, these names are pseudonyms. At this session, I observed the individual and group behaviour and discourse taking place. I sensed a tension lingering in the air between my student/participants and me, teacher/researcher, until the challenge actually began. It appeared we were struggling to define the new relationship that we were about to enter in this "beyond-social-studies-class rendezvous." I described the study briefly to the students and instructed them in what the next one hour and a half would entail, and our sense of familiarity with each other seemed to return; all of the eight participants plunged into the documents I had arranged on their desks. With the exception of answering two or three questions, I was able to sit and observe the participants quietly and to physically take notes, while two video cameras and two audio recorders whirred next to the students.

Before getting started on the challenge, the eight participants arranged themselves in two groups matching a number which they had each drawn from a container. The random seating was to guard against influences stemming from a high degree of friendship between two participants sitting next to each other and others feeling left out of a certain friendship circle. The participants sat in two groups of four, which I reasoned would promote strategies encouraging the practice of critical thinking. Bailin et al. (1993) maintain that some strategies or heuristics such as clarifying meaning, talking through a problem or confusing issue with another person, and double checking responses before deciding a task is completed, are useful for guiding the performance of some critical thinking tasks. Additionally, as Lipman warns, when we think "by ourselves, rather than in conversation with others, our deductions are derived from premises we already know" (1991, p. 41), whereas in a group, new premises may emerge.

Each participant was presented with a number of primary and secondary historical documents, to aid their response to a critical challenge. They were instructed to write a fairminded account of the particular historical topic, to explain and defend their account, and to do so in an organized composition. The act of writing was particularly important in my desire to study the participants' thinking. Norris (1987) argues that essays yield higher quality information from which specific inferences about students' thinking processes can be more
reliably made because students need to include explanation of their choices. Craver (1990) argues that writing by itself can cause or stimulate critical thinking.

The two challenges I chose to use were very similar in the fact that they emphasized the participants’ utilization of fairmindedness. The difference between the two was in the social studies topics covered. The first critical challenge instructed students to

write a fair minded account of the changes in the lives of French citizens after the Declaration of the Rights of Man in 1789.

The second critical challenge instructed students to

write a fair minded account of the changes in the lives of British citizens after the industrialization period of 1800 to 1900.

I chose these challenges not only because of their similarity, but also because of their curricular fit. Social studies 9 includes a major study of revolutions, both political and economic. At the closure of a unit on the French revolution, I met with the girls to complete the first challenge, and at the closure of a unit on the industrial revolution, we met to complete the second challenge. In this way, the girls had been able to gain background knowledge prior to the pre-and post-challenges, as well as during the challenge sessions.

The eight girls finished their challenges approximately one hour and a half after they had begun. I immediately began to interview the students in a classroom next door mindful of having all of the interviews completed that night, while they ate pizza I had ordered. The pizza was not only to provide an activity for them over the longer interview sessions but to provide nourishment for their sustained ability to answer questions. Katherine, the first interviewee, told the others upon returning from her interview, with regards to the number and type of questions I asked, that “she really grills you.”

The interviews consisted of a series of what Schumacher and McMillan (1993) call standardized open-ended questions related to what each had thought or done during the previous challenge. The preestablished interview questions were asked of the participants in
the same order, with the wording altered when necessary to make the question relevant or the situation more natural. I chose this interview so that the information and ideas which resulted could be compared to findings from the other participants, verified and even extended where possible. This interview session added three hours to that evening’s research session. Only one interview was not complete; Minya’s mother had come to pick her up earlier than expected. (See Appendix B for a list of interview questions asked.)

Over the course of the next 50 days, I met with the eight girls in the context of our regular seventy-five-minute long social studies class, two to three days of the week, depending upon the school’s rotating class schedule. As consistently and systematically as possible, I taught the class a complete social studies unit redesigned to accommodate critical challenges and the teaching of critical thinking as Bailin et al. describe. I had painstakingly thought through, planned and organized the grade 9 unit on the industrial revolution. It is interesting to note that the implementation of the unit did not demonstrate the efficiency and detailed organization that the typed unit outline with its crisp black and white structure portrayed. (See Appendix C for a description of the unit outline.)

At the outset of each new lesson, I carefully outlined to the students what our goals would be for that class period. On several occasions, we managed only to cover half of what I had previously planned, due to the length of time it took to motivate the class, familiarize them with concepts through direct teaching and the use of example, answer questions, and work through the challenges which all of the lessons were centred around.

On the fifty-second day of the research period we did all meet together for a second group session. This session was devoted to a second challenge and I set it up as similarly to the first session as possible, complete with video cameras and audio recorders. The eight participants sat in the same seats as in the previous session. Each participant was presented with a number of primary and secondary historical documents and they were instructed to compose another organized, fairminded account of a topic regarding the industrial revolution. I began interviews immediately following the group session and the arrival of pizza. Minya, again, left early with
her mother without an interview, and unfortunately, we were never able to schedule an interview at a convenient time before school let out for the summer. This second research session was, like the first, completed in approximately four and a half hours that evening.

During the two group sessions in which the participants completed a challenge my role was of observer-participant; I made every effort not to impinge on the dialogue and problem-solving efforts of the participants. Between the two group sessions I took on the role of participant-observer; as teacher, I interacted with the participants and the other students in that class in order to teach a required social studies unit, and to simultaneously familiarize them with the ideas and strategies of the Bailin et al. (1993) conception of critical thinking. I then had the opportunity of taking on the role of interviewer. Immediately, after each of the two group sessions, I interviewed the participants individually. This flexible role of the ethnographic researcher was beneficial for me; the variety of roles allowed me to gain maximum insight into the nature of each particular setting under study.

Analyzing the Data

Early on in my planning of the research design, I was aware of the need to accurately record the participants' dialogue through the two challenges and the interviews. It was at this point I decided to record the data via video and audio recorders, and to rely upon verbatim-typed transcriptions of each session for later analysis. As I observed the two groups attempting the critical thinking challenges and I listened to interviewee's responses, I knew that my hand-written observations and notes would not provide the depth of information necessary to interpret and then explicate how the participants thought through and completed their critical thinking tasks.

The data emerging from the research sessions were in the form of 120 pages, typed with the sentences and colloquialisms as the students had spoken them. Still, the pages had become 'flat'; I was disappointed that the range of uncertainty, authoritativeness, and audaciousness of the girls' voices as well as their full engagement was not reflected in what became neat words and occasional punctuation on clean paper. I attempted to remedy that for myself by viewing
the video and listening to excerpts from the tapes from time to time. Although the voice quality of the videos was not exceptional, viewing them gave me a fuller picture of what was happening throughout the challenges. What I saw in their facial expression, eye contact and physical behaviour equipped me with important clues to their motivations and progress.

Because the data emerged from a setting in which I had prevailed for a lengthy period of time, given that these girls had been in my class for five months before the research, I found it difficult to see what was in front of my eyes. In order to gain the most insight from the transcribed data and video recordings, I embarked upon an approach Moustakis (1990, as cited in Schumaker and McMillan, 1993) suggests for data analysis:

1. immersion in the setting,
2. incubation process for thinking of nuance and meaning in the setting, intuitive insights and understanding,
3. a phase of illumination and expanded awareness,
4. explication to capture individuals' experiences during the study, and
5. creative synthesis to bring together as a whole the individuals' stories, including the meaning of the lived experience.

I spent a number of days in “immersion” - encoding the dialogue and observation notes. The first time I reviewed the data, I was attentive to inherent categories which might arise as well as to what the character and approach of each participant were when going about the challenges. The second time I reviewed the data, I became intent on finding any correlation between what the participants said or did to the categories which I had proposed during the research design. Had the participants used background knowledge, what strategies were apparent in their approaches, and had they used standards as guidelines for their ongoing thinking and finished products? Thus, background knowledge, strategies and standards became useful categories for data analysis.

It took me between five and eight hours to complete a detailed analysis for each participant during the second review. In actuality, the second review became a series of smaller reviews, because I reviewed all of the data every time I looked at one or two more of the tools of
thinking. For each category, I looked for dialogue or written evidence that the intellectual resource was or was not in use or being used properly. While analyzing every section of dialogue or piece of evidence I attempted to find the purpose and significance of each and to reflect that in the new subcategory in which I then put it. For example, the first page of the second review for Avery began in the manner following and continued for eight pages.

AVERY - VIEW 2
Strategies
Organizes the documents
p. 12 "This is the man's ... woman's"

Ensures administration of the task is correct
p. 15 "Do we have to write our names on these?"

Asks questions to ensure/clarify historical content/accuracy
p. 12 "on limitations of women"
p. 14 "Before Declaration of Men did people have a representative ... or whatever?"
p. 14 "And was it true that only men could talk to them? the representatives? Because ..."
p. 17 Discussion re: who Marie Gouze was and what her role was
2, p. 22 "What are all the changes?"

Tries to determine significance of content with regard to challenge
p. 12 "So maybe it worsened it, but could you say it made a difference?"
p. 12 "I think the Declaration of Man might have made them more angrier which would have further developed in making it equal 50-60 years later."

I then viewed the video-tapes and observation notes I had made at each of the challenge sessions, attempting to corroborate this evidence with that originating from the audio-tapes.

As I recorded quotations and summarized the data into categories and subcategories, I encoded the documents which held the information. This encoding process simplified my using quotations and referring back to them later if required. First, I numbered all of the page numbers
of the typed-out audiorecordings of the group sessions and designated them as p. 1 or p. 17, as the case warranted. Secondly, I used Roman numeral I to encode all of the interview dialogue from the first session. For example, attached at the end of dialogue from the first interview might be (I, p. 3). For the second set of group sessions, I used 2, and I designated the interviews of the second session with Roman numeral II.

Even after determining numerous categories and subcategories for each of the girls, it remained impossible to get a realistic impression of how each girl had utilized the tools for thinking of the Bailin et al. conception by glancing through hundreds of quotations in lists. The next step I took, allowed me to clearly understand how the girls went about using the resources. I spent approximately four to six hours analyzing the notes from my second review, putting the similar information into clusters on a page, determining any particular order of strategies as well as how concepts, standards, background knowledge and attitudes were used by each girl, and then writing up a personal profile for each of them. Only after writing up this personal critical thinking profile for each participant, could I begin to compare how the girls utilized their tools for thinking.

The analysis of the data took a great deal of time. Over approximately two to three months, I encoded the data and wrote up the personal profiles. It was at this point that I began making comparisons, finding commonalities amongst critical thinking approaches, and discovering weak areas in the girls' use of the resources needed in critical thinking.

From what seemed a great deal of paper, filled with the everyday animated conversation of adolescents, transpired very detailed, fascinating consistencies regarding the thinking of these eight girls with regard to the tools for thinking. From this same paper, evidence arose pointing to some common weaknesses in their use of the resources and to some issues not examined in the conception. All of the findings of this analysis will be described in Chapter 5.
Chapter 4
Results

Stephen Norris recognizes that “the process that leads to belief is more important than belief itself” (1987, p. 35). He believes that a criterion of critical thinking is not “that the truth was found, but rather that approaches which reliably lead to truth were followed” (Norris, 1987, p. 35). Bailin et al. (1993, p. 22) similarly explain that the key issue in judging a critically thoughtful response is not whether or not we agree with the judgement, but rather the extent to which the reasoning that supports the judgement embodies the attributes of quality thinking.

As I observed Katherine, Avery, April, Jascine, Nicolette, Amy, Sonny and Minya work through critical challenges, listened to them describe their thinking and actions as they progressed, and analyzed their finished written products, I became convinced that Norris and Bailin et al. were correct.

Personal Profiles

Katherine (K) “Go for it.”

Katherine’s enthusiasm for learning was undeniable during her two interviews. Although she had been in Canada speaking English for only two years, she displayed an advanced level of communication. With her positive outlook upon the experience, Katherine was highly motivated to do well.
Katherine utilized the tools for thinking outlined in the Bailin et al. conception. She demonstrated her expanding understanding of the meanings of background knowledge and the critical attributes, and grew in awareness of the importance of using these resources to guide her work. Her verbal responses within the group sessions and interviews showed not only use of clear background knowledge, but a confidence which appeared instrumental in motivating the group to strive for quality thinking and completion of the challenges. Her written responses did not demonstrate the same level of use of the tools for thinking, though the second response clearly showed a higher level of use than the first.

Katherine approached each challenge with similar strategies. In addition to checking to ensure that she had all of the required documents, Katherine actively read, wrote, thought and discussed in order to clarify historical accuracy, include all of the appropriate information and justify her ideas.

I read through the information that you gave us. I read through the information in the book and I was kind of stuck on the beginning cause I never know how to start and then we were talking as a group, you know how to start and then they started and they said why did you start like that? So, basically we talked and wrote the information and I thought about it, like what should go first, how should I put it all? (II, p. 14)

Katherine demonstrated her ability to work independently on the challenges. She credited her group, Jascine, April and Sonny, for contributing to the challenges' completion; however, her dialogue during the sessions showed her answering questions rather than asking them of the group, and encouraging the group members rather than seeking their approval. A hierarchy of questioning developed with Katherine, at the top. She provided guidance to her group, asking questions about the challenge of no one, except of me.

Ap: I think that the women's march on Versailles is a part of it because it showed how powerful they were.
K: Yah, they wanted to show how powerful they can be.
Ja: Can I ask my question? Can I ask a question?
K: Yah, what's your question? (p. 5)

When Jascine and April were uncertain of their progress with the second challenge, Katherine also guided them through the writing portion.

Ja: So you have to write ...
K: So you just mention what happened before, but you don't go on the whole thing.
Ja: Just go they were bad.
K: Yah. For the working class they were bad. And then, ...
Ap: And then we have to find out what it was after?
K: Yah.
Ap: And if it improved, and then we just write about that?
K: Yah. (2, p. 12)

There was no evidence that Katherine actively planned her writing or participated in pre-writing strategies. Katherine began to write before making a conclusive judgement about the challenges. There was evidence that while she had decided how to respond to each challenge early in each challenge session, these judgements altered slightly or changed as she contemplated and discussed information and ideas with her group more extensively. Katherine made several references to the connection between her thinking and writing.

