THE RADICAL WEAVING APPROACH
TO
COLLABORATIVE, MULTIDISCIPLINARY THEME PLANNING

WILMA MARIE MCRAE

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ABSTRACT

The current curriculum for schools in British Columbia is an expanding collection of subjects each with its own listing of goals, prescribed learning outcomes, recommended resources and suggested activities. Educators are increasingly frustrated with trying to satisfy the demands of this growing array of discrete curricula within timetables and budgets that have not expanded accordingly. A commonly voiced complaint is that trying to achieve so many goals for so many distinct subjects is resulting in the attainment of too few goals for each with the final consequence being a diluted education for students. It is a dissatisfying situation for all concerned.

In recognition of this current milieu of discontent, the RADICAL Weaving Approach (RWA) seeks to provide a means for integrating the goals of separate disciplines through the thoughtful, collaborative development of multidisciplinary learning themes.

The RWA synchronously employs two models--*Weave a Theme* and *RADICAL*, in the process of collaborative, multidisciplinary theme creation. The former is a content model that provides a framework for dealing with integration of learning goals from various curricular areas by weaving them together using the fundamental learning elements of critical thinking, problem solving, media literacy, collaboration, and information management into one whole multidisciplinary theme. The latter model offers a *process* that serves as a guide or framework for educators to use when planning collaborative themes. The fundamental learning elements of the RWA--critical thinking, problem solving, media literacy, information management, and collaboration play crucial roles in each of the models as they form an inherent part of learning content, are used to integrate the goals of separate disciplines, and serve to strengthen and expedite the entire theme planning process.

Successful use of the approach is based on a solid, basic understanding of these elements along with a willingness and an ability to purposefully infuse them into curricular content and use them in the design and development processes of multidisciplinary learning theme creation. The utilization of technology for communication, collaboration, and the recording and processing of information helps to maximize time and collective expertise thereby being another contributing factor to the success of the approach.

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Introduction

The RADICAL Weaving Approach Project

Within the ranks of British Columbia's teaching force there is widespread and growing stress as teachers strive to address burgeoning curriculum demands without the benefit of proportionately expanding time resources.

It is my belief that the RADICAL Weaving Approach--the multidisciplinary theme planning approach described in this paper, is one possibility for dealing with some aspects of the stressful situation. It is for this reason that development of the RADICAL Weaving Approach became the focus of my culminating project. The approach seeks to increase time and other resource efficiencies by weaving together curricular goals and teachers efforts in the collaborative creation and implementation of multidisciplinary themes. The wise use of computers and electronic telecommunications expedites the whole process.

Based on my interactions with teachers in other provinces, I have reason to believe that they too, are experiencing similar stress. Even though the RADICAL Weaving Approach features terms that relate to the British Columbia education system, it may be easily adapted to work in other provincial settings.

What is the RADICAL Weaving Approach (RWA)?

The RWA is an approach to the planning of multidisciplinary themes that is supported and facilitated by electronically formatted materials which I have developed as part of my project. It involves following a series of steps to create a learning *web* from chosen strands of prescribed subject area curricula interwoven with essential strands of five fundamental learning elements--critical thinking, problem solving, media literacy, information management, and collaboration; the choice of which is defended and discussed further on. Through using the RWA for planning and implementing multidisciplinary themes teaching colleagues may save valuable time by shared utilization of many of the same resource materials across subject areas. For example, a teacher may include the reading of novels and the viewing of movies in English Language Arts on topics that also fit with the Social Studies curriculum. Computer and Information Management skills can be taught through projects that include the use of the same topic(s) and some of the skills being studied in English Language Arts and/or Social Studies.

The term, RADICAL Weaving Approach, embodies an anagram--RADICAL, and a metaphor--Weaving. In the anagram, RADICAL, each letter represents one of the seven steps in the following sequence of planning events: Record, Analyze, Determine, Identify, Communicate, Acquire & Accommodate, and Layout a Timeline (see Appendix B p. 48). This RADICAL process model is described fully in Part III.

The metaphor of Weaving is chosen for the content model because I have often experienced the planning of educational themes as a creative process very similar to that of fabric weaving; in both teaching and weaving strands of specific content are selected and through the knowledge, skill and creativity of the teacher and weaver the strands are interlaced to form an integrated whole. Teachers thus create themes like weavers create fabrics. Furthermore, the weaving together of warp and weft strands creates a grid which serves as a convenient graphic organizer in theme planning (see Appendix A, p. 47).

In the RWA project, the warp strands are Prescribed Learning Outcomes (PLOs) selected from the British Columbia Ministry of Education's Integrated Resource Packages (IRPs) for various subjects while the weft strands are the five *fundamental learning elements* of critical thinking, problem solving, media literacy, information management, and collaboration. The actual weaving or interlocking of the strands is achieved through the development of activities that are specifically designed to cause the warp (PLOs) and weft (fundamental learning elements) to intertwine in an interactive way. This is shown in Appendix A (p. 47) which is a graphic representation for the RWA's Weave a Theme content model. The graphic is designed to become a working template for planning activities that will inter-weave/incorporate subject specific learning outcomes with the five fundamental learning elements that are considered essential to the approach. Examples of the template in actual use are shown in Appendices D (p. 50), DD (p.76), EE (p. 77) and FF (p. 78).

An important feature of the RWA is its flexibility, allowing it to be useful in many different educational settings and planning situations. For example, the RWA may serve the planning needs of an elementary teacher instructing a single class in all subject areas, but can be even more useful to a group of middle level or secondary school teachers specializing in different subject areas who wish to collaboratively develop a

multidisciplinary theme. Further to this, the RWA may be used at what might be considered a more complicated level by a network of collaborating teachers from a variety of disciplines situated in different school districts and/or geographic regions. Success in this scenario depends heavily upon effective use of the Internet for ongoing communication amongst group members.

Although teachers from any variety of disciplines may work together, the RWA recognizes that it is the *nature of a theme's central topic* or its *driving issue* that determines which subject areas are most suitable for inclusion. The more subject area strands represented, the wider the learning fabric becomes. In Appendix A (p.47), the Weave a Theme (WAT) content model of the RWA features English Language Arts, Information Technology, and Social Studies as the selected curriculum strands with the fourth strand being left undetermined. That is because this graphic depicts application of the WAT model in planning the sample theme--*Ivanhoe: A Quest for Quality Education*, (see p. 33) described later this paper.