I write what I think at the moment. (I p. 6)

Though from the first to second challenges her level of fairmindedness, overall organization and attention to detail increased, in addition to her ability to use the tools of thinking in her writing, Katherine sometimes overgeneralized in her writing. At times, she forgot to provide evidence, and she also stated some of her assumptions and inferences as if they were facts.

Role-play was her strategy to access historical points of view, which then helped her to "look left or right" or be fairminded. Imagining herself as one of the people she was writing
about was the strategy Katherine used the most.

K: All the time, like what would happen if somebody told me you don't have to work 12 hours a day any more. If I was a kid and stuff, then I would go out and play and maybe go to school and stuff like that. So that's what I wrote?
T: So some kind of role play?
K: Yah. In a way. Yah. Kind of thinking what would we do if we were in their place. How would it affect us? Because we're the same people, we're only years later. (2, p. 14)

Her use of “putting [her]self in their place” was evidenced not only in her discussion with the group about the historical people, but also in her use of the words “feel” and “felt.” In every case, the words were synonymous with an attempt to access point of view.

Katherine

imagined [her]self as one of them. You know, how would [she] feel after that ...
(I, p.1)

Katherine also recognized situations which were biased and her own and her group members’ biases. Moreover, her emphasis on the importance of being unbiased demonstrated her attempt to achieve some kind of standard.

Not just being the defender of women if I’m a female, but yah I think [being able to go on both sides] was pretty important cause you would have to put yourself in the position men were and talk how would they feel? And then you put yourself in the position of women ... (I, p. 5)

Katherine consistently attempted to access her own background knowledge as well as that contained in the documents provided by me, to establish chronology and historical accuracy. She used the available information to make inferences about cause and effect. She considered in discussion during the first challenge, “How did men’s power affect women’s rights?” In both
the challenges and interviews, she used examples of background knowledge as evidence of the existence of a particular point of view or biased situation. At one point in the first challenge, Katherine and her group pondered how to represent the views of the men and the women in France regarding the Declaration of the Rights of Man and the proposed Declaration of the Rights of Women. Katherine explained that because men had most power at that time and because they didn’t ‘like’ the Declaration for women, men would not declare it legal. Here she demonstrates her awareness of a particular point of view, and her inferring not only of what the men’s view on the Declaration of the Rights of Women was, but that there was a cause and effect relationship between that view and the fact that the Declaration for women was not declared legal. Background knowledge was crucial in order for her to come to these understandings.

They were in, the guys ...you know, they were the ones who decided if something is going to be legal or not, and this wasn’t legal. They didn’t declare it legal. Because they didn’t like it. (p. 9)

Katherine did believe she had been unsuccessful in finding enough background knowledge which caused her to be less fairminded than she described as appropriate.

I don’t think I did [fairmindedness] very good, ‘cause I couldn’t find much stuff about men, except that they really liked the Declaration of Men. (I, p. 4)

There was evidence of Katherine’s use of standards; she demonstrated, implied and directly stated the standards for thinking through the challenges. She also participated in setting some standards co-operatively with her group. She made reference to the standard she used to help her decide if she was fairminded during the first challenge.

Ahh. Well, when I talked about women everything I had to say about that and then about men. Then, I didn’t have anything else to talk about so I had to finish. (I, p. 4)

For the second challenge, she more clearly defined and demonstrated the standard of being fairminded. She used this standard to guide the rest of the group.
K: Wait a second. The whole time you were only talking about working citizens. You should mention middle and upper classes.

So: Are you saying that it was bad for working class, and that it was good for upper and middle class?

K: Yah

Ap: Right, it's got to be fairminded! (2, p. 15)

She and the group were working towards a standard of being fairminded, yet there was no apparent discussion or consensus about what the definition might be. The standard for the group became somewhat superficial, as seen above, that a point of view should be recorded for each of the classes in order to be fairminded. Katherine's written composition reflected both this lack of depth and overgeneralizations about each of the classes' viewpoints.

Katherine consistently displayed the attitudes which, according to the Bailin et al. conception, correspond well with critical thinking. She was openminded, and inquiring. She consistently looked for connections between events and points of view, and searched for proof of her inferences and assumptions. In addition, she exhibited a high degree of intellectual work ethic.

Katherine continuously discussed ideas with her group. In doing so, she developed into a leadership force within the group. Katherine guided her peers through much of the challenges providing background knowledge, helping organize the group work, and clarifying concepts. At the end of some explanatory sentences she raised her voice or provided qualifying statements, adding a flexible and non-authoritative impression to her responses to which the other group members responded openly. Much of the group's acceptance of her leadership appeared to stem from this unpretentious manner.

K: So you just mention what happened before, but you don't go on the whole thing.

Ja: Just go they were bad.
K: Yah. For the working class they were bad. And then,
Ap: And if it improved, and then we just write about that?
K: Yah.
Ap: Okay.
K: Say if these things improved or didn’t improve or whatever. (II, p. 12)

....
Ja: Okay.
K: I hope I’m right. Okay, Heather?
Ja: You hope you’re right?
Ap: You better be right.
Ja: Or you’re going to be in big trouble.
Ap: Just kidding. (2, p. 13)

Katherine worked diligently to complete her challenges, yet at no time did she refuse to communicate with her group. She was quick to take part in discussions about any topic which came up, including distracting events in and outside the classroom.

Avery (Av) “This is going to be interesting.”

Avery’s dark features included black and compelling eyes. Her eyes reflected the intensity and pace at which she worked through the two critical thinking challenges presented to her. Her approach included gathering information from those around her and then, mentally separating herself from her group members, Nicolette, Amy and Minya, and working independently through the remainder of each challenge.

Throughout both challenges, Avery utilized a combination of the tools for thinking in her verbal and written responses. What stood out the most about Avery’s approach to the challenges was her purposeful and continuous questions. She used the questions to increase the depth of her understanding of the background information. Not only did her questions drive the discussion which took place in her group, but her constant attempts to attribute cause and effect or reasons to the information impacted on the group. Her strategies included questioning
for various purposes, reading, reviewing and checking the accuracy of information and ideas, and discriminating between helpful and non-essential background information.

Another strategy employed by Avery was that of “try[ing] to get an in-depth look into a woman’s mind or man’s mind, [to] see how they really felt.” Inferring the point of view of historical groups of people from the reading of a limited number of primary and secondary documents was the most difficult part of the challenge for Avery. While she relied upon her own inferences, she was also aware of the limitations to her attempts to access these points of view.

We didn’t really know [the points of view of the men and women]. You just had to base it upon fact, because we couldn’t go back to the 18th century and ask that. (I, p. 15)

In addition to understanding and applying the critical concept of “point of view”, Avery could also describe historical situations which were biased. She went further to describe a difficulty she had when looking back at historical situations.

you didn’t really know if all men were biased towards women. And you didn’t know if all women were biased towards women. You didn’t really know. (I, p. 13)

In answer to this problem, Avery elaborated upon the need to

equal out both sides [so] you’re not being biased towards anyone. (I, p. 15)

Her written responses provide evidence of considering alternative points of view to the ones presented within the class textbook. In the first challenge, she describes two overall views, the men’s and the women’s. In the second challenge, she discusses negative and positive views as well as a point of view to represent each of three groups in French society. Her written responses do, however, show some overgeneralizations. Although she states verbally that all
members of one group may not have the same points of view, this same depth of awareness is
not reflected in her writing.

Avery displayed a number of attitudes conducive to critical thinking. She displayed an
inquiring mind through her questions; and she did, for the most part have a high level of interest
and intellectual work ethic.

She also demonstrated some attitudes which are contrary to high levels of critical thinking.
In the first challenge, Avery was “too busy” to read and discuss Minya’s work when so
requested. This refusal might have compromised Avery’s ability to be openminded or her
opportunity to consider other points of view. In addition, during the second challenge, Avery’s
choice of language when she said, “I’m done. I can’t write anymore” could be evidence of an
inconsistent work ethic and lack of desire for a high quality product. There was no ensuing
evidence that Avery reviewed or checked her work. During the second challenge, Avery
discussed personal matters and was off-task occasionally with members of the two groups
which may have deterred from her performing at her highest potential.

From the first to the second challenge, Avery grew more confident and detailed when
defining concepts and terms, as well as using the standards which guided her to the completion
of the challenges. Overall, Avery demonstrated an elaborate use of the tools for thinking.

April (Ap) “All of a sudden, I just got all of these ideas.”

April’s long brown hair and round glass frames accented her expressive face. April smiled
a lot; when she wasn’t smiling, she had on a serious look of concentration, complete with a
wrinkled brow. She moved back and forth between these expressions as she discussed her
ideas enthusiastically within her group.

Discussion was one of April’s foremost strategies to aid her completion of both challenges.
April asked many questions of both Katherine and Jascine to clarify not only the administration
and focus of the task, but also the accuracy of historical facts. She was concerned with ensuring that she not only had all of the necessary facts but that she worked according to a right order of facts - a chronological order.

While April spent much time gathering information, recalling background knowledge and looking for "answers" in the documents for the challenge, she did try to make connections between historical events, or to figure how the first thing had something to do with the second. (I, p. 29)

She tried to infer cause and effect or significance from the background knowledge, and the inferences or assumptions April arrived at were in some instances unfounded.

[In order to complete this challenge] ... you had to know why [women] did it, why the women felt this way. I mean it was pretty obvious how they felt, because you could tell by just the declaration of the rights of man that it wasn’t equal for women ... Well, I think the women felt that they were worthless and that they were unimportant. (I, p. 30-31.

April demonstrated her awareness of some critical concepts. Though her definition of bias was vague during the first challenge session, she did recognize situations which were biased in the background information and in her own writing. She was also cognizant of the need to improve her ability to be unbiased.

As in the cases of Katherine and Avery, April referred to a point of view as "a point that someone’s feeling" and when she recognized someone’s point of view it was "feel[ing] empathy" for them. To access the different points of view which April felt were needed, she used a strategy where she imagined herself in the specific historical situations.

Like I took the first point and I explained why I thought this was like the main
thing like how it affected them, and then I went to the next thing and I explained how I thought it would feel, or how I would feel, if I was living in 1789. (I, p. 29)

Occasionally, April mistook her inference of an historical group’s point of view as fact; therefore, she wasn’t able to achieve more in-depth understanding.

She showed only a basic awareness of some of the standards for her work. When asked about them, the standards which April defined verbally for her work consisted of the following question repeated once in the first interview and once in the second:

How did I know [of the standards]? I’m not really sure. (I, p. 32)

April explained that the criterion which she used to judge the completion of her challenge was

when I said all of the points I needed to say ... I knew I had said everything, I guess. (I, p. 32)

Though April appeared to be unable to define or describe the specific standards she followed, it was clear that she did strive for some higher goals. By the second challenge, she recognized that,

you have to be fairminded; come without an opinion. (II, p. 22)

April also explained that fairmindedness goes beyond understanding her own point of view. Like Avery and Katherine, April subscribed to inexact, ill-defined standards, making the distinctions in her work unsophisticated.

Though April made comments about being “really not into this,” and about her “thin, thin brain,” she was the first member to read through the questions, she spent much time analyzing
the background information and she persevered through to the completion of both challenges. She disciplined herself to stay on task.

Well, I sort of, I'd start writing and then I'd think I sort of went off, like I kept going on and dangled on about all that and I realized 'whoa, I gotta get back to the original question' so I tried to start again. I was probably trying to remember what I was actually supposed to be writing. (I, p. 22)

She tried to steer the others to work as well.

Okay, we have to work you guys, we're not even thinking. (2, p. 3)

Overall, she played a large role in encouraging and aiding others with information and staying on task. Some of her motivation for the challenges appeared to come from her desire for her performance to be "right" and "good."

Jascine - "Can I ask my question? Can I ask a question?"

The dark mane of hair which completed Jascine's tall form added to the very strong presence which she provided to her group of four. Jascine was alive with questions and ideas - an example of someone who thinks 'out loud' and who utilizes co operative effort to complete her work. Jascine clearly used her tools for thinking during the challenges. She had a growing awareness from the first to second challenge of how to use these and think about her own thinking. Her written responses also reflected some of this growing understanding.

Jascine's main strategy was to immerse herself in discussion which was a very important aspect for her group. At one point, when faced with the possibility of completing the challenge alone, she said to April,

[You want to] work by yourself? No. (II. p. 12)
Jascine continuously asked questions of her group about content and organization. Some of her questions were to compare her work to the others’ and to ask about the value of her ideas. Jascine would listen to her group’s responses and then immediately ask another question or make another comment.

As a result of her questions, she progressed towards an understanding of how to complete the challenges. She displayed an inquiring attitude and fairly consistent intrinsic motivation to do well, which gave her a sense of accomplishment when she finally realized she was capable of completing the challenges.

This is kind of easy once you get used to it. (II, p. 18)

She admitted openly when she didn’t know something. This vulnerability - her lack of fear to show what she did not know and that she needed help in certain areas - provided a basis from which she not only demonstrated her openmindedness, but also learned to use the resources more fully and integrate them into her writing with the help of others.

By the second challenge, Jascine actively was

thinking about like how doing what’s it called you’ve covered all of the opinions and stuff; I was thinking about all that and then like judging everyone’s opinion. (II, p. 24)

She was not only “trying to be fairminded (II, p. 28),” but trying to “think of all sides” (II, p. 25). While her language and description of the tools for thinking was limited, Jascine was clearly trying to utilize or improve her skills at being fairminded, inferring point of view and evaluating bias. These were the most difficult requirements for Jascine, though by the end, she seemed comfortable with the idea that,
you had to write a fairminded account and you couldn't be biased only to one.