It is likely that the WAT model would feature an alternate set of warp/subject area strands if used by a different theme initiator or for the planning of a theme on another topic. For instance a theme related to Heart Health might include strands of Physical Education, Science, and Mathematics or it could just as easily feature strands of Physical Education in combination with Information Technology, English Language Arts and Drama. Furthermore, one planning team might choose to emphasize problem solving while another team puts greater emphasis on media literacy; the RWA is flexible to these kinds of decisions made by the planners.

Subject area choices and the level of significance ascribed to each fundamental learning element are what endow a theme with its distinctive character. It is therefore possible for two different groups of educators using the RWA to create two very unique theme versions for the same topic. The differences would relate to the diversity in emphasis placed upon each fundamental learning element (weft strand), to the specific choice of subject areas (warp strands), and to the creativity and skill of the teachers (weavers) when designing the theme activities which cause the interlocking of curricula with fundamental learning elements (the weaving of weft and warp). Appendices D through M (pp. 50

through 59) all show documents that are used at various stages in designing and recording activities that purposefully weave the strands of subject area PLOs together with strands of fundamental learning elements so as to form an integrated multidisciplinary theme.

To this point, nothing has been said about the role of students in the theme planning process. In the RWA as in most educational endeavors students' ideas, preferences and energies should be brought into the planning and implementation processes wherever and whenever this is appropriate and practically possible. This of course varies from one situation to another.

It is imperative to understand that regardless of the theme topic and choice of subject area strands, the fundamental learning elements of critical thinking, problem solving, media literacy, information management and collaboration remain constant; they are integral components of the WAT model and therefore the RWA. On a humorous note, they are to be *weft* alone!

Finally, the whole approach requires the concurrent use of both models (WAT and RADICAL) in the designing of a multidisciplinary theme since such a product and feat requires the treatment of content through a series of processes. The RWA is initiated by one person following the RADICAL process while utilizing the WAT content model, but it later involves a number of team members when the theme is being developed collaboratively (refer to the flow chart in Appendix C, p. 49).

The second section of this project provides a rationale for my selection and emphasis of the five fundamental learning elements within the WAT content model of the RWA. Some essential background definitions for and discussion of critical thinking, problem solving,
media literacy, information management, and collaboration are included.

The third section presents an explanation of the RWA's *process* model-- RADICAL, and describes how it is used *in conjunction with the content model* to guide the flow of planning events/activities necessary for the collaborative creation of a multidisciplinary theme.

A sample application of the RWA to the development of an actual, multidisciplinary theme titled, *Ivanhoe: A Quest for Quality Education* is presented in the fourth section.

Reflections--the fifth section, is the sharing of my thoughts regarding use of the RWA as it has been applied to date in developing the theme titled, *Ivanhoe: A Quest for Quality Education.*

The Five Fundamental Learning Elements of the RWA's WAT Content Model

<u>The Historical Threads of the RWA's Five Fundamental Learning Elements</u>

Throughout the twenty-nine years of my teaching career a number of fundamental learning elements have risen and fallen in waves of undulating importance in the shifting currents of education. The fundamental learning elements to which I refer are: critical thinking, problem solving, media literacy, information management, and collaboration.

Not only have these fundamental learning elements been factors of human interest and educational significance during my teaching lifetime in British Columbia, there are threads of evidence indicating that these five fundamental learning elements have been topics of variable interest for scholars throughout the world spanning hundreds and thousands of years. What follows is a very brief sampling of evidence supporting this claim.

Searching far back in history to the 5th Century BC--the time of Socrates and Plato, it is possible to find evidence of thought pertaining to critical thinking, problem solving, and media literacy. Woodruff (1997) reminds us that " . . . Socrates, c.469-399 BC, was an ancient Greek thinker whose work marked a decisive turning point in the history of Western philosophy. He invented a method of teaching by asking questions (the Socratic Method)" (1997, para.1). Socrates' assumption is that everyone has the ability to find the meaning of things by asking or being asked the right questions. Socrates' beliefs are directly reflected in current education by the use of the Socratic Method and indirectly through the theory and practices of the constructivist and discovery learning approaches to education where questioning, problem solving and critical thinking are valued and emphasized.

Plato, Socrates' most renowned student, " . . . was impressed by the fact that language has the capacity both to articulate the intelligibility of the world and to belie the world's true being. He constantly addresses the question of how to purge language of its potential deceptiveness, how to win the fidelity of words to the world" (Kosman, 1997, para.14). Plato's concern about the inaccurate or false representation of reality is reconfirmed in education today by the efforts of teachers and curriculum developers to improve the level of students' media literacy. This is an onerous yet essential task since

there has been such tremendous expansion in the kinds of media through which ideas are now commonly expressed. A definition of media today must include not only face to face discourse and the printed word, but radio, television, photo journalism, video, the Internet, hypermedia and all other forms of electronic messaging. Plato's concern for the misuse and inability of words to portray reality is tremendously amplified in current culture because human perception and understanding is so heavily pervaded by the dynamic text, imagery and sounds of multimedia electronic telecommunications. On the verge of the 21st century, it is often exceedingly difficult to discern what is real from what is *virtual* reality; what is the actual truth from that which is the *manufactured truth*. Having mastered the ability to apply critical thinking in the process of seeking the truth is at least or possibly more urgent today as

More recent historical evidence for the importance of mastering critical thinking and problem solving abilities comes to us from the writing of John Dewey (1933)--an American philosopher and educator, from the late 19th and early 20th centuries. He essentially speaks of problem solving and critical thinking when he writes that:

... *reflective* thinking, in distinction from other operations to which we apply the name of thought, involves (1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and (2) an act of searching, hunting, inquiring to find material that will resolve the doubt, settle and dispose of the perplexity. (Dewey, 1933, p.12)

Garnham and Oakhill (1994) point out that, "His [Dewey's] ideas were a crucial factor in the development of the now-dominant progressive education school of thought, with its stress on understanding and *critical thinking* [italics added], rather than on rote learning and blind acceptance" (p. 275).