(II, p. 26)

Jascine stated that, as in the first challenge, there was

a big chunk [of background knowledge for the second challenge] I knew from
today and then from what I learned in class ... (II, p. 24)

While much of her orientation during the challenges was to

look through the facts ... [and] put my main facts together and like explain them
and stuff. (I, p. 35)

Jascine did attempt, in the first challenge, to find a cause and effect relationship between
events. For example, she said

I think there could be a link too between the Declaration of Rights of Man and
between the [March to Versailles]. (I, p. 8)

Jascine, in the first challenge, demonstrated only vague understanding of the meanings of
various concepts; later, it is apparent that her understanding increased of how to use the
relevant concepts to analyze the information and to eventually come to a judgement.

Jascine followed the same pattern with her understanding of the standards for the
challenges. She, generally, had a lack of familiarity with standards and of when she had met
the standards. Jascine believed she had completed her challenge when she had

got all my information, thought of like all sides of the story, was being fairminded
and wasn't being biased - all of that stuff ... [and also when she had] thought of
everybody, didn't leave anybody out. (I, p. 27)
She also described being completed when she

felt it was good enough! I dunno; it just felt good. (I. p. 27)

From the first to second challenge, there was definite improvement in Jascine’s use of the tools for thinking. She had also become more confident in discussion and she provided more statements than she asked questions.

Nicolette (N) “Thinking it all through.”

Nicolette adopted a pensive and distant mood during her work on both challenges, something which was unfamiliar to me. I had previously seen her laughter and cheerfulness throughout our regular classes together. Nicolette spoke relatively little during the group sessions. When interviewed in the one-on-one setting, she did provide much information about what she had experienced and of her uncertainties during her work on the challenges.

Nicolette’s strategies included

trying to figure out what the heck we were supposed to do first like: What’s it about? How long should I do it? Stuff like that. (I, p. 17)

In the first challenge, she discussed how to complete the task with another group member, and began “thinking it all through” (I, p. 17). In both challenges she

looked through all the papers and sheets and [she] went through the textbook and all of the information that was there and wrote the information on paper. (II, p. 8)

Nicolette revealed several times that there was a connection between her thinking and her writing.
I just wrote it, wrote a lot, everything that had something to do with it. I wrote down everything I thought. (I, p. 17)

Nicolette worked very independently. Rather than asking questions or discussing the challenge with her group, she tended to concentrate on her own worth.

I never really talked to anybody much this time. I just more did a lot of concentration on what I was doing. (I, p. 8)

Nicolette had some difficulties differentiating between the various tools for thinking. For example, during the first challenge she confused background knowledge with describing a point of view and biased information. She did demonstrate that she used her background knowledge to complete the challenges. Although she completed the first challenge without requesting additional information, she did state that more information would have been helpful in its completion.

Defining bias and point of view was difficult for Nicolette. She was aware of the importance of understanding these concepts. She was able to pinpoint biased information, differentiate between points of view and to decide if a situation was "fair." Little evidence surfaced to suggest that she could control her own biases, establish her own or analyze others' points of view or evaluate to what extent she was fairminded. For example, when asked about the relationship of fairmindedness to the second challenge, Nicolette discussed only how the historical situation she had been studying was not 'fair.'

I saw, you know, like men and women like you know should learn to work together, and so should children, work together. So then like it would be a lot easier. (I, p. 10)
Nicolette worked hard to understand the different points of view, a task which she found the most difficult to do.

How would I feel if I was them? Like[I had to] put myself in that position, stuff like that ... You had to know ... how people might have felt back then. (I, p. 17)

Nicolette was not conscious of any standards which she strived to achieve.

How did I know it was good enough? ... Good question, I have no idea. (I, p. 20)

She described the standards for all of her work as being subjective and dependent upon the person who set the task.

I don’t know if it [was] good enough. It just depends what the person wants. (I, p. 11)

Nicolette relied upon another group member to tell her if she had achieved an appropriate standard of fairmindedness.

Nicolette portrayed a positive attitude towards her work. She displayed frustration when she was confused and didn’t know what to write, illustrating a desire to do well. Her motivation came extrinsic as well intrinsic.

[The purpose of the challenge was] to help you, and to help myself too. Like, to learn a little bit more - to improve my knowledge and everything and like to help you to get that master’s degree and everything. It might improve my knowledge and stuff like that, I can improve my thinking and working habits and things like that. (I, p. 21)

Overall, Nicolette clearly increased her ability to use the tools for thinking, evident by the second challenge. In addition, her verbal responses were more informed, and her final written
Sonny (S) “What should I say? What should I write?”

Sonny scarcely speaks during the two challenge sessions; her responses to the interview questions are brief and reveal a combination of attempting to understand and of feeling apprehensive about meeting the challenge requirements. It is not certain whether Sonny concealed herself knowingly or unknowingly behind Jascine in the videotapes and in her group photo, but it can still be noted that she was silent and uncertain in these challenge situations. She was, however, active in her mental participation. Sonny utilized many of the tools for thinking at varying levels of ability.

Sonny’s main strategies included listening and asking questions. While Sonny was quiet for much of the two challenges, her listening to group discussion clearly aided her to think through and complete the final written product. For example, she did not participate verbally in a group discussion regarding whether or not the Declaration of Men caused some French women to conduct their own march to Versailles to gain women’s rights. Yet, she did use the information about these two events in her written composition, and clearly indicated the cause and effect link between them, as had been discussed by her group. The questions Sonny asked do not indicate her thinking beyond how to complete the task, or asking about the accuracy of the information provided to complete the challenge. Moreover, she did not verbally talk about her standards or any alternatives to her group’s analysis of the challenge.

Sonny consciously recognized and applied her background knowledge, and worked to gain more background knowledge as she needed it.

You gotta know a lot of information before you start it, cause then you won’t know what to talk about. (l, p. 11)

Sonny could differentiate between, but not define, various critical thinking concepts like
point of view and bias. She was able to identify both concepts in her written work, but explained that she could not describe them verbally. During the second interview, Sonny did briefly clarify her understanding of point of view, but could not do the same with bias.

It's looking from everyone's point of view? Like you know, can't decide on one thing but you gotta see other people I mean; you know for that driver's license one, you know we had to see what the children thought and parents and you have to see everybody's point of view before you actually decide? (I, p. 30)

In the quote, Sonny referred back to an example she remembered from the critical challenges she worked on in our classroom, showing a link between her background knowledge and critical thinking concepts. By the second interview, she clearly understood the importance of achieving the standard of considering all points of view. Her understanding was not correspondingly demonstrated in her written work.

[It's important to know] what do people think, not just what you think because everybody has a different opinion. Cause you just want to see other people's and then you can like come to a conclusion about what is the best. (II, p. 33)

Indirectly and inconsistently, Sonny demonstrated a vague awareness of standards. However, when questioned about the standards she used to complete her challenge, she seemed unaware of the standards she used or which were needed.

During the first challenge, she admitted that she had "kind of guessed" at the definition of fairmindedness. By the second challenge, she recognized situations of fairmindedness and defined fairmindedness as being "open and opposite of being biased." She demonstrated fairmindedness in her written work.

Sonny demonstrated a solid intellectual work ethic. She persevered even through her own uncertainty and lack of confidence.
I thought like I couldn’t do it at first. I guess I just tried, and then from reading the information I just had to put it together ... Yah, cause I thought like you know I’m not going to finish it. After you get started, then I guess you can like finish it. (II, p. 33)

In addition to this positive attitude, Sonny had a tendency to defer to those she felt had more knowledge than she had. Her deference may have restricted any questioning she might have done in order to check the reliability of evidence presented to her.

The information? Well, you gave it to us, and ... what we learned is basically from you, kind of. So we thought that you know, it was good ... (II. p. 32)

Overall, Sonny showed moderate improvement in her utilization of the tools for thinking from the first to the second challenge, though to an unsophisticated level. At the same time, Sonny also showed improvement in her confidence to complete the challenges and to explain her thoughts during the interviews.

Amy (Am) “Prove the stuff.”

My first impression was that Amy’s use of the various tools for thinking was not advanced. Amy spoke very little during the challenge sessions and during regular classes. Amy had always demonstrated that she had high expectations of herself, but had expressed unhappiness as she had not yet achieved her goals. Amy was a recent immigrant - in Canada for only two years - and, although fluent in oral English, her written skills were not excellent. After a thorough analysis of Amy’s work, it appears that by the second challenge Amy did gain much ability to use the tools for thinking while working through to complete her final written product.

Overall, there is a difficulty in generalizing about how Amy thought through or approached each challenge because she said too little during the group sessions to compare with the interview sessions. Amy did appear to use some consistent strategies. She was
gathering the information that [she] learned (I, p. 23; II p. 1)

and in doing so she was

just trying to understand the material very well. (II, p. 23)

A large part of what Amy described was the act of “thinking over the material and putting it on paper,” which she believed was the most difficult aspect of completing the challenges.

She recognized the importance of sufficient background knowledge in both challenges and made specific reference to information which, if available, would have been helpful. By the second challenge, she made the point that her whole composition was based on background knowledge. (II. p. 2)

Amy was also careful to point out that whoever wrote the book [may not have been] there or ... it [may not have been] right. [The authors] might have made it up. (II, p. 1)

She considered whether she had sufficient information to make a judgement, and also evaluated the information for reliability. Evidently she established and attempted to meet the standards for completion of the challenge.

Amy improved in her use of standards, as well as in her understanding of the concepts of point of view and bias. She evaluated her own views. She described her attention to different points of view, giving each fair mention. Several times in both interviews she referred to her determination “to prove the stuff (I, p. 26)” which she was writing. She also spoke of her attempt to summarize and synthesize what she read and knew, so as not to plagiarize.
Amy employed attitudes throughout the challenges which were consistent with good critical thinking. She showed little awareness of critical thinking concepts during the first challenge. However, by the second challenge, she understood point of view, bias and fairmindedness, and, with occasional confusion, she identified examples of these concepts in her writing, and used them to bolster her writing quality.

Minya (M) “I don’t feel like writing anymore.”

From behind her round brown-framed glasses, Minya regarded us with whimsical eyes. She did offer many straight-forward comments regarding the challenges to her group. Yet, she simply enjoyed socializing. She had been motivated to attend the two challenge sessions, yet she appeared to lack a comparable work ethic needed to complete the requirements of the sessions. Minya did not hand-in her second challenge essay, nor did she attend either of the two interviews. She left the challenge sessions early, with her mother, promising to arrange for interviews later. For various reasons, including poor attendance at our regular class, I could not obtain further data about Minya’s thinking through the challenges. There are little data available regarding Minya, but some evidence exists to support conclusions about her use of certain strategies, her awareness of the importance of background knowledge, her limited utilization of both the concepts of point of view and bias, and her indeterminate use of standards.

Minya employed three main strategies. Her style of working included periods of animated discussion, independent reading and writing, as well as checking what she had done with others. She asked questions regarding historical accuracy. During the discussions which ensued, Minya demonstrated her concern with the order or chronology of events. Not only that, she orally offered her work and ideas to the group members who were willing to listen or who wanted to compare their work to hers.

From the first challenge, Minya appeared willing to set limits upon herself, a characteristic which significantly impacted on her overall achievement and work on the challenges, and my ability to gather data.
Her limits did not appear to influence her study of the material as she immersed herself in reading, learning and remembering background information. It was when Minya began to address the challenge in writing, that her lack of experience and understanding with related concepts and appropriate standards were apparent and her inadequate intellectual work ethic became obvious. She could clearly recognize a biased situation and clearly indicate that there were two general points of view distanced from her own perspectives. However, her ability to go beyond and look at alternative viewpoints and be fairminded in her written work was questionable. She did participate in a discussion centred around a cause and effect relationship between events; this discussion provided the only evidence that Minya was aware of, or attempted to meet, a previously set standard.

How tools for thinking were utilized

Each of the girls had a somewhat unique approach to each of the challenges. Each girl placed emphasis on one or more different strategies, intermingled in various ways with other strategies; each demonstrated particular weaknesses in her approach or in her thinking. Yet, what stood out for me in this research was that the overall use by the eight girls of the tools for thinking defined by Bailin et al. was remarkably similar. These similarities and the problems which surfaced in utilizing the resources, and some issues which emerged about the nature of critical thinking that do not appear to be addressed by the Bailin et al. conception, are the focus of the remainder of the chapter.

Strategies

The eight girls described and demonstrated that in completing the critical challenges, they drew upon particular strategies. Much like Katherine’s description of her approach quoted on
the first page of her personal profile, Sonny describes what she did while working through and completing the challenge.

Um. I discussed it with my group, like what to talk about, looked over the sheets ... I, um, looked in the *Patterns of Civilization: Volume 1* book. I discussed it with them to see how to start off and see if I'm on the right track ... Then, what did I do? Then, I started writing. I wrote the title. I don't know. I just started at the beginning; I asked more questions and they told me something and I wrote it down and then I kept on writing ... and then while we were going through it we were, like, talking about it, and writing down ideas, and then I just looked through the book and read something about it. That's it! (I, p. 7)

From the descriptions of their approaches to the challenges what emerged was evidence that the tools for thinking were not used in any particular order and were used concurrently in various combinations.

Specific strategies emerged from analysis of the data. Reading expanded into “gathering” information. Avery described how

I just gathered all of my knowledge and tried to back up the points I stated ...

(I, p. 12).

Amy similarly described a strategy she used as

just gathering the information and that's about it. (II, p. 1)

The girls' discussion was a combination of purposeful questioning and responding. Mumford (1991, p. 192) explains that students thinking critically
are often able to ask productive questions that lead to useful data to ask further questions, judge and evaluate what is important, challenge the answers of the instructor and other students, attempt to understand why they are learning, have a respect for evidence and rational arguments, seek out problems and questions rather than topics and answers, and settle for temporary solutions, subject to modifications.