Neisser (1997) in his writing about the 20th century mathematician Gyorgy Polya, provides another example of a more recent scholar who has reignited educators' interest in the theory and practice of problem solving through his work with *heuristics*--sometimes referred to as rule of thumb models, that were originally for mathematics, but may be applied in other situations:

The mathematician Gyorgy Polya introduced the idea that there are general

techniques for solving problems, which he called heuristics: procedures that often help although they cannot guarantee success. One useful heuristic is working backward: if the answer were known, what characteristics would it have to have? Another important heuristic is to establish subgoals: think of some situation from which the solution might be easier to obtain, and work toward that situation first. Still another is means-ends analysis: establish lists of methods that are useful for attacking various kinds of goals or subgoals, and work through the list systematically. (para. 5)

The idea that problem solving can be facilitated through group processing is now well accepted. Students are therefore being taught the skills needed for working as collaborative, cooperative team members. Besides having a connection to critical thinking and problem solving as noted earlier, Dewey is also partly responsible for fostering a movement towards collaboration in education. Dewey (1933) envisioned schools as the training ground for democratic community life; places where students would learn how to work with attention to individual responsibilities and to group processes and responsibilities. He believed that each person should retain their sense of individuality while acting in cooperation with others for the good of all.

Dewey recommended that instruction should consist of activities that encourage children to learn from their experience and so become thoughtful critics of custom and authority. Dewey wished to make education a democratic process that prepared children for active participation in a democratic society. (Noll, 1997, para. 3)

Dewey's philosophy is echoed in the writing of Kagan (1989) who reiterates the importance of teaching and learning through collaboration and cooperation as a means of preparing students for informed participation in democracy and for living successfully in a world of increasing social and economic interdependence. Kagan (1989) states, "Cooperative, interdependent educational experiences in our classrooms are necessary if we hope to make possible the democratic ideal of informed and equal participation" (1989, p. 2:12).

Another recent example of education experts promoting cooperation and collaborative group work are the Johnsons (1991). Most teachers will be aware of their

names, if not familiar with their extensive works on the theory and practice of cooperative education. Like Dewey, the Johnsons support the importance of both individual responsibility and collaborative processes. The Johnsons (Johnson, Johnson, & Holubec, 1988) state that "the basic elements of cooperative learning are positive interdependence, individual accountability, face-to-face interaction, and *collaborative skills* [italics added]" (p. 1:2). They further state that "For cooperative learning groups to be productive, students must be able to engage in the needed collaborative skills" (Johnson, et al., 1988, p. 1:3).

On the thread of information management, one might consider some of the following historical figures and their inventions as connections to the past: Johannes Gutenberg and the movable type printing press, 1445 (New, 1988, p. 430); Charles Babbage and the Analytical Engine, early 1830s (Gates, 1995, p.24); Alexander Graham Bell and the telephone, 1876 (New, 1988, p. 89), and Melvil Dewey and the Dewey Decimal system, 1876 (New, 1988, p.262). More recent discoveries and inventions contributing to the field of information management include satellite technology, superconductors, personal computers, the Internet /World Wide Web and a variety of networking systems and hardware infrastructures. It is frequently difficult to determine the actual date or inventor for many of the inventions from the last three decades because the inventions have often been arrived at by groups of researchers working over a period of time. What is perhaps more important than dates and names is the fact that all of these inventions have revolutionized our means of managing information whether it be for generating, receiving, sending, or processing data. The thread of evidence for human interest in information management stems from the sending of smoke signals in ancient times to the present, common, daily practice of using the World Wide Web for research and communication in business, homes, and schools.

The preceding statements are meant to remind the reader that critical thinking, problem solving, media literacy, information management, and collaboration have been of varying significance to educators and others for tens, hundreds and even thousands of years. The essential inclusion of these five fundamental learning elements in the RADICAL Weaving Approach to multidisciplinary theme planning has historical support.

Why Are the Five Fundamental Learning Elements Considered Essential Components of the RWA?

Firstly, on the basis of my teaching experience which spans three decades spent in wide variety of subject areas from Kindergarten to Grade Twelve and in schools all across British Columbia, I am convinced that these five learning elements play a fundamental and crucial role in quality education. They are the elements that deepen learning experiences by causing greater learner engagement with content through process. That is by questioning and thinking critically about content, by identifying and solving problems within content, by using a variety of media and information management skills to create and criticize content, and finally by doing all of this collaboratively, learners are able to make connections that are significantly greater in number and deeper in meaning between what is being encountered in the classroom with life outside of school. The quality of education benefits by their inclusion and is diminished when they are ignored.

Secondly, there is a trail of evidence indicating ongoing historical support for the inclusion of the fundamental learning elements in education by well known experts from a variety of disciplines. This is highlighted in the introduction in only cursory fashion since a thorough and in depth tracing of the evidence would necessitate the devoting of another whole study to that topic alone.

Thirdly, by using the *Find* function in a web browser, it is possible to identify numerous instances of reference to the fundamental learning elements in the online versions of curriculum documents mandated by various provincial education ministries. The same identification exercise may be performed with hard copy versions of curriculum documents and a highlighter. The resulting collection of identified examples substantiates the statement that the Ministries of Education in provinces throughout Canada *also* believe that critical thinking, problem solving, media literacy, information management and collaboration are fundamental elements in education today.

Since there is widespread, basic understanding of curricular content for the common school subjects a discussion of them here is deemed unnecessary. The same is not true with regards to critical thinking, problem solving, media literacy, information management and collaboration. Accordingly, the following section is included to clarify

their meaning and rationalize their prominent role in the Weave a Theme model of the RWA.

Background Information for the Fundamental Learning Elements of the RWA

Critical thinking: Definitions and rationale for inclusion.

For most educators and others, critical thinking is a term that denotes a higher level of thought processing than what is indicated by the word thinking on its own.The term often is used to indicate a kind of thinking which focuses on a topic that is of more than casual importance. For many educators, the term implies the making of judgments. Prior to offering my own definition of critical thinking, some definitions of the word, critical and the term, critical thinking from more expert sources are presented.

The American Heritage Dictionary (1994) gives the following two definitions for critical: ". . . . 2. Characterized by careful, exact evaluation and judgment. [and] . . . . 4. Forming or having the nature of a turning point; crucial or decisive" (p.1).

In terms of the above definitions for critical, critical thinking would be ranked at the highest level--Evaluation, of Bloom's Taxonomy (Krumme, 1999) because it involves the making of judgments. Krumme (1999) defines evaluation as, "Judging the value of material based on personal values/opinions, resulting in an end product, with a given purpose, without real right or wrong answers; appraises; concludes; confronts; criticizes; critiques; decides; defends; interprets; judges; justifies; reframes; translates" (p. 1).