Bailin et al. consider that asking questions and ensuring discussion are strategies, “useful for guiding performance of some thinking tasks” (p. 17). The girls asked questions regarding the administration of the task as well as the challenge topic, the accuracy of background information and the state of their work compared to the others. Avery, Minya, Jascine and April asked many questions.

Questions led members of both challenge groups to discuss links between events, what Bailin et al. refer to as the critical concept of cause and effect. Avery and Minya discussed the feasibility of a cause and effect relationship between the Declaration of the Rights of Man and women’s anger at the persisting inequalities, and the possibility that these may have resulted in more equal conditions years later. Katherine, in the other group, pondered similar connections through discussions with Jascine and April.

I kept on thinking if the March on Versailles was connected because it was after the Declaration of Men and then they, I kind of said they were angry about everything, and that’s why they got the strength, to fight against high prices and everything? And if, they kind of fought against everything they thought was wrong afterwards; you know because they wanted to fight for their rights? (I, p. 5)

The members reasoned out other possibilities and were aided in their discussions of cause and effect by inferring from background information. Katherine explained that she had to “read
between the lines (I, p. 6)” and guess

what’s going to happen next - because there’s only one sentence given ... you
don’t have to have the information to write it down. You can write something
that you just think happened. (I, p. 6)

Having to “guess” led Avery to become aware of the limitations of inferring as was discussed in
her personal profile.

I guess the part [was the hardest] where you had to try to get an in depth look
into a woman’s mind or man’s mind, and see how they really felt ... [It was
the hardest] because we didn’t really know. You just had to base it upon
fact, because we couldn’t go back to the 18th century and ask that. (I, p. 15)

While April also made inferences, she wasn’t as cognizant of the limitations of inferring and did
infer wrongly, or at least without providing justification. It was likely that she used her own
point of view as the premise of her inferences.

You had to know why they did [the march], why the women felt this way. I
mean it was pretty obvious how they felt, because you could tell by just the
declaration of the rights of man that it wasn’t equal for women. (I, p. 29)

Many of the questions asked of background information, stemmed from a concern to keep
events in chronological order. April clarified dates regularly and also described how

we sort of like went in order; I did. I started like in the 1800’s, kind of the
beginning when things were really bad. And then, in like 1914 when things
were really good, and I started from the worse and went up. So I sort of
started from the beginning to the end. (II, p. 19)
Nicolette described how she

just planned it out, like reading a little bit about it, just sort of going from the
first to last, like the beginning of the declaration of man, whatever it's called,
anyway. And then afterwards, a little bit after the years after that. (I, p. 17)

The girls describe their work on the challenges as including both thinking and writing. No
common consensus surfaced about what they referred to when they spoke of thinking. Avery
explained thinking as the knowing of some information. April referred to thinking as the act of
keeping herself on topic during her writing. Amy included the judging of the quality of her
writing as thinking. And while the girls spoke of thinking and writing at times as separate
actions, evidence also revealed the girls making a connection between the two actions.

Even more specific strategies, such as brainstorming, the creation of lists and clusters of
pre-writing ideas, and role-play, the inferring of what a group or person may have experienced
or about their points of view, aided the girls’ response to the challenges. Sonny and Jascine
followed April’s lead and began a pre-planning brainstorming web in order to get their ideas
down.

Ja: How do we start off? I just can’t start.

Ap: Okay, make a brainstorming page. That’s what I’m going to do. (2, p. 7)

Role-play was a common strategy for the participants. Avery

imagined what it would have been like for [historical groups of people]. (I, p.
12)

and Katherine explained that

you would have to put yourself in the position men were and talk how would
they feel? and then ... in the position of women. (I, p. 5)

Sonny would try to

fake like [the peoples'] attitude. (I, p. 10)

Jascine explained “how did [people] feel (I, p. 38)” as the most difficult part to think about. Avery agreed it was more difficult to think through the

part where you had to get an in-depth look into a woman’s mind or man’s mind and see how they really felt. (I, p. 15)

Some individually centred strategies were used like listening and concentrating. While concentration is not commonly recognized as a strategy, Nicolette emphasized that concentrating was a very important activity for her to undertake, and she referred to it as if it were a strategy. Both Sonny, Amy and Nicolette said very little during the two challenge sessions. Nicolette’s explanation of this fact was that she was

drawing all of my attention to trying to figure out what this was about and everything. (I, p. 21)

and that she

had to concentrate and block out whatever was around [her] and concentrate on [the work]. (II, p. 12)

Nicolette emphasized her needs for concentration while Sonny and Amy had no explanation for their silence. In fact, they described themselves as participants in discussions that went on when they had not verbally participated. Nevertheless, they integrated the information, which had been discussed by other members, into their writing. As mentioned in an earlier example,
the girls had attempted to find a link between the March to Versailles by the women in Paris and the Declaration of the Rights of Man. Sonny did not discuss the information with the group which she refers to in the following example, but did use the information in her writing.

Ja: Um. I discussed [the info] with my group, like what to talk about, looked over the sheets. I, um, looked in the Patterns of Civilization book. I discussed it with them to see how to start off and see if I'm on the right track.

T: Then what did you do?

Ja: "Then, I started writing ... I asked more questions and they told me something and I wrote it down and then I kept on writing. (l, p. 7)

Amy spoke very little, both within the challenge sessions and in the regular classroom environment. However, she demonstrated that she had picked up on many of the subtleties which had been mentioned within the classroom lessons, like the requirement for providing evidence and the idea that sources should be evaluated for reliability.

Though silent throughout much of both of the challenges, Sonny and Amy evidently listened to, and gained, from the dialogue of their groups. Lipman (1991) believes the reasoning process gains from conversation with others. It is possible that listening can provide at least some of the advantages Lipman describes.

Background Knowledge

According to Bailin et al., students cannot think deeply about a topic if they do not have sufficient information required for such thoughtful reflection. Throughout this research, it was evident that the girls had internalized this need to have sufficient background knowledge. They used the textual sources supplied for each of the challenges as well as accessing their group members' background knowledge through questioning. April demonstrated how important her own background knowledge was to herself and to her group in completing the challenge.
Ja: April! Where are you getting this from, man?
Ap: My head. I know it all; I just - boom!
Ja: I hate you.
Ap: Well, I remember all of those charts we had to do, that essay we had to do ...

Only Sonny believed that sufficient information was made available to her to address the critical challenges. She believed this to be the case because she said she trusted me, the teacher, to provide the correct information. As mentioned earlier, Amy’s response when asked if she had had enough information, was to question the reliability of the background information provided during this second challenge session; she was the only participant to demonstrate this deeper reflection about background knowledge.

Concepts

In every case, background knowledge was accessed simultaneously with the other concepts like point of view, cause and effect, and bias. Background knowledge was used to explain the concepts; concepts were used to make sense of or give the information meaning. Not once was background knowledge discussed without a context or a purpose. It was an essential part of every idea and concept utilized. Evidence of this is provided in the following example in which Jascine, April, Sonny and Katherine search for accurate dates. They use this information to support their later claim of a cause and effect link between two events.

K: In what month was the Declaration of the Rights of Man?
Ja: I don’t know.
K: August, ‘cause the march of Versailles ...
Ja: in August, what?
Ap: The march on Versailles was before the Declaration of the Rights of Man.
Ja: No. One was October, 1789.
Ap: No, the march was in May.
K: Yah, May. See, in 1789 ...
Ja: in October, 1789.
So: August.
....
So: Oh, it was after. Oh, after yes!
Ap: Okay, good.
Ja: Cause I was gonna write that.
....
Ja: I think there could be a link too between the declaration of rights of man and between the ....
Ap: March to Versailles? I think so too. That's what I wrote. Well, I think that the women marched to Versailles in October because they wanted to show men they ...  (p. 6-8)

While the girls' understanding of and use of background knowledge was competent, their overall ability to define, discuss and utilize concepts and standards was limited. The girls did improve from the first to the second challenge in their understanding and utilization of concepts, by different amounts and to different levels of ability. During the first challenge session, Katherine was unsure about her definition and vague with her example.

T: Do you know what point of view means?
K: Yah. Like who wrote it?
T: Could you explain more about what you think point of view means?
K: Umm. What's your point of view is that you talk about what you think about something?
T: How important was understanding point of view to complete the challenge?
K: I would reckon 9 [out of 10], 'cause they had to know what men felt about
the thing and what women felt, so I could write about it? So I could see the effects, cause like if I didn’t know that women didn’t like it then it would be stupid for me to write about the March of Versailles, because then it wouldn’t mean anything. But now I knew that they didn’t like it and that they fought against it. (I, p. 2)

Katherine was much more confident and better able to explain the concept of point of view during the second challenge session. She also demonstrated that she could distinguish between her own and others’ points of view.

K: Well if you were asking me ‘my point of view’ then it would be my opinion.
T: How important was understanding point of view to completing the challenge ... ?
K: ... you didn’t really have a point of view because you’re not actually asking us what we think about something, you’re asking us for the facts about the changes that happened afterwards. so you didn’t have to have a point of view; well, you did in a way. Um, if you thought that during the industrial revolution [conditions were] bad then that was your point of view then you say if it had improved or not. But if you thought it was good then you say if it had improved or not again. So you have to have a point of view before to see what happened afterwards. (II, p. 15)

When first asked if she understood what point of view was, Sonny said, “Nope” (I, p. 8). She went on to give an example of point of view which shows her own point of view of a biased situation.

Because they weren’t that fair to women, and they could have at least discussed with them, whatever, what the men were doing, and, I don’t know, um ... Like they should have like got all these women as equal, like you know, just being the only people on earth, like, there’s women too. But ... uh huh. (I, p. 8)
By the second challenge session, while Sonny’s definition was ambiguous, and while she had integrated the idea of being fairminded with her definition of point of view, she had, nevertheless, improved.

Like you know can’t decide on one thing but you gotta see other people mean; you know for that driver’s license one, you know we had to see what the children thought and the parents and you have to see everybody’s point of view before you actually decide? (II, p. 30)

It became clear during both challenge sessions, that understanding and utilizing the concept point of view - the girls’ own points of view regarding background information and challenge topic, and historical points of view - were crucial to reasoning out possibilities and making final judgements regarding the critical challenges.

There was also evidence that the girls had developed an awareness of bias. In the first challenge they seldom labelled information as biased or unbiased, but they could consistently point out inherent unfairness. For example, Nicolette and Avery picked out several ‘unfair’ situations.

N: Women had to work a lot more than men.
A: And they didn’t get paid for it. (p. 14).

April saw that

the upper class, they didn’t have to do much ... (2, p. 16)

She did

think the men were biased towards the women” and knew that “you had to realize that [in order to write the challenge. ] (I, p. 31)
She and the others used their awareness to pinpoint biased situations, and then used that information as a premise from which they made their judgement and as support for the judgements they made. In the following example, it is clearly established by April that living conditions are bad. Sonny then considers the information and it is evident that Katherine uses that view later as a premise for her final judgement on the challenge.

Ap: Kay. So living conditions - there was bad lighting, poorly ... built houses, small ... (2, p. 9)

....

So: So what do we put down - living conditions - how it is awful? (2, p. 10)

....

K: We know what the living conditions were. They were bad for the working class people ... good for upper class people? So what we are saying is that now afterwards, working conditions improved. (2, p. 11)

The others demonstrated this awareness in the second challenge session except Sonny, who could recognize situations of unfairness but didn’t understand how to use them to support her judgements. She initially saw that

[Men] could have gone through everything before they like proceeded [with the Declaration of the Rights of Man]. You know, how about if some of the people don’t like what they’re doing and they’re like being unfair? Or if you’re talking about the men who went on, then the women don’t like some of the stuff that they do. Yah. (I, p. 9)

Sonny was the only one who continued to be unable to define bias in the second challenge. She also confused bias with other concepts.

There was an improvement in the ability of six girls to define and discuss the concept of bias. Katherine initially could not define or provide an example of bias. During the second
challenge session, she had improved her understanding of the concept.

T: Could you explain what bias means?
K: When you are only looking at one side of the picture? You know, you’re not thinking about the other people. You’re only saying it’s bad; you’re not saying there was good stuff or anything. (II, p. 15-16)

Amy described her belief that in her essay, she hadn’t

really talk[ed] about ... bias, mainly point of view ... [and] I just talked about the bad side instead of both. (II, p. 3)

April explained that

I tried to look at both sides. I think that some points I did were biased because it’s sort of hard cause we didn’t have a lot of, like the textbook gives all of the bad stuff about it. So it’s hard to find some of the better things during the time, but um, how did I know [I wasn’t biased]? I don’t think I did through the whole essay, but in the parts of the ones that weren’t biased, I gave points with the good and bad and sort of like the two ... I tried not to be. Yah. When you’re writing you can tell if you’re biased against something; you can tell by the way you’re writing it, and then try to change it but it’s sort of hard. You can tell by the information. (II, p. 21)

This example also demonstrates a lack of knowledge of a standard for quality thinking without bias. Each expressed recognition of her own bias in writing her composition - that she had not met an appropriate standard regarding non-bias, and yet each was still unable to improve the quality of her composition. It appeared that these two girls had not developed criteria for such a standard. Avery and Jascine, on the other hand, had a more in-depth understanding of the concept of bias and of meeting a standard of non-bias or fairmindedness.
Um, well, I guess you could say that if I did present one of those views in a biased way I found something to back it up to make it so it wouldn’t be in a biased way so it like looks at both points of view. (II, p. 36)

Jascine believed she had not been biased in her writing because I wasn’t towards one of them cause I wasn’t towards the upper class or anything because I didn’t care. I was like equal. (II, p. 27)

Regardless of their level of understanding, the participants generally leaned in their work towards fairmindedness, understanding that, as Nicolette said,

you can’t always look at one side and believe that side, because the other side might be right. (I, p. 20)

As mentioned above, both groups discussed the possibility of cause and effect links between historical events. Much like the concepts of point of view and bias, cause and effect was recognized and discussed, but not consciously applied to their background knowledge and their composition.