Cotton (1991) offers some definitions from a number of experts and researchers in the field of critical thinking as follows:

> [1] Reflective and reasonable thinking that is focused on deciding what to believe or do (Robert Ennis, quoted in Presseisen, p. 24), [2] The disposition to provide evidence in support of one's conclusions and to request evidence from others before accepting their conclusions (Hudgins and Edelman 1986, p. 333), [3] The process of determining the authenticity, accuracy and worth of information or knowledge claims (Beyer 1985, p. 276). (Cotton, 1991, p.1)

The Maryland Better Thinking Project (Maryland K to 12 Education Ministry, 1999) puts forth the following definition for critical thinking:

Current views hold that critical thinking includes a set of skills, such as the ability to recognize bias, distinguish between relevant and irrelevant information, and establishing criteria. However, critical thinking may also be characterized as an attitude or a 'mind set' that includes certain dispositions. Such attitudes or dispositions include the willingness to seek evidence for claims, consider opposing points of view, and change one's position when persuaded by evidence and reasons. (p. 1)

For the time being, my own (whether *own* can ever truly be so is another question), but non-static definition for critical thinking is: the human, purposeful, multi-intelligence oriented and unbiased application of higher order thought processing to a combination of stored data and incoming perceptions resulting in a clearer, deeper understanding of a targeted subject (thing/s or event/s). The quality of critical thinking is dependent on genetically determined neurological structure and experientially acquired schema, as well as the strength of the thinker's motivation to expend effort towards thinking in the fullest possible way. Critical thinking is a powerful tool especially when combined with creative thinking and used for problem solving.

It should be noted that the phrase higher order thought processing refers to the evaluation or upper level of Bloom's taxonomy (Krumme, 1999) while the term multi-intelligence is in reference to Gardner's (1983) seven modes of intelligence--logistic, linguistic, spatial, bodily-kinesthetic, interpersonal, intrapersonal (Gardner, 1983) and the most recent intelligence identified by Gardner--naturalist (Campbell, 1997).

In the twelfth chapter of the <u>Critical Thinking Handbook: High School</u> (Paul, Binker, Martin & Adamson, 1989) there are at least forty-four teacher created definitions of critical thinking. After writing one's own definition of critical thinking it is a thought provoking and enlightening exercise to compare the self-written definition to the forty-four found in Paul's (Paul et al., 1989) book. Once having done so, most would agree that there is no *one* best definition--rather there exists a collection of many thinkers' cogitations which best reflects what critical thinking means.

Considering the foregoing definitions it should be quite clear why critical thinking is one of the key elements of the RWA. Learning how to think critically must be an

ingredient in any educational enterprise that aims to prepare learners for a meaningful and productive life where many problems must be solved and countless judgments are to be made.

There is a surge of interest in critical thinking and a move towards its greater emphasis in education that is evidenced by the wealth of current and the less recent, but resurfacing literature on this topic.

Freire (1997) expresses his belief that critical thinking must be a part of every person's education so that all individuals will be empowered by their own voice. He asserts that by learning to think critically, people can then engage in critical dialogues which could be used to create positive social change. Freire voices his opinion strongly in favor of emphasizing critical thinking in education in the following statement: "Only dialogue, which requires critical thinking, is also capable of generating critical thinking. Without dialogue there is no communication, and without communication there can be no true education" (1997, p. 153).

Paul and his associates offer a list of thirty-five strategies or dimensions of critical thought (Paul, et al., 1989) in their guide for critical thinking (see Appendix N, p. 60).

The Center for Critical Thinking and Moral Critique (1999) at Sonoma State University in California is a respected and rich source for information regarding critical thinking. The Center's definition for critical thinking is published on their web site at http://www.criticalthinking.org/K12/k12class/Oconcept.nclk.

One more expression of why critical thinking should be included in learning is: Critical Thinking skills help you decide what to believe about an issue, how to defend what you believe, and how to evaluate the beliefs of others. By thinking critically, you stand the best chance to arrive at reasonable beliefs. Employers like graduates who can think critically. And it is a responsibility of citizens in a democracy to thinking critically about civic issues. Critical thinking empowers your mind. (Ennis, 1999, p.1)

Any definition, set of rules, or strategies for critical thinking should themselves be reflected upon critically. Hare (1993) in his excellent examination of what characterizes good teachers suggests that cultivating creative thinking is of equal importance to

developing critical thinking and should therefore be fostered along with critical thinking. He points out that creative thinking can make critical thinking more efficient and powerful by creating the possibility of study from a wider variety of perspectives (Hare, 1993). It is hoped that any teachers using the RWA for theme planning would model and stress using creative thinking in concert with critical thinking even though it is not shown as one of the essential strands in the WAT model.

Experts disagree as to whether or not critical thinking can or should be taught as a separate subject--not dissimilar to the controversy surrounding the teaching of problem solving, media literacy or information management. The RWA adopts the stance that the controversy shall continue for some time before enough research has been conducted to come to a satisfactory conclusion. Meanwhile, critical thinking along with the other four fundamental learning elements of the RWA is *essential to learning in all curricular areas* and is therefore the responsibility of all educators regardless of subject area specialization.

Problem solving: Definitions and rationale for inclusion.

Critical Thinking and Problem Solving are two distinct but related topics/areas of study that are often treated as one. In much of the available literature these topics are discussed and examined in a side by side or intertwined fashion. For the purposes of the RWA, problem solving is viewed as the practice of applying critical thinking skills in a selective and specific manner to the resolving of a perplexing situation.

According to the American Heritage Dictionary (1994), a *problem* is defined as: "1. A question to be considered, solved, or answered. 2. A situation, matter, or person that presents perplexity or difficulty" (p.1, 1994).

Since the beginning of human existence there have been questions to consider or answer and puzzling or aggravating situations to be resolved for life to be lived as desired. The quality of life and perhaps the preservation of life is largely dependent upon the ability of human beings to solve problems. This statement applies to people as individuals and as groups ranging in size from a few members to the whole global community of humankind. Yet there is controversy--as there is with critical thinking, over how problem solving should be defined, whether it *can* be taught and if it can be taught, then *how* might it *best* be taught. I suggest that each of these questions is itself a problem with a number of

possible solutions that are dependent on the circumstances of the specific situations within which each person operates. The discussion that follows centers on these questions.