Criteria for Judgement/Standards

All of the girls had some sense by the second challenge session that they needed to meet some standards with regard to their thinking. Bailin et al. explain that standards of good thinking are also known as criteria for judgement, the grounds for deciding which of possible alternatives is the most sensible or appropriate. Standards are what students should measure their own thinking against to ensure that they make quality judgements and take appropriate actions. However, Bailin et al. warn that each standard of good thinking needs to be
understood clearly and its use mastered by students; otherwise, the terms can provide little
direction. Case and Wright call vague standards "dull tools [which] make for dull distinctions"

The eight participants show a general lack of knowledge of the nature of the standards,
and a vague sense of attempting to meet standards. Because the standards were vague to them,
the girls made rather indistinct judgments. The following quotations demonstrate this finding.
Amy had little sense during the challenges of what expectations she must meet before being
finished. She believed that she was finished when she

ran out of ideas. (II, p. 4)

Amy reflected no sense of understanding that she needed to think through the challenge. Avery
fared somewhat better by the second challenge session. She knew she was finished

when I finished saying all I needed to say. I looked at every point of view and
every aspect that I thought was important and I just listed enough. (II, p.36)

She added,

I felt it was good enough. (II, p. 36)

This comment generated doubt in my mind as to how solid and consistent her standards were.
Jascine appeared to understand some of the implications of the standards, especially during the
second challenge.

I got all my information, thought of all sides, was being fairminded and wasn't being
biased. All of that stuff. (II, p. 27)

Like Avery, she also added,
Because I felt it was good enough! I dunno; it just felt good. (II, p. 27)

April appeared to have followed some previously internalized standards, yet, at least for her work with bias and fairmindedness, she wasn’t aware of how to achieve the standards surrounding these concepts. In the first challenge, April said,

How did I know? [if I was presenting the points of view in a biased way?]
(I, p. 32).

In the second challenge, April repeated a similar appraisal,

How did I know? ... I tried to look at both sides ... I don’t think I did.
(II, p. 21)

The fact that other students were available for discussion regarding standards did aid the participants in their striving to understand and utilize standards, but in at least two cases, while the act of setting standards within the group helped some to understand the basic idea of particular standards, it actually limited others’ use of standards. An example of this occurred in the first challenge session.

K: It says a fairminded approach.
Ap: Like both sides.
K: What do you mean both sides?
Ap: Like the men’s side and the women’s side. Why do you think the men thought that it was only the men’s population that could be involved in this sort of - like.
K: Oh. (p. 4)

Katherine and April together established a standard for fairminded thinking. The standard implies that the group need only make one generalization to represent each of the
'sides' - the men's and the women's. This standard is narrow and allows for over generalizations to be made; nevertheless, it is the standard which Katherine, Jascine, April and Sonny, all of the members of this group, strive to achieve. Katherine provides evidence of her perception of fairmindedness as looking at two 'sides' in the second challenge session.

I knew my work was fairminded] because I looked at both sides? The good and bad. (II, p. 17)

While Avery recognized in her second interview that it was possible for one group to have many views, she did not reflect that understanding in her writing.

Nicolette, a member of the other group, and Sonny initially appeared to have no defined standards, or at least they both looked to the other girls to tell them if they were meeting certain standards. Nicolette believed her work to be fairminded because

... people [told] me it was fairminded. (I, p. 20)

Sonny had acted similarly.

I didn’t know if I met requirements ... It didn’t say anything, like what it required ... I ... told other people to read it and asked them what they thought of it and if they thought I needed anymore information. (I, p. 10)

There was a sense that standards came from an external and subjective source, over which the girls had no control. Nicolette explained,

I don’t know if [the work is] good enough or not. No one can really tell you if its good enough. It just depends on what the person wants. (II, p. 11)
Attitudes

The two challenges required the participants to write fairminded accounts. Bailin et al. include fairmindedness as a habit of mind or an attitude, and define fairmindedness as giving fair consideration to alternative points of view, not simply imposing one’s preference.

In the Bailin et al. sense of fairmindedness as an attitude, all of the members show this general quality towards the background knowledge used in the challenge, and to other group members’ ideas. Katherine provides a good example of both fairmindedness and openmindedness. She first did not agree with the others’ view on a cause and effect link, but later she agrees, after she has listened to the argument.

Ja: ... the March on Versailles ... was after the Declaration of the Rights of Man
....
K: But it doesn’t have anything to do with it.
....
Ap: Well that’s how they defend themselves, they wanted to show that they were ... yah.
....
Ap: I think that the women’s March on Versailles is a part of it because it showed how powerful they were.
....
Ja: These aren’t connected though, right? Because of the Declaration of the Rights of Man, they didn’t march to Versailles, right?
K: Well, they might be if you look at it in the way that you did.
....
Ap: You think that that’s right? that the Declaration of the Rights of Man was
connected to the women’s March on Versailles?

K: Because they felt like, that the men thought they were weak, so they wanted to show their strength, like, yes, they do fight for our rights ... (p.4-6)

Asking the students to expand their use of fairmindedness into their writing broadened the strategies and concepts which the students had to utilize. One criterion which should apply to all critical challenges, stated in Tools for Thought: A Handbook for Workshops on Critical Thinking (1993, p. 90), is that they must

invite critical judgment ... beyond simply illiciting students’ ruminations about their tastes or prejudices, [forcing] students [to] critically assess these matters.

Katherine described how the requirement of fairmindedness changed her approach to the challenge.

It was hard because of the fairmindedness? You know? It’s like, usually people ask you only for your own opinion and sometimes you don’t even have to read the information. They just ask you, ‘what’s your opinion?’ For example, for that driving thing? I never even watched that they were going to change it, but I knew right away what was my opinion. This was like more thinking. (II, p. 18)

Jascine perceived the most difficult part of the challenges as

Umm. Trying to be fairminded. Cause I couldn’t talk about one class I liked then; so that was kind of hard. (II, p. 27)
Another habit of mind belonging to a critical thinker is openmindedness. According to Bailin et al., being openminded refers to a willingness to withhold judgements when warranted, and a willingness to consider evidence against one’s view and to revise that view should the evidence warrant it. April demonstrated her openness to others’ suggestions and ideas through her questions.

You think that’s right? ... (p. 5)

Avery’s openmindedness was inconsistent. During the first challenge, Avery refused to read Minya’s work.

Mi: Could you just read that?
Av: No, no. I’m too busy. (p. 15)

Although Avery later did ask Minya if she could read her written work, she did so after she had completed the bulk of her own thinking and writing. In this way, Avery may have limited her potential to evaluate and integrate any new ideas which may have surfaced from discussion with Minya.

Jascine was probably the most visibly openminded. She was willing to admit when she did not know or understand something, and she consistently asked questions of her group members, demonstrating an openness to others’ views. She, and Katherine and April, demonstrated the feeling of humility which Siegel believes is necessary to a critical thinker and to “the whole-hearted acceptance of the possibility that one may be in error” (Peters, 1973, p. 75). Jascine also displayed independent-mindedness, and showed that she did evaluate the responses of her group members before integrating them into her own work. Jascine, and Sonny at a different time, stand up for themselves when her questions are scoffed at by other members.

Ja: Drastically ... should I say that?
K: You already said that at the beginning.
Ja: I said dramatically.
K: Oh, I see. Then go for it. (2, p. 21)

Another attitude beneficial to thinking critically is one which Bailin et al. call intellectual work ethic and which refers to the amount of effort a student is willing to expend in completing a thinking task or challenge competently. There was some evidence pointing to the lower intellectual work ethic of Minya and Sonny. Early in the second challenge session, Minya stated that

Mi: I'm just going to write a page. I don’t feel like writing anymore. (2, p. 23)

Sonny explained during the first challenge that she wanted to find a way to do her first challenge faster “because she was hungry” (p. 7). These examples raise the question of the relationship of intellectual work ethic to the final product. The premise of the Bailin et al. conception is that the more effort expended, or the better work ethic, the better the quality of the thinking and the final product. As mentioned, Minya completed the two challenges, but did not hand-in the essay for the second challenge, and did not arrange to complete either of the two interviews. Sonny was motivated to complete all of the expectations of the two sessions, yet she did not reach the same level of understanding or utilization of the tools for thinking that the others, excluding Minya, did. Norris (1987, p. 35) asks a pertinent question:

If students fail to perform well is it because of lack of ability or lack of disposition?

Minya did appear to be able to discuss and reflect upon some tools for thinking competently with Avery in the two challenge sessions. Sonny did not appear to have a great knowledge of the resources, and she lacked confidence in her knowledge and abilities. Norris (1985, p. 42) sees

reason to think that context (like fear ... ) will also affect critical thinking
In addition, Norris (1987, p. 41) believes that data are also affected by personal factors such as subjects' motivation, level of fatigue, and so on and environmental factors such as temperature and lighting and noise levels.

All of the girls displayed some level of intellectual work ethic. What they also displayed was that this attitude could be externally or internally motivated. Sonny explained that she had participated in the first challenge session to help you out? (I, p. 11)

and in the second one

[to learn] what do people think, not just what [I] think. (II, p. 33)

Nicolette elaborated upon her reasons for participating. In the first challenge, she wanted to to help you, and to help myself too. Like, to learn a little bit more - to improve my knowledge and everything and like to help you to get that master's degree and everything. It might improve my knowledge and stuff like that, I can improve my thinking and working habits and things like that. (I, p. 21)

She expressed much the same reasons in her second interview. Jascine explained that Well, [participating] might help you.. [and] it might teach you to be fairminded and not be a liar, like a biased person. Maybe that's why. (II, p. 28)
Katherine, Avery and April exhibited more consistently internal motivation. For example, Katherine was motivated by the thought of being able to “easier think, or something ... (l p. 6),” and the possibility that if thinking would become easier, she might do better in college or university and be better prepared for life. April appeared willing to expend much effort to complete the challenge

so [I] can understand everything better I guess, so [I] can realize what happened and how it’s different from like now. (II, p. 23)

Problems in Utilizing the Tools

As I observed the girls work through the challenges and discussed with them their approaches, I found that they were or had become adept at utilizing some tools for thinking. The eight girls drew upon past background knowledge and present resources. They also demonstrated repeated and sophisticated use of certain strategies which aided their thinking. Even the habits of mind the eight girls used fairly consistently to their advantage, as they were highly aware of the beneficial effect of good habits of mind. On the other hand, significant weakness in the utilization of some tools for thinking did surface. Whether these weaknesses were due to omissions in the teaching between challenges, or because particular resources are more difficult to learn, remains to be seen. Nevertheless, the girls’ common difficulties were with critical thinking vocabulary or concepts, as well as with standards of thinking or criteria for judgement.

The eight girls had scant vocabulary to discuss their thinking. Bailin et al. believe that students require the vocabulary or set of concepts that permit them to make important distinctions among the different issues and thinking tasks facing them. In some interview responses, the girls appeared to understand definitions of the concepts point of view, bias and fairmindedness but they lacked the language to distinguish between them. For example, Amy defined point of view as
Looking at different ways. People's opinions. I guess just differences.

(II, p. 2)

When asked to explain, she confused the discussion of point of view with fairmindedness, explaining neither of the concepts specifically.

Because then it would be more fair. If you just look at one side you wouldn't know what is right and what is wrong. (II, p. 2)

Katherine, when asked to define bias, does so but then blurs the distinction between point of view and fairmindedness because of her lack of distinguishing vocabulary.

In addition, Bailin et al. (1993, p. 15) explain that all judgements are based on criteria [standards] of some sort or another [and] students need help in thinking more carefully about the criteria to use when judging various alternatives.

All of the eight girls had some difficulties in grasping and achieving the standards for their thinking. First of all, the girls did not consciously set clear, broad standards which kept them from achieving high quality thought and high quality products. Four of the girls, April, Jascine, Katherine, and Sonny, used their group to set a standard of fairmindedness. As described above, the resulting standard was superficial, lacking the breadth to inspire the girls to be challenged to look for alternative viewpoints other than within the initial groupings of men and women.

Overall, there was only vague mention of standards and superficial discussion of setting these criteria for judgement. They had agreed, for example, that their writing had to be 'fairminded' but they did not discuss or compare their understandings of the term. It was unclear what the girls were working towards. Their writing also provided evidence of the lack
of, or inconsistencies in, the use of standards.

Issues concerning approaches to critical thinking

While the overall use by the eight girls of the tools for thinking defined by Bailin et al. was remarkably similar, some features of the girls’ approaches to the critical thinking challenges raised issues not addressed by the Bailin et al. conception. These issues, generally, are with regard to socialization and group dynamics, confidence and self-esteem, and the connection between writing and thinking, and language.

Tools for thinking, according to Bailin et al. are a “complex array of assets” that are drawn upon in thinking critically (1993, p. 15). Their assumption is that although thinking performance can be aided by utilization of the tools for thinking, critical thinking “is never simply a matter of following certain procedures or steps” (1993, p. 17). This assumption is applicable to the approach that the eight girls take in response to the two critical challenges in that there was constant interplay between the girls’ background knowledge and critical attributes needed to address the challenge. However, there were also frequent shifts from periods of on-task effort to periods of social chatter, which recurred for no set time or topic. All of the girls joined in at various points during the challenges. Humour, empathy and acceptance seemed to be an aim of some of the personal conversation which took place as the following example shows. After discussing ideas to be included in the beginning of their written compositions, Jascine, Sonny, Katherine and April suddenly began to socialize, only to be brought back on task again by April.

Ja: Okay. Have you seen that commercial they tell ...
Ap: I had a piece of toast and an orange.
(Laughter by the whole group)
Ja: I shouldn’t be talking about that.
Ap: Sorry, Miss Moore!
Ja: Hellooo.
Ap: Now, socials ...  
(Laughter by the whole group)  
K: What is that?  
Ja: She's gonna type this.  
Ap: Sorry, Miss Moore.  
K: Now she types it again!  
(Laughter by the whole group)  
Ap: Okay, we have to like think, brainstorm ... Okay, brainstorm.  
Ap: We all could have like the same kind of essay, can't we? (2, p. 5)  

Avery and Minya demonstrate a similar social period, after which there is a long period of silence and then some on-task discussion.  

Av: Does your head hurt?  
Mi: Yah.  
Av: Mine's in pain.  
Mi: I fell asleep in math and then in ... I'll give you homework, and that's all I heard. I'm like, Huh? (2, p. 23)  

Grant believes that "emphasis on quiet, orderly classrooms does not permit the discussion needed to synthesize ideas" (1988, p. 124). The girls' discussions did not directly aid their completion of the challenges. However, the social chatter appeared to provide reassurance that each of the girls was accepted into the group, while contributing to the growth or maintenance of self-esteem during the challenges.  

Confidence and self-esteem did appear to be a factor in the approaches to thinking that the girls took. For example, April consistently demonstrated a lack of confidence in her ideas. After explaining an idea during her second interview, April often sought external approval. One example is this part of her second interview when she is asked about point of view. She would not commit to her own version of a definition; instead she seems to try to say what she
thinks I want to hear.

T: Do you know what point of view means?
Ap: Like my point of view?
T: Well, could you explain what a point of view would be?
Ap: Well, I think that the women felt that they were worthless and that they were unimportant.
T: Okay, you’ve described someone’s point of view, could you give me a definition about what point of view is?
Ap: Just a point that someone’s feeling, I guess? I don’t know.
T: It sounds like you’re understanding. So I guess, it’s how each different group of people think or how one person thinks about something. Right?
Ap: How one person thinks about this, is that what you want me to tell you?
T: Actually, I’m not, I was just asking if you knew what it means.

Another complex example involves April’s progress through the second challenge. She initially took a strong leadership position in her group; however, after going “too far” and “losing [her] way” with some of her ideas, April gave up her leadership role and verbally denigrated her “thin, thin brain.” From this point on, she follows the advice of Katherine, who from that point takes up the leadership role. April’s lack of confidence appeared to cause her to distrust and not follow through on her own ideas, without reviewing the reliability of her ideas. Sonny displayed a similar lack of confidence which at one point causes her to exclaim to the others who are leaving,

What should I say? What should I write? (2, p. 21)

Sonny’s lack of confidence was also demonstrated through her deference to those she believed had more knowledge than her. Sonny failed to question whether or not sufficient background information had been provided because she believed that her teacher, me, would naturally have
provided it for her.

Lack of confidence influenced the direction and the quality of the girls' thinking and in Sonny and Amy’s case, their participation in verbal discussion with the other group members.

As mentioned earlier in this analysis, much of the dialogue and many of the interview responses reflected a deeper connection between writing and thinking. While critically thoughtful responses, according to Bailin et al. “embody the appropriate tools for thinking (1993, p. 22),” pointing to the need for students to think, no specific mention is made of the act of writing. Writing is described by most of the girls like an outpouring of thought, as if writing is thinking. Nicolette alluded to this phenomenon when she said,

I just wrote it, wrote a lot, everything that had something to do with it. I just wrote down everything I thought. (I, p. 17)

as did Katherine when she explained that

I write what I think at the moment. (I, p. 6)

Amy found that

[The most difficult part of completing the challenges] was thinking over the material and putting it on paper. (II, p. 6)

In 1984, Applebee (as cited in Grant, 1988, p. 36) attributed the importance of writing in thinking

to the permanence of the written word, the explicitness required in writing, the resources provided by conventional forms of discourse, and the active nature of writing.
But while writing may be important, it was not the epitome of these students’ thinking. The interview responses of the girls’ showed a level of thinking far above what their writing shows. All of them did not reflect on paper the same critical thoughtfulness as they had demonstrated verbally during interviews.

The role of language and vocabulary in thinking is the subject of another phenomenon raised by this study. As discussed, the girls had difficulty making distinctions in their thinking due to a lack of vocabulary or practice with the concepts of critical thinking. At issue is the girls repeated use of the words ‘feel’ and ‘felt.’ Words denoting feeling were used when the strategy of role-play was discussed as well as at other times, but in every case, ‘feel’ and ‘felt’ referred to accessing and understanding someone’s viewpoint. Thus, the girls used a particular language which surrounded the concept point of view. The connection appeared to be very strong between what the girls perceived to be a point of view and what a person or group would be feeling under given circumstances. A good example is when Jascine defined point of view as

how you feel about something. It’s like how, what you feel should be good or bad. It’s like your opinion, I guess; it’s how you feel. (II, p. 25)

The Webster’s New World Dictionary (1988) provides the following definitions of the word, ‘feel’, ‘believe’, and ‘think’; contrasting the definitions might possibly shed some light what this language usage might represent. The word ‘feel’ is

3. a) to experience (an emotion or condition) [to feel joy, pain, etc.]
   b) to be moved by or very sensitive to [to feel death keenly]
4. to be aware of through intellectual perception [to feel the weight of an argument]
5. to think or believe, often for unanalyzed or emotional reasons [he feels that we should go]. (p. 497)
On the other hand, the word, ‘believe’ is defined as:

1) to have trust or confidence in as being true, real, good ....
3) to suppose or think. (p. 127)

Definitions for the word, ‘think’ are:

1) to use the mind for arriving at conclusions, making decisions, drawing inferences, etc.; reflect; reason [learn to think]
2) to have an opinion, belief, expectation, etc. [I just think so]
3) to weigh something mentally; reflect [think before you act]
4) to call to mind; recall; remember. (p. 1390)

In the English language, the use of the word, ‘feel’ denotes the closeness or connection of a response to emotion or ‘experience’ and ‘sensitivity.’ ‘Believe’ and ‘think’ indicate that a response is connected to ‘the mind’ and to a ‘mental’ procedure.

Norris (1995) says that reasonable thinking does not include ‘feeling.’ The Bailin et al. definition is that critical thinking involves ‘reasoned’ judgements. When these eight girls use the word ‘feel’, they are using it to acknowledge a specific activity which appears to integrate their attempt to comprehend background information with their attempt to connect personally with the event or situation being described. With this fusion as well as with the reasoning requiring the tools of thinking, the girls came up with their judgements regarding the challenges.

We must remember that these findings result from an intervention; for approximately one month and a half between the two critical challenge sessions described above, the girls attended their regular social studies classes. Each of those classes was devoted to the immersion of all of the students in the utilization of the thinking tools described by Bailin et al. in their conception. My goal at this time was to teach the tools directly to the students, and promote their awareness of specific elements of thinking which are used in critical thinking. My goals were clearly set, and the classroom lessons and my expectations for the class reflected the goals.
“Organized chaos” was the description I used in my initial assessment on what followed in the classroom; after each class I noted what Grant pointed out about her classroom critical thinking experiences. Her experiences were “bumpy, circuitous, and unpredictable” (1988, p. 93). I had to repeat and rephrase instructions for the tasks I had assigned, and it was necessary to continuously circulate around the room to answer student queries which ranged from, “What do I do?” after I had just explained, to “Where do I find the answer?” and “Is this right?”, even though there was no one correct answer to the challenges I assigned. Through the students’ uncertainty and apprehension at having to take more control of their learning and of the formation of their judgements, it became evident that these students had likely not participated in such thinking exercises before and were not comfortable in doing so.

Several times throughout the course of teaching the unit, I questioned the strategies I had chosen to use and the length of time the unit had taken beyond my plans, as well as whether or not the students were benefiting from their critical thinking opportunities and the enhanced environment I was trying to provide. It was possible but exhausting to deal with the classroom management as well as to continuously be aware of the need to promote the use of the tools for thinking which Bailin et al. describe as being reflective of critical thinkers. Nevertheless, near the completion of the unit, my reflections on the critical thinking unit became more positive. The students were actively participating - questioning, discussing, and proposing ideas regarding the challenges. The noise and apprehension I noted in the class I now saw as a necessary factor not just because of the students’ apparent lack of familiarity with critical challenges in social studies, but also because these challenges require such active participation in order to be meaningful and successful. I came to believe that the students genuinely desired to learn what this conception of critical thinking had to offer them; I was influenced by the fact that students were not complaining about the large amount of work they were being assigned, and that they were indeed puzzling about how to best use the tools for thinking.

“When are we going to meet again for that last group thing?” was the question which Avery and Jascine asked me with near the end of the unit. The girls evidently had a need to plan ahead, tempered with the fact that the last group session was, in Jessica’s words, “Well,
kind of fun ... you know, different.” I wondered if these words reflected a relatively high level of motivation or the kind of chatter which students get to know that their teachers like to hear.

In this chapter, I focussed on the presentation of information uncovered during the research, highlighting various patterns in these eight girls’ critical thinking. In Chapter 5, I consider the findings more thoroughly, suggest the possible implications for educators and policy makers, and outline areas requiring further research.
Bailin et al. have claimed that critical thinking "involves thinking through problematic situations about what to believe or how to act where the thinker makes reasoned judgements that embody the attributes of quality thinking" (1993, p. 4) and state that it is "the quality of thinking which distinguishes critical from uncritical thinking," (1993, p. 8). As these eight young female students thought through two social studies-oriented challenges requiring fairminded thinking, the ease with which they utilized some tools for thinking and the struggle that ensued in their attempts to utilize other tools became increasingly apparent. This analysis and description of the critical thinking of girls is a rich platform from which we, as educators, can understand how these students think critically. Additionally, this thesis is a source of information about the relevance of the Bailin et al. conception to how these students go about critical thinking, as well as about the thinking of some teenage girls. In this chapter, I will examine my findings and consider how they might be used by educators, schools and educational policy makers overseeing education. The term "policy makers" will refer to any persons with the capacity to effect educational change, including teachers, administrators, school boards, and government employees and elected representatives.

I was impressed with the eight girls' efforts to think critically. While they had each achieved different levels of 'quality' thinking, plainly, each one had a rich and unique account of their thinking to share with me. The personal profiles and comparison of their thinking are
representative of the whole-heartedness with which all of the girls attempted to think critically. They demonstrated openly their curiosity for historical events and the human condition, and the struggle they went through to understand - to make events on a page come alive and take on relevance and meaning within their lives - while at the same time attempting to see the events fairmindedly, to 'measure up' to the others, and to have confidence in and express their ideas.

The girls have revealed engaging realities about their thinking, some simple and some complex. The girls demonstrated that the conception was applicable to their utilization of the tools of critical thinking in both challenges. One of the first themes which emerged from the data was that the Bailin et al. conception was relevant to the responses of the eight girls to the two challenges. One would anticipate this result to emerge during the second challenge because, as the girls' classroom teacher, I had taught them via the tools of the conception. However, I did not begin that instruction until after they had completed the first challenge, in which they did demonstrate use of the resources, but at a lower level. Bailin et al. describe tools for thinking as the "background knowledge and critical attributes that are drawn upon when responding to particular challenges" (1993, p. 15). All of the girls utilized a range of strategies to tackle the challenges, applied relevant critical concepts to aid understanding of background knowledge, exercised valid attitudes of a critical thinker, and attempted to meet standards of thinking. Three possibilities arise from this finding:

1) that the students have been taught via this conception previously,
2) the conception is 'natural', or
3) the students' thinking reflected the conception because their classroom instruction was shaped by teachers who think in the manner represented by the conception.

The first possibility above is a slim likelihood. First of all, there is the 'cognitive dissonance' which Johnson speaks of (1992, p. 52) - the existence of many competing theories of critical thinking. Furthermore, Wright explains (1995, p. 66-67) there is some evidence that classroom and teacher practice does not promote critical thinking although teachers support the idea. Not only that, the approach has only been in existence since 1993 and is not really well known yet in teaching circles. Clearly, people when thinking will use their background
knowledge, will have particular concepts and attitudes, and will apply particular standards, but they will not usually utilize these in any critical way. As pointed out previously, people are not inclined to think critically. As Paul states, and as mentioned also in Chapter one, "'good' judgement is not [a] natural but an extraordinary process (no date, p. 1)." The third possibility is the most likely. The Bailin et al. conception is based upon years of developing theory and ongoing practice regarding critical thinking - what teachers and students do when they think critically. However, while this may be the case, and the girls evidently were taught how to use background knowledge and some concepts, there was no similar evidence that they had had experience with fairmindedness or standards. This lack of ability to be fairminded may be an example of what Paul (no date) refers to as the tendency of humans to remain undisciplined in their thinking patterns. Although one cannot generalize from this study, based on my experience as a classroom teacher, as a member of a consortium of teachers interested in critical thinking, and on the research literature, I believe that the Bailin et al. conception can be used as a consistent foundation upon which to base efforts to implement critical thinking in social studies.

What the similarity of the girls' thinking to the basic ideas of the conception implies is that the conception can be used as a consistent foundation upon which efforts to implement critical thinking in social studies can begin. It is not enough that educators believe it is important to promote critical thinking; what is needed is a concerted, co-ordinated campaign by educators and educational organizations - including teacher unions, universities and policy makers - to champion one critical thinking approach.

Another constant in the data was the way in which the girls utilized the tools for thinking. There was no set procedure or apparent order which the girls followed, nor were there specific combinations of the tools needed to complete the challenges. The diagram illustrates how the tools for thinking appeared to be utilized. (See Figure 1.) As each girl worked on each challenge, she used the critical attributes to make sense of the background knowledge she had "gathered." Each of the strategies, concepts, criteria for judgement and attitudes were employed according to no apparent order, in various combinations. Judgement was under constant formation and reformation; each continued to use this approach until, eventually the
Figure 1. How the tools for thinking were utilized by the participants of the study.
girls made their judgment permanent via writing. Learning to think critically is a formidable
endeavour which requires broad understanding of information and of how to make sense of that
information, and especially requires the application of criteria for judgement.