One definition of problem solving as provided by Woods (1987) is that:

Problem solving is the mental process that we use to arrive at a 'best' answer to an unknown or some decision, subject to a set of constraints. The problem situation is not one that has been encountered before; we cannot recall from memory a procedure or a solution from past experience. We have to struggle to obtain a 'best' answer. (p. 55)

In her treatise, *Teaching Thinking Through Problem Solving*, Greenfield (1987) adopts Brownell's definition that:

problem solving refers (a) only to perceptual and conceptual tasks (b) the nature of which the subject, by reason of original nature, of previous learning, or of organization of the task, is able to understand but (c) for which at the time he knows no direct means of satisfaction. (d) The subject experiences perplexity in the problem situation, but he does not experience utter confusion. from this he is saved by the condition described above under (b). Then, problem solving becomes the process by which the subject extricates himself from his problem. (pp. 5, 6)

Problem solving, according to my *own* understanding, is the ability to apply critical thinking strategies to the creation of a best or most preferred solution to a perplexing situation. What is perceived as the preferred or best solution depends upon the nature of both the problem itself (i.e. complexity, and ramifications of the solution) and the characteristics of the problem solver/s (i.e. age, experience, levels and kinds of intelligence, degree of creativity and flexibility of thinking, etc.) in his/her/their current context. Problem solvers must first establish a clear definition of the actual problem and be able to identify data contained within the problem and from other sources that may be utilized in creating a satisfactory solution. Data identification is heaviest at the outset of problem solving, but also occurs throughout the solving process as new understandings come to light. The ability to solve problems requires that the problem solver(s) possess a repertoire of critical thinking strategies from which any number may be employed for developing a solution. It is the problem solver/s who determines which critical thinking

strategies to employ and the sequence in which they will be brought into the process of creating a solution. Problem solving pathways will vary according to the nature, scale and intensity of the problem and the thinking abilities of the problem solver/s. The selection and sequencing of strategies may be fully determined at the outset of the problem solving venture. This is often the case when the problem is of a familiar type (and this may involve the use of a model or heuristic) or strategies may be chosen as the solving process unfolds--more likely when the problem is of an unfamiliar type. A good problem solver may also consider the best conditions (singular or team effort, time, place, etc.) in which the problem solving should be carried out and be able to acquire and use tools that would facilitate the solving process (i.e. calculator, computer, internet connection, various software, print and non-print resources).

The resolving of insignificant problems is carried on instinctively and seemingly, without conscious effort while weightier problems require more focused, formalized processing--the application of a substantial array of strategies. Although simple problem solving strategies seem to be used almost unconsciously, it is important that the skills needed for solving more complicated problems be improved through effective, formal teaching of problem solving strategies. To this end King and Ranallo (1993) have published a listing of their thoughts on problem solving in schools:

*children have an inherent interest in problem-solving

*problem-solving strategies can be taught and can be learned

*these strategies do not come naturally to children; they must be taught

*students must be taught a variety of problem-solving strategies

*students must be taught that the same strategy will not necessarily resolve all problems

*students must be taught that some strategies are better suited than others to resolve specific problems

*to become proficient at problem-solving, students must be given frequent practice at doing it

*teaching problem-solving is time consuming and demanding

*each discipline must teach its unique way to solve problems related to its

curriculum

*as they grow, children become able to solve more complex problems

*cooperative learning provides an excellent context for the teaching of

problem-solving. (pp. 235, 236)

Education experts who promote best practices in Maryland make the following

statement in regards to an active teacher role in the instruction of problem solving methods

and strategies:

> Current cognitive research has revealed that novice problem solvers are inefficient,
>
> but that problem-solving skills are very amenable to training. With this in mind, a
>
> limited number of classroom-based experiments have sought to answer the question
>
> of whether the problem-solving performance of social studies students can be
>
> improved through training. In each instance a program of instruction, wherein the
>
> teacher assumed a directive role and engaged in direct teaching, proved more
>
> effective in improving the problem-solving performance of students than a program
>
> wherein the teacher assumed a supportive role and merely guided 'discovery'.
>
> (Maryland K to 12 Education Ministry, 1999, para. 3)

Since the teaching of problem solving is possible, but very time consuming and

given that the school day is already compartmentalized into more disciplinary units than

teachers can effectively manage, here is one more justification in favor of all subject area

teachers sharing the responsibility of teaching students critical thinking and problem

solving skills by building them into planned, curriculum-focused activities. Whether

separately structured courses on problem solving (and critical thinking) will allow for the

transfer of useful knowledge and skills into other subjects is a long debated issue. Halpern

(1987) a proponent of analogies as a critical thinking skill, states, "There is evidence to

suggest that general thinking skills courses have positive effects that are transferable to a

variety of content-specific domains" (p.76). Pfeiffer, Feinberg and Gelber (1987) believe

that teaching problem solving has much to do with encouraging certain attitudes that are

conducive to effective problem solving. Pfeiffer and his colleagues consider the five

specific attitudes as: (1) inquisitiveness, (2) open mindedness, (3) confidence in personal

ability to solve problems, (4) relishing problem solving as a challenge or learning

opportunity, and (5) panoramic or holistic consideration. They believe that these attitudes transcend subject area categorization and are best imparted to students by teachers (of any and all subject areas) who view themselves as coaches, mentors or learning guides rather than as givers of knowledge (1987).

There are countless resources that may be procured directly from the World Wide Web or indirectly from sources on the Web relating to problem solving--what it is and how it might be taught in the classroom. For those readers with little time to conduct their own searches, *Thinking* at *Web Sitings* (http://www.sd6.bc.ca/mckim/sitings/think.htm) is a good starting point. An expansive collection of the links to problem solving and creative thinking is available at the *Awesome Library* (http://www.awesomelibrary.com/); this site offers links that are of interest to teachers and/or students.

<u>Media literacy: Definitions and rationale for inclusion.</u>

Media literacy may be defined as a state of being user wise and knowledgeable in the use of various products and processes related to the sending and receiving of information through a variety of means such as print, static graphics, moving graphics, video, sound and any combination of these communicative forms, for reasons related to informing, entertaining, dialoguing and/or to persuading a general or a targeted audience. The term may also refer to a course of study or curriculum that seeks to raise the student's understanding about the processes and products related to the production, distribution and consumption of information via types of scholarly and popular media--newspapers, radio, periodicals, the Internet, computer games, hypermedia, video, television, motion picture and all other means of information conveyance.