It is significant to note that while background knowledge was not accessed in an ordered
fashion, the girls never accessed it without a greater purpose. The girls used that information,
not as small details to memorize, but as a setting from which to discover meaning in the human
story. All of the girls used the attributes of thinking - critical concepts like point of view, bias
and cause and effect, and strategies like role-play - to understand, break down and explain the
background knowledge, later using the same information to support their judgements, both on-
going and summative. This implies that when using a critical challenge, deeper thought about
information occurs. Because we want to prepare students to apply their critical thought to real
problems and be competent in adult life, rather than to just ‘know’ information, we, as
educators, must not present information and facts as an end in themselves, but as a means to
an end. This implication is supported in the literature.

Newmann (1992, p. 105) refers to research which suggests that “curriculum guidelines and
testing programs that require coverage of vast amounts of material” result in a “failure to
emphasize higher order thinking.” Educational policy makers must stop creating social studies
curricula which cover such large periods of history that the teaching of courses become centered
on the transfer of facts. Teachers need more time to help students to make more sense of less
information. This would make sense in the younger grades where students should get consistent
practice at using the tools for thinking, in order to enhance and strengthen their thinking as they
get older. Policy makers, and teachers themselves, must also continue to refine the requirements
of cumulative examinations which drive what information is taught and how it is taught within
the classroom. Exams need less emphasis on facts so that the result will be students putting
their thinking to a deeper, and more productive use, and educators converting courses from
grounds for memorizing to grounds for interpreting and analyzing, and thinking critically.
Courses could begin to emphasize more critical thinking if more social studies teaching resources
more consistently promoted the use of critical concepts and other critical tools. Primary sources
should also be made more available so that students can make sense of historical and other information on their own, rather than being told by historians how to interpret it, and to memorize the interpretation.

A third commonality I noticed was that these girls did not clearly know what the criteria for judgement or standards for their thinking were. It is possible that the girls' lack of previous experience with criteria added to this situation; whereas, they were more adept at using background knowledge as it has been a common resource utilized in all social studies classes. Not only could the girls not set or meet appropriate standards, but they generally were not aware of where the standards for their thinking came from, or at least, they believed that the criteria or standards were set by someone other than themselves. Lipman believes that students must be participants in their own educational process by learning that educational criteria belongs to them as well as to teachers (1991, p. 4). Wright and LaBar (1987, p. 56) add that if we wish students to apply their critical thought than we must teach them which standards are applicable, along with how to make distinctions via critical concepts. We cannot expect that understanding and the ability to apply standards will just occur naturally. Students will neither use criteria for judgement nor understand concepts and how they relate to information simply because they are given the opportunity to do so. Mastery of standards and concepts is very complex. As Lipman (1991, p. 4) has explained the "cognitive components within reasoning that must be marshalled in even a single act of reading, writing, speaking, listening, or computation" must be unpacked.

This commonality regarding criteria for judgement has several implications. First, classroom teachers need to spend more time explaining criteria to students directly; that is, they must tell students how they decided on which criteria to apply and why these criteria are important. Secondly, they must teach students how to set their own standards. Students must also be shown examples which meet and do not meet appropriate criteria for judgement, while also being involved in discussions centred on why this is the case. Teachers need in-service which illustrates explicitly what constitutes appropriate criteria. Because of the nature of this task, it is clear that policy makers need to provide funding for longer and on-going in-service
and support. Criteria for judgement are just one tool of critical thinking that educators need to unpack for students, and a one hour or one day workshop on select topics is not satisfactory to effect real change in teachers. Fullan argues that the most pervasive form of staff development, school district-led in-service, is ineffective (1991, p. 316). Some of the reasons that Pink (1989, as cited in Fullan, 1991, p. 317) believes short term workshops are inadequate are as follows:

1) there is too little time for teachers to plan for and learn new skills and practices,
2) the workshops are ‘quick-fix’ solutions by the district,
3) there is little follow-through or on-going support for teachers who are attempting change,
4) projects are underfunded, and
5) there are too many competing demands on teachers’ time as well as an overload of work.

In addition, it is ongoing, focussed in-service which will alter the philosophy of teachers to see merit in the transformation of students from recallers of information into thinkers. This context is yet another reason for policy makers to decrease the content covered in social studies curriculum, and allow more time for teachers to investigate such aspects of critical thinking as standards. Criteria for judgement were the least understood and utilized resources of the eight girls. There is much room for research which would address what students’ understandings of criteria are, how and when these students might set criteria, and what teaching methods would be most effective in helping them to use standards appropriately.

What was also significant to note was that the girls’ critical thinking demonstrated what has been referred to as “feminine” (Norris, 1995; Orr, 1989; Phelan and Garrison, 1994) elements. First, the girls attempted to understand as closely as they could what were the different points of view; they tried not just to understand or believe the views, they tried to “feel” and “empathize,” illustrating a compassion for specific historical groups. They used strategies of role-play and imagining to access these points of view, stating that they could feel
the same things that past women could feel because the girls believed themselves to like the same people only living years before. Orr (1989, p. 7) believes that for women, rationality integrates passionate knowing and intellectualism in a whole. Orr's belief supports Phelan and Garrison (1994, p. 257) who say that emotion and reason, passion and thought, and feeling and reflection are used in an integrated fashion by women. The eight girls provided evidence that at least some of the knowledge and thinking, throughout the challenges, was based upon the "closeness, connectedness, and empathy" which Phelan and Garrison discuss (1994, p. 259). The girls demonstrated a close, caring, compassionate way of thinking and attempted to understand not just the information of the challenge topics, but a simultaneous emotional state. In this study, "feminine" strategies were exercised as tools for thinking, and as examples of quality thinking. As educators, we should accept these strategies and integrate them into our scheme of promoting critical thinking in order that the women and men of our classrooms can benefit from these strategies. In addition, we need to embrace words like 'emotional', 'passionate' or 'compassionate' which are used to describe feminine thinking, and rid the words of the negative connotations. We want to help our students think critically, with whatever resources can aid that goal.

This study does not tell us whether males also use these 'feminine' elements of thinking. Further research is required to demonstrate if boys also use vocabulary like 'feel' or 'empathy' when accessing point of view, or if some integrate "passionate knowing and intellectualism into a whole." While Orr (1989, p. 8) believes that feminine and masculine modes are rooted in gender, she also believes that gender is an acquisition and not sex determined. If this were the case then, as I am suggesting, both modes of rationality are open to both sexes.

The attitudes or habits of mind explicated in the Bailin et al. conception as conducive to critical thinking were generally displayed by the girls throughout my research. These attitudes were evidently available to all of them to utilize as each of them displayed them at certain times. However, the girls didn't use all of their available attitudes all of the time, and it did appear that the use of the attitudes was not a conscious effort for the majority of the girls. Furthermore, some attitudes were displayed often, and therefore, seemed fairly established in
some girls, and some were merely fleeting. One would expect that because these girls volunteered to take part in the study, they would have attitudes somewhat more conducive towards critical thinking, or at least towards academics or completing the challenges. But the results from my research are not entirely clear. Two girls who were not employing critical thinking attitudes consistently showed a lower standard of the utilization of the tools for thinking and a lower quality product relative to the other girls. Another girl whose intellectual work ethic and openmindedness was questionable did demonstrate a fairly high utilization of the tools for thinking and a higher quality product. Further research is required to discover how attitudes affect critical thinking, as well as which factors affect attitudes, and what measures need to be taken by educators, and parents, to promote those attitudes conducive to critical thinking.

Two issues emerging from my data which are not described or mentioned in the Bailin et al. conception are the relationship which writing has with critical thinking, and the role of confidence and self-esteem in critical thinking. Bailin et al. (1993, p. 42) do imply that relying upon students' writing fluency is a valid option for assessing critical thinking, but one with limitations. A significant number of comments indicated that the girls believed that there was a strong connection between their writing and their thinking. While the girls made this connection, their writing did not reflect the complexity and degree of thinking critically which they had reflected in the group sessions and in the interviews. One appraisal of this situation is that because the challenge sessions were not a realistic classroom settings, where the students were expecting to be graded for their work, it could be assumed that the girls' attempts at the essays proved to be of considerably less quality than they otherwise might be. On the other hand, as mentioned the majority of the girls were reasonably motivated during these challenges so the written products could be realistic samples and the limitations of which Bailin et al. write do actually exist for whatever reasons. Nonetheless, the situation does imply three things. First of all, if writing does not reflect the process that leads to belief, then alternative methods of evaluation need to be used. Bailin et al. (1993, p. 45) propose "alternative assessment measures" which include performance assessment, portfolio assessment and naturalistic assessment. Assessments might include student interviews or analysis of group discussions for
evidence of critical thinking and utilization of the tools for thinking. At the same time, teachers should not abandon writing with their students but also should focus on how they might reflect their thinking more fully in their writing. Finally, it is evident that more research in the area of thinking and writing needs to be done. Specifically, it would be interesting to understand if more structured and complex writing forms or if less structured forms can reflect more critical thinking or thoughtfulness. Newkirk (1989, p. 15) writes that because a formal essay is planned, and students know where they have to be after each paragraph, they could be restricted from making further analyses. Perhaps we need to loosen the controls we use in our students' performance rather than tighten them. Lastly, administrators and teachers need to come to terms with the fact that the present structure of learning, at least in British Columbia schools, is not sufficient for alternative assessment measures or for the effective teaching of writing reflective of critical thinking. The inflexible scheduling of a large number of subject classes of approximately one hour is not conducive to meaningful, effective evaluation. Teachers do not have the time required to assess critical thinking via measures like interviews or performance, especially after spending more time teaching for critical thinking.

My study was not intended to measure confidence and self-esteem, or to determine the role of confidence and self-esteem in critical thinking. However, there is no question, after analyzing my data, that the amount of confidence which the girls held in their own ideas influenced how, and how often, the girls expressed their ideas or asked questions. Confidence appeared to influence the direction their thinking proceeded and the depth that it then reached. Some of the girls automatically trusted other girls’ judgements above their own. It is possible that the girls are lacking an attitude which Bailin et al. call independent-mindedness; this attitude is defined as the “willingness and personal strength to stand up for their firmly held beliefs” (1993, p. 20). However, these girls did not demonstrate that they had many firmly held beliefs. At best, the girls expressed their judgements and then, at best, treated them as strong possibilities; at worst, their judgements came across as merely hunches. It is unclear in this research what would help students arrive at beliefs which are rationally justified. But, what is clear is that students will continue to doubt themselves if we do not find a strategy to aid them in this pursuit.
Further research is needed to discover the relationship of confidence and self-esteem to critical thinking, and effective strategies to promote young people's confidence in their own ideas. In the meantime, we need to demonstrate to students that there is no mystery behind having a reasonable, defensible judgement which they can endorse confidently. Not only that, educators need to continue to respect all ideas that surface, and provide direct instruction on how students can test their hunches to see if they are plausible and powerful. It is not enough to expect students to support statements or provide evidence for their opinions when they do not clearly understand why and to what extent they need to do so.

If this conception of critical thinking becomes a foundation for teaching, the classroom itself also changes. As noted in Chapter 4, no longer is the classroom a quiet, orderly place where students obediently complete their assignments and then hand them in to be marked. Instead, the classroom becomes alive with questions, discussion, and some student anxiety as well. A teacher who is teaching for critical thinking, will likely not embody past theories of an effective teacher. An effective teacher has been described by Brophy (1987, as cited in Stanley, 1991, p. 249) as follows:

Effective teachers tend to be goal directed and have a "businesslike and task-oriented" personality. They expect their students to master the specific instructional objectives prescribed by the curriculum and spend most classroom time on academic activities. Classroom management is carefully planned, and basic rules and expectations are made clear to students. Student behaviour is continually observed and misbehaviour corrected before it becomes a serious problem. Student learning is briskly paced with smooth transitions from one topic or activity to another ... Instruction is broken into small steps that students can master with a high rate of success.

According to this description, an effective teacher would not have the "bumpy, circuitous" experience in the classroom which Grant (1988) reports in critical thinking classrooms, and which I have described in Chapter 4. With this in mind, teachers clearly need more support in
the classroom in order to meet the needs of all students. This might be in the form of teacher aides, or partnerships in teaching. Coupled with this need for support, is the need for more preparation time. Teaching for critical thinking is clearly very labour-intensive; in addition, to move beyond instructional practices which emphasize content, teachers need time to revise their current lessons. Educational institutions and policy makers should recognize that to achieve this goal of critical thinking, to have students who can think as responsible, competent people, and teachers who can promote this end, more than just dialogue and new curriculum documents must occur. Time and support are just two of the actions that would aid in this situation.

Much has been theorized about critical thinking. This research study points to how much is known about critical thinking, as well as pinpointing areas in need of further investigation. As seen throughout Chapter 5, the possibilities for such research are endless. Yet, this point should not be a depressing one. There is a strong foundation of knowledge already formed about critical thinking to this date, and this research serves to support the philosophically based conceptions, particularly the Bailin et al. conception. Along with more research, all of the groups of people mentioned throughout Chapter five - educators, authors of teaching resources, educational policy makers and parents - need to work together, first of all, to become informed about what the Bailin et al. conception is telling us about critical thinking, and what these young people are demonstrating in these results and in their performance in and outside of the classroom. Moreover, and most importantly, all of us need to continue to work to find a solution which will best help young people become critical thinkers and competent adults - to not just be able to make reasoned judgements, but to actively follow these judgements in their own lives and for the overall benefit of the human condition.
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APPENDIX A

PRE-UNIT CRITICAL CHALLENGE

Answer the following critical challenge in an organized composition. Write the composition on a separate piece of paper.