The Media Awareness Network's (1999) richly informative web site at http://www.screen.com/mnet/eng/med/bigpict/mlwhat.htm, presents an impressive choice of definitions by such well-known media scholars as, Barry Duncan, Rick Shepherd, Elizabeth Thoman, Wally Bowen, David Considine, and the National Film Board of Canada (1999, p. 1). Duncan's (1989) definition is:

> Media Literacy is concerned with helping students develop an informed and critical understanding of the nature of mass media, the techniques used by them, and the impact of these techniques. More specifically, it is education that aims to increase

students' understanding and enjoyment of how the media work, how they produce meaning, how they are organized, and how they construct reality. Media literacy also aims to provide students with the ability to create media products. (p.1)

Today's world is both information rich and media-centred making it increasingly difficult to escape either the positive or the negative influences of the media in human culture. The media user's thinking and eventually, world view, is being unwittingly affected by the beliefs (sometimes incongruous with the user's own) of others. Messages are often so subtly embedded within media products that they go undetected into the mind of the media illiterate or cognitively lazy individual.

Semali (1997) makes a staunch case for the teaching of media literacy by his critical appraisal of the political and social messages inferred in the 1997 movie The Gods Must be Crazy, which when it hit the screen about fifteen years ago was considered by most viewers to be nothing more than highly humorous, harmless entertainment. Through the application of critical inquiry to this movie, Semali shows how it really portrays the interests of whites in Africa and is politically and culturally derogatory towards Africans-- especially the Sani people. Although his findings regarding the movie's underlying messages are very interesting, it is his "Critical Inquiry Treatment of Visual Representation" (Semali, 1997, p.4) that is most pertinent to the RWA. The five concepts that form the basis of his inquiry are: "(1) what is at issue, (2) how the issue/event is defined, (3) who is involved, (4) what the arguments are, and (5) what is taken for granted including cultural assumptions," (Semali, 1997, p.4). These questions could apply equally well to other forms of media. Semali makes his critical inquiry more applicable to visual media by asking:

(1) why was a particular visual image selected? (2) what information presented in the visual image is factual? (3) what portion of the content is inaccurate? (4) why are shots/camera work arranged that way? (5) do visual images match narration? (6) how does sound affect visual images? (7) how is repetition of visual images, and text used? (8) how do graphics affect the message? (9) how does stillness or motion aid the message? (10) what is left out? (11) how is the message affected by what is left out? (p.7)

Semali's five concepts of critical inquiry and their accompanying questions are shown in Appendix GG (p. 79).

If there is to be hope for control over the kind of influence that the media will exert in our society, it is highly necessary to become knowledgeable about how various forms of media are produced, by whom and for what purposes. Media users must exercise critical thinking if they are to be considered literate users of media:

A media-wise person is a critical thinker. Indeed, critical thinking skills are an essential part of media literacy. Critical thinking allows readers, viewers, and listeners to distinguish between content and commercialism, to recognize bias and distortion, and to better understand the role of the media in our society. (Jolin, 1996, p. iv)

In Appendix C of the Integrated Resource Packages the British Columbia Ministry of Education (1999) suggests that media education is an essential element of school curricula and that it should be integrated into all subject areas. For example:

Popular music, television, film, radio, magazines, computer games, and information services - all supplying media messages - are pervasive in the lives of students today. Media education develops students' ability to think critically and independently about issues that affect them. Media education encourages students to identify and examine the values contained in media messages. It also cultivates the understanding that these messages are produced by others to inform, persuade, and entertain for a variety of purposes. Media education helps students understand the distortions that may result from the use of particular media practices and techniques. All curriculum areas provide learning opportunities for media education. It is not taught as a separate curriculum. (British Columbia Ministry of Education, 1999, para. 2)

For all these reasons it is educationally defensible, appropriate and necessary to include media literacy as a fundamental learning element in the RWA.

Information management: Definitions and rationale for inclusion.

Information management is the fourth constant and essential fundamental learning element of the RADICAL Weaving Approach. It involves the dynamic processing of

information in ways that include researching, accessing, collecting, organizing, analyzing, synthesizing, evaluating, applying, connecting, reevaluating, communicating, and presenting along with a multitude of other treatments that people apply to information. The management of information in the RWA enters into teacher planning, instruction, and administrivia in addition to student learning activities. In the WAT planning model (Appendix A p. 47) it is shown that information management infiltrates the web of learning across subject areas. However, it also influences and is influenced by the four other fundamental learning elements and this is not actually evident in the graphic. For example information management is inherent in critical thinking since organizing data into larger thought structures called schema is a function of thinking--it is the brain's way of organizing data so that it can be efficiently accessed and effectively used when needed. At the same time, critical thinking may ensure that information is managed in the best possible way. In problem solving operations, information must be researched, stored and processed in many different ways--by plugging it into heuristics, arranging it through semantic mapping, or treating it metaphorically to name only a few, while working towards creating a solution. The role of information management in media literacy is a crucial one both in the production and critical consuming of media products. In production, editors, writers, designers, actors, directors, camera staff, graphic artists, publishers, producers and advertisers all must manipulate and manage information. Media literacy requires that consumers of information be wise managers of information even in as basic a manner as learning to use information presented in program scheduling so that a VCR may be set to record a series of programs at the correct times. In the area of collaboration, any form of communication requires a level of information management whether it is in managing one's thoughts while engaged in dialogue with others or as demanded in the gathering, storing, rearranging and sharing of necessary information with team members over electronic networks. The interrelationships amongst the five fundamental learning elements of the RWA are recognized by the British Columbia Ministry of Education in its belief that information management strategies may be used to develop research, critical-thinking, and problem-solving abilities. Evidence of this recognition may be seen in the following excerpt from the B. C. Information Technology Integrated Resource Package for K to 10:

To make informed and responsible choices about the appropriate use of technology, students need to listen, view, and read critically. Using information technology tools, students learn to gather, evaluate, synthesize, and present information from a variety of sources, and apply their knowledge using problem-solving strategies. (British Columbia Ministry of Education, 1999, p.1.)

Information management factors into the activities for all subject area strands (see 7 A, p. 44) increasing student involvement with the discipline-specific content by requiring the processing of information in a variety of ways. Managing information (i.e. researching, collecting, recording, analyzing) to be used in the process of debating an issue in Social Studies or Science is an example of this. Another example could be an activity such as requiring students to collect information regarding the recreational habits of their peers by designing and using a survey and then having to devise an effective way of sharing that information with others perhaps on a web site or via a listserv.