Based on the little information you have been presented about the women and men in the French Revolution, write a fair minded account of the changes in the lives of French citizens after the Declaration of the Rights of Man in 1789. Explain and defend your account.

Use pages 22-30 in the textbook Patterns of Civilization Volume 2. Also refer to Background Information I: Women in the French Revolution, and Background Information II: Declaration of the Rights of Women.
BACKGROUND INFORMATION I: Women in the French Revolution

In 1789, when the Estates-General were summoned to meet in Versailles in May, a handful of women were involved in the debates. Some noble women in the First Estate and some women in the religious orders in the Second Estate sent representatives who presented the following demands and grievances: equal pay, equal representation, broader education, single standard of sexual morality and paid midwives.

Even though most women were excluded from the Third Estate, their participation in the revolution was visible and well mobilized. These poor and working women were shopkeepers, fish vendors, laundresses, seamstresses, journalists, actresses and street women and they presented a different catalogue of grievances to the Estates. They complained of tax collectors at the entrance to the city, exploitation by the rich grain speculators, overcrowded hospitals, restrictions on marrying, lack of police protection and unfair competition with males for jobs.

In the opening events of the French Revolution, many French women took action and participated. They had gained valuable experience in the past decades when protesting against high bread prices and organizing bread riots. French women worked hard to mobilize the French people in rural areas in support of the Assembly, persuading village officials to write letters in support of the new government.

In 1789, French women joined in the storming of the Bastille on July 14. In October, thousands of Parisian women, demanding bread, marched to city hall, then to the Champ Elysees, and finally to the royal palace at Versailles. At Versailles, a delegation of women met with the King and eventually escorted him back to Paris. The decision of Parisian women to march to Versailles, three months after the storming of the Bastille, and to bring the King back to Paris was made possible by their previous experience in organizing to keep bread prices affordable.

When the 1789 Declaration of the Rights of Man was limited strictly to men, French women saw clearly the contradiction in granting universal rights to only half the population. In response, Marie Gouze (1748-1793) (also known as Olympe de Gouges) listed the demands and grievances of women in her Declaration of the Rights of Woman. This Declaration was not declared a legal document.
BACKGROUND INFORMATION II: Declaration of the Rights of Woman

I. Woman is born free and lives equal to man in her rights. Social distinctions can be based only on the common utility.

II. The purpose of any political association is the conservation of the rights of woman and man: liberty, property, security and especially resistance to oppression.

III. The principle of all sovereignty rests essentially with the nation, which is nothing but the union of woman and man.

IV. Liberty and justice consist of restoring all that belongs to others; thus, the only limits on the exercise of the natural rights of woman are perpetual male tyranny: these limits are to be reformed by the laws of nature and reason.

V. Laws of nature and reason proscribe all acts harmful to society.

VI. The law must be the expression of the general will; all female and male citizens must participate in its formation; it must be the same for all; male and female citizens, being equal in the eyes of the law, must be equally admitted to all honours, positions and public employment.

VII. No woman is an exception; she is accused, arrested, and detained in cases determined by law. Women, like men, obey this rigorous law.

VIII. The law must establish only those penalties that are strictly and obviously necessary.

IX. Once any woman is declared guilty, complete rigour is to be exercised by the law.

X. No one is to be disquieted for his or her very basic opinions; woman has the right to mount the scaffold; she must equally have rights to mount the rostrum, provided that her demonstrations do not disturb the legally established public order.

XI. The free communication of thoughts and opinions is one of the most precious rights of woman, since that liberty assures the recognition of children by their fathers. Any female citizen thus may say freely, I am the mother of a child which belongs to you, without being forced by a barbarous prejudice to hide the truth.

XII. For the support of the public force and the expenses of administration, the contributions of woman and man are equal; she shares all the duties ... and all the painful tasks; therefore, she must have the same share in the distributions of positions, employment, offices, honours, and jobs.
POST-UNIT CRITICAL CHALLENGE

Answer the following critical challenge in an organized composition. Write the composition on a separate piece of paper.

Based on the little information you have been presented about the Industrial Revolution, write a fair minded account of the changes in the lives of British citizens after the industrialization period of 1800 to 1900. Explain and defend your account.

Use pages 95-100 in the textbook Patterns of Civilization Volume 2.

Also refer to Background Information I: Women in the Industrial Revolution, and

Background Information II: Transitions between Pre-Industrial and Post-Industrial Times.
BACKGROUND INFORMATION I: Women in the Industrial Revolution

In pre-industrial times, before 1750, families produced most of what they consumed within the household. Wives and husbands contributed jointly to the household economy; every aspect of their work was essential and respected accordingly.

Around 1750, the industrialization of the economy sped-up significantly. Industrialization is seen by some to have had a great impact on the lives of everyone in the world. The biggest change was the removal of production from the home, which meant a small but increasing percentage of men and women became wage earners - or reliant on income earned outside the home - and consumers - rather than producers.

In the early Industrial Revolution, to the mid-1800's, men, women and children had to contend with low wages, long hours and terrible working conditions. The government passed laws which limited the hours and type of women's and children's work. Reforms, like the Factory Act of 1833 and the Mining Act of 1842, came not only after parliamentary investigations, but after pressure from groups of men who complained that a large number of women and children were driving wages down, taking jobs away from men, and ruining homelife for children. As late as 1900, no factory law actually regulated the hours of male adults. Men were to thrash out conditions through negotiations between employers and employees (who were sometimes represented by the growing trade unions). Most women worked, not for power or self-esteem, but for badly needed family income, as their husbands could not make enough. After government reforms, some women disguised themselves as men and some children lied about their ages so that they could continue to work in mines.

In the late industrialization period in the early 1900's, a significant change was the appearance of a strong middle class. This class was able to take advantage of the benefits of industrialization in ways which improved their standard of living. Some middle class families began to rival the upper class or aristocracy in wealth. Many women could now afford to stay at home to tend to their children, while relying on buying consumer goods rather than producing them. Men worked outside the home. Children attended schools for longer periods of time than previously.

Industrialization created more wealth for middle classes and indirectly resulted in more working class women working for the middle class. They took on jobs like domestic servants, laundresses, and shop assistants. Many joined unions organized specifically to deal with women's work issues. Women were paid one half to two thirds less than men in wages, and were purposely excluded from many of the higher paying and skilled job opportunities. There was still considerable poverty between 1850 and 1914 for working class families. Women of these families continued to work part-time or full-time. In fact, working class women worked just as much in the late industrialization period as in pre-industrial times, only in different ways.

There were a large number of unmarried women by the 1900's. Most women expected to get married and to be able to stop working eventually. Some women used industrialization and the improving incomes it provided as an opportunity either to delay marriage until older, or as a better chance to find a good husband.
For all women who did not have servants, there was no clear distinction between home and work. But, the women's unpaid work at home was not recognized as having the same value perhaps as paid work. Women attended all household duties. Some took in lodgers; some married women sold food from their kitchens.

Lifestyles changed from pre-industrial to late industrial times. The types and conditions of jobs also changed for men, women and children. Differences still existed in the working and living conditions for the upper, middle and working classes.
BACKGROUND INFORMATION II:
Transitions between Pre-Industrial and Post-Industrial Times

The lives of four women in one family - great-grandmother, grandmother, mother, and daughter - span more than a century and offer a microscopic view of families' experiences and how they changed through industrial times.

Judith Rand was born in July 1795, the daughter of Moses, a farmer, and Mary Rand. In 1813, she married Edward Leighton and moved to a nearby farm. Edward was a farmer with eighty-seven acres of land, seven horses, oxen, and cattle, and twenty-two sheep in 1840. His property holdings placed him in the top half of taxpayers in this farming community. Judith Rand Leighton had eight children, seven of whom survived into adulthood. She milked the family cows, made butter and cheese, tended the family's garden plot, and sewed the children's clothes as they outgrew one set after another. She also spun woolen or linen yarn and woven cloth for her growing family because there were few textile factories. In addition, she wove cloth for local storekeepers to earn credits toward necessary store purchases.

The Leightons lived for sixty years here. Edward Leighton continued to work his farm into his eighties and lived to see four sons become farmers. By 1870, he had retired from active farming, and he and his wife lived out their final years on the home farm supported by their son John and his family.

In the experiences of the Leighton daughters the first evidence is seen of the impact of the industrial revolution on this rural family. Mary Leighton, the second daughter and third child, was born in 1821 and worked five years in the mill between 1844 and 1849. She married a machinist she met there. Her younger sister, Judith, worked at the same mill between 1847 and 1850. Judith married Winthrop Ford, a neighbour of her married brother Moses, in 1851. Ford was a farmer and lived with his widowed mother and two siblings in a nearby town. After the marriage the young couple moved to a small city, where Winthrop Ford became a stove mounter and co-owner of an iron foundry. Although the Fords moved only fifteen miles away, they led a life that differed significantly from the oldest Leightons. First, they lived in a city, and secondly, Ford had exchanged the family occupation of farming for work in an iron foundry. In addition, the Fords had only five children in contrast to the eight in the Leighton family.

Industrialization also changed women's lives in the way they were looked after when their husband's died. Edward Leighton, in his will, gave his farm and 500 dollars to a son, who would then be able to provide for Edward's wife until her death. Winthrop Ford who wrote his will 25 years later, could offer his four children five dollars each. Ford had only a house to will to his wife, but no assurance of income as there was no land to farm. Ford and his children lived in an urban world in which wages and salaries provided families the means of their livelihood.

The two Ford daughters found paid work as teachers in neighbouring towns, giving up employment to get married. One daughter, Clara, had three children. Clara's eldest continued to live at home and work as a stenographer at the age of 30 in 1910. The broad influences of industrialization and urbanization are evident across the lives of the women described above.

So, as you can see, the industrial revolution affected families' lives in the following ways. First, industrialization caused shifts in residence. Secondly, opportunities for wage work broadened to include a variety of jobs. Finally, the family sizes declined from one generation to the next.
APPENDIX B

Interview Questions:

1. Strategies
I'd like you to describe to me what you did while working through and completing the challenge. Start with #1 and explain how you went about answering. Do that for each number.

Was there any special 'trick' or strategy you used to complete the final challenge? (Was there anything you remember doing or thinking which helped you to complete the challenge?)

2. Background Knowledge
What kind of information or knowledge did you have to know in order to complete this challenge?

Were you presented with all of the information that you needed in order to complete this challenge? Did you know some of it previously?

If not, what more or what types of information would you need to know in order to complete the challenge better?

Underline a specific example in your work where you used the information which you knew previously or which you were presented.

3. Concepts
A. Could you explain what point of view means?

How important was understanding point of view to completing the challenge on a scale of 1-10 (10 being highest)? Why? (or how important was understanding what each of the different groups of people thought or would think about certain things in order to complete the challenge?)

Put stars around a specific example in your work which shows that you used and understood point of view. Explain why you chose that example.

B. Could you explain what bias means?

How important was understanding bias (how people sometimes see and interpret things only according to what they think or to their point of view) to completing the challenge on a scale of 1-10? Why? Explain.

Circle a specific example in your work which draws upon the idea of bias. Explain why you think that's an example.
C. Could you explain what being fairminded means? How important was the idea of fairmindedness in completing the challenge on a scale of 1-10? Why? Explain.

Put a box around (a) specific example(s) in your work which shows that you used or understood fairmindedness.

4. Standards
   How did you know when you had finished the challenge?
   How do you know that you met the requirements of the composition? Give specific examples.
   How did you know that your composition was ‘a fairminded account’?
   How did you know that you weren’t presenting one of the points of view in a biased way?
   How did you know that was good enough?

5. Attitudes
   In order to complete this challenge in the proper way, would a student have to have certain characteristics or attitudes?
   Is there any kind of person who would not do a good job on the composition?
   What would they be like?

6. Thinking in General
   Tell me which part of the challenge required the most thinking? Why?
   Describe your thinking as you completed the challenge. You might describe your thinking about how you decided what to include in the composition, or how you were going to make the composition fairminded, or how you were going to put the composition together.
   Was the exercise any different from any of the other exercises that you have done in the past? Why or why not? What was similar? What was different?
   What do you think was the purpose of completing the challenge? (Why would a teacher want you to complete this challenge?)
   What kind of overall advice would you give to students who were going to complete this challenge?
APPENDIX C

UNIT PLAN FOR THE INDUSTRIAL REVOLUTION:
A systematic introduction of some aspects of critical thinking

PRE-UNIT CHALLENGE:
Write a fair minded account of the changes in the lives of French citizens after the Declaration of the Rights of Man in 1789.

CHALLENGE 1:
Which of the agricultural or industrial advances do you think was most important to the Industrial Revolution. Which one might a working class citizen think was most important to the Industrial Revolution? a wealthy factory owner? Why?

• What were the agricultural, industrial, and human advances made during the First and Second Industrial Revolution?
• What kind of changes or further problems did each advance encourage or cause within the industrializing society?
• How do we use background knowledge to help us to make a judgement about a particular topic or issue?

CHALLENGE 2:
Write a fair minded account of the effects of industrialization in the 1800's.

• How did industrialization affect population?
• How did industrialization affect living and work conditions?
• What were children's lives like in pre-industrial times, during the industrial revolution and after parliamentary reforms were made regarding industrialization?
• In chart form, considering education, working hours, type of work, a rating from 1-10 on difficulty of work etc. as criteria, identify features of children's lives in pre-industrial times, during the industrial revolution and after reforms.

CHALLENGE 3:
From the point of view of a working class English citizen, explain the effectiveness of parliamentary reforms on improving living conditions.

• What were the reforms made?
• What were the results of reforms made?
CHALLENGE 4:
Write a fair minded account of how modern industrialization has affected today's society.

- What are examples of modern industrialization?
- How have advances in science and technology affected the lives of ordinary citizens - us?

POST-UNIT CHALLENGE:
Write a fair minded account of the changes in the lives of British citizens during the industrial period of 1800 to 1900.