Information management increases our ability to identify and make creative use of connections between subject areas. A simple example of this is retrieving a vocabulary list from a Science unit file on a disk (e.g. for a photosynthesis unit) and using the vocabulary during a Language Arts class to create a metaphoric story or poem of the process. The written metaphor could serve as a wonderful piece of entertainment as well as bring deeper, understanding to the scientific process of photosynthesis for both writer and audience.

There are numerous methods for bringing information management into any curriculum area and generally into daily school life. Two excellent resources for the cross-curricular teaching and integration of information management are: Information PowerPack: Intermediate Skillsbook (Koechlin & Zwaan, 1997) and Organizing Thinking Book II: Graphic Organizers (Black & Black, 1990). Both resources could serve as teachers' guides and/or student handbooks for learning and practicing better ways of managing information. These resources offer many graphic organizers, along with the theory surrounding their use and examples for applying them.

The British Columbia Ministry of Education (1999) recognizes and promotes the integration of information management throughout the curriculum as seen in the following excerpt from the Information Technology IRP:

Information Technology K to 10 is not designed to be a stand-alone curriculum area. At this level, knowledge, skills, and attitudes associated with information technology [i.e. information management] must be approached within the context of other subject areas. (para. 5)

Learning to manage information skillfully contributes to personal independence and empowerment as well as increasing our ability to contribute to the common good. Complaints of information overload are frequently expressed in places of work, schools and in homes by persons who feel as though they are drowning in a sea of information; good information management is the key to staying afloat. Suffice it to say that information management is an inescapable necessity in an information rich world. There is no question as to whether Information Management should or should not be included in the RWA--it must be included.

Collaboration: Definitions and rationale for inclusion.

Collaboration, networking, team work, cooperative learning--these educational practices are related in many ways. Each term signifies interactivity and a spirit of mutual assistance in order to accomplish a goal of common interest. In the RWA, collaboration is important from the moment that the theme initiator shares an inspiration for a theme with others through to the final discourse of the group members as they reflect upon and evaluate the theme.

Essentially, a collaborative learning group is a team with a common goal or set of goals. The longevity, size and membership of the group depends upon the task that is to be performed. A pair of students working on an assignment for an hour or less can be considered a collaborative group in the same way that an entire class that is one of a number of groups within a school all working on the same project be considered a collaborative group. Teachers from a variety of schools and subject areas creating a multidisciplinary theme are also a collaborative group. No matter what the group make-up, one condition must be met if collaboration is to run smoothly--that is, each individual group member must understand and be motivated to fulfill all the responsibilities that are associated with his/her individual role. The RWA assumes that the theme initiator and colleagues all possess at least a basic understanding of collaborative (also known as cooperative) group processes.

Collaborative learning, problem solving and critical thinking are frequently found woven into quality learning experiences. In their work titled, *Teaching productive problem-solving attitudes,* Pfeiffer, Feinberg, and Gelber (1987) support collaboration in problem solving by the following directive: "Have students practice many real problems, and if possible organize study groups or some other way in which students can attempt to teach one another" (p.102). Often, the goal of a collaborative learning group is to solve a problem and in so doing utilize critical thinking and cooperative working skills.

Facione (1997), Dean of the College of Arts and Sciences, Santa Clara University comments on the relationship between collaboration, problem-solving, critical thinking and team work in his statement:

> The members of an effective team do not compete against each other, they work in concert, like colleagues, for the common goal. Unless they solve the problem, none of them has won. When they find the way to solve the problem, they all have won. So, from analyzing just two examples we can generalize something very important: critical thinking is thinking that has a purpose (proving a point, interpreting what something means, solving a problem), but critical thinking can be a collaborative, noncompetitive endeavor. And, by the way, even lawyers collaborate. (Facione, 1997, para. 8)

In collaborative education, group process is as important a component of the learning as content. If group processes and the roles of individual members are not well understood and willingly executed, then learning in the content area may actually be impeded. It is therefore essential that each teacher be confident about his or her understanding of cooperative group work and how to manage it in the classroom situation. Teachers just becoming acquainted with collaborative/cooperative practices might be wise to inject only a few cooperative group learning activities into a theme. Once confidence is built for this method of organizing learning, it will become effectively and efficiently worked into theme planning, processes and learning activities. Working collaboratively with other teachers who are knowledgeable and experienced in using cooperative learning is one way to build understanding, skill and confidence. Another way is to utilize the wealth of resources available from many sources on the World Wide Web. One excellent

source of such information is the Collaborative Learning web site (http://www.wcer.wisc.edu/NISE/CL1/CL/) established by the National Institute for Science Education (http://www.wcer.wisc.edu/NISE/). Here the interested person will find information that gives practical advice and theoretical information based on solid research. For example:

> Research has shown improvements in student achievement, race relations, acceptance of academically handicapped students, and self-esteem (Slavin, 1995) occur with the appropriate use of cooperative learning.

> The positive impact on student achievement is tied to the strategy of both establishing group goals and requiring individual accountability. In this way, the group members are given incentive and motivation to help one another through the task at hand. (National Institute for Science Education, 1997, paras. 2, 3)

Johnson and Johnson (1991), two well known researchers and promoters of cooperative learning practices recognize that not all learning is structured around collaborative goals, but that at times goals are competitive and/or individualistic in nature. However, they go on to say that:

> Cooperation gives meaning to the knowledge and skills gained in the other two goal structures, [competitive and individualistic] because it is within cooperative activities that such knowledge and skills are used to create alternative and solve problems. This statement is as true of society as a whole as it is of instruction in schools. (p. 221)

Their book, <u>Learning Together and Alone: Cooperative, Competitive, and Individualistic Learning</u> (Johnson & Johnson, 1991), is an excellent reference source for teachers wanting to bring collaboration via cooperative group work into their educational communities.

Collaboration requires that individuals communicate in order to share the responsibility of completing tasks related to attainment of goals. Communication may be as simple as face to face discourse or more complicated as in dialoguing electronically over long distances. Advances in technology--especially in the area of digital communications, are fueling the ongoing thrust towards this kind of collaborative, problem solving orientation to learning.

Where collaborative teamwork skills are well understood and practiced, the depth and breadth of learning and the degree of satisfaction experienced by teachers and students is greatly magnified. It seems very appropriate that collaborative learning should be part of the content and the process and serve as an integrating force in the RWA.

The preceding definitions and discussion should give the reader adequate information regarding critical thinking, problem solving, media literacy, information management, and collaboration to understand why they are considered to be such an important and essential part of the WAT model specifically and the RWA generally. For most readers who decide to apply the RWA it would be beneficial to delve more deeply into these topics because they represent elements of learning that should be incorporated at some level into most daily learning activities and not just within multidisciplinary themes.

The next part of the paper demonstrates the integrated use of the WAT model with the RADICAL--process oriented, model. Together the use of the two models constitute the RADICAL Weaving Approach (refer again to Appendices A, B, and C, pp. 47, 48, and 49).

The RADICAL Model: A Process for Multidisciplinary Theme Planning

In the RADICAL Weaving Approach, there are two major models--the Weave a Theme model which is the planning structure for dealing with content and the RADICAL model which is essentially a series of steps to follow when planning a theme. This does not mean that the content model has nothing to do with process or the process model--it has a great deal to do with these. Very often the content of a theme emphasizes and demands the learning and application of processes that are embedded in the activities used to achieve theme goals. Also, at the planning stage, the choosing of specific content (PLOs and associated learning activities) falls into place as steps in the RADICAL model are actuated. The interrelationship between the two models is evident in the following explanation of the RADICAL model.

According to the RADICAL model shown in Appendix B (p. 48), the seven basic steps are:

(1) **R**ecording a Theme Inspiration

(2) **A**nalyzing the Inspiration

(3) **D**etermining Learning Activities

(4) **I**dentifying a Body of Resources

(5) **C**ommunicating

(6) **A**cquiring and Accommodating

(7) **L**aying Out Timelines

There are as many ways to interpret these seven steps as there are persons who come into contact with the RWA. Since the teaching/learning realities of any given educational situation are the final determining factors of how the RADICAL model is actually employed, it is only logical that what follows must be considered an indicative rather than a prescriptive guide.

Step One: Recording a Theme Inspiration

The recording of an inspiration as a possibility for a theme may seem trivial, but it is a crucial step because great ideas are too often lost amidst the dense forest of thoughts and events related to the daily demands of teaching. It is good practice to keep a small, portable ideas book available for the quick jotting of theme ideas when they first strike. For

those persons who spend considerable time in driving to and from their work site, a micro cassette recorder may be a preferable alternative to the ideas book. In either case, transferring the information into electronic text should quickly follow because this creates a suitable format for the ongoing reworking of the idea by the initiator and provides an effective means for communication of the idea to other potentially interested persons. Once in this format, they too can conveniently rework and share their perspectives on the original idea. This electronic saving of ideas may seem unnecessary and cumbersome at first, but the eventual dividends make it a worthwhile habit to develop. Ideas in electronic text are easily transferred as copy and paste inserts in email messages, as attachments to an email, or as copy and paste inserts into messages being posted to suitable listservs whereby many others will be made aware of the ideas. Appendix O (p. 61) shows a hardcopy of an electronic template that could be used for recording and sharing purposes. For those more technologically literate persons, the theme idea could be posted onto a web page that would eventually serve as the theme's working document allowing all contributors to quickly view the theme plans as they unfold. If this latter method is the choice, the theme team (the collaborative group of persons established as per step five in the RADICAL process) would need to decide whether all individuals, just a few members or only the initiator/coordinator would have direct uploading privileges to the working web page. Based on some experience with this, I suggest that team members send all ideas (if possible, but not necessarily in html) to the theme coordinator who would then be responsible for uploading data. This can be done as simply as typing (or pasting and then reformatting the message) on a new blank page in Netscape Communicator's composer.

Step Two: Analyzing the Inspiration

RADICAL step two involves analyzing the inspiration for fit with mandated curricular goals and the interests of students and teachers. If the inspiration can be used to satisfy interests and achieve selected the goals, then it is worthy of consideration as a theme focus. If a theme inspiration cannot sufficiently meet the interests of those being recruited to take part, it is doomed to die or at least fail to live up to expectations. Without curricular fit use of the idea is questionable since teachers are bound to teach according to the mandates of their respective Ministries of Education. Both curricular and interest conditions

must be satisfiable by the theme for it to be successful. If the originator of the idea is passionately inspired then through the application of creative problem solving, critical thinking and good information management strategies it is likely that the inspiration can be brought to fruition as a learning theme.

One approach to analyzing the idea for fit starts with identifying and recording known factors of student and teacher interests that connect positively with the theme. This does not necessitate the sending of questionnaires or the conducting of formal surveys. Casual inquiries made in person or through any electronic means are often adequate methods for determining whether or not the level of student/teacher *interest* is sufficiently high. Another indication of interest may be based on past interest in similar topics. Subject area goals and objectives that will mesh in some way to the theme must be identified once sufficient interest has been determined. This is an important part of RADICAL step two. Ministry of Education curriculum guides--known as Integrated Resource Packages or IRPs in British Columbia, provide the goals and Prescribed Learning Outcomes or PLOs, for all provincially mandated subjects in B.C. schools. Updated versions of these can be accessed online at the B.C. Ministry of Education web site (http://www.bced.gov.bc.ca/irp/) then read, copied and pasted into a word processing document as part of the analyze step. Appendices F, G, H, J, L, and M (pp. 52 - 59) show a simplified listing of all the PLOs for the Grade 8 subjects of English Language Arts, Information Technology 8 to 10, and Social Studies 8. These particular documents are not found online, but were designed specifically for the RWA. These and other documents like them used by the theme initiator would be sent in hard copy or preferably electronic format to prospective team members. Another possibility is to make the documents part of a theme working web page where the initiator has already isolated some PLOs that are pertinent to the theme topic. All team members eventually have the opportunity to collaborate in further analyzing the theme for curricular and interest connections, but this would occur after the initiator has first passed his/her ideas on as per step five of the process.

Step Three: Determining Learning Activities

Determining possible learning activities, is carried out initially by the theme originator before communicating with others for a number of reasons. First of all it proves

that the originator is truly interested in the topic and willing to commit substantial time and effort towards implementation of the theme. Secondly, the activities suggested by the initiator can serve as a springboard for other persons' creative thinking.

In keeping with the WAT model, the fundamental elements of critical thinking, problem solving, media literacy, information management, and collaboration are cross-referenced with subject area prescribed learning outcomes to form the basis for determining appropriate learning activities (see Appendix D, p. 50). Even after step 6 or A of the process is completed by the collaborative group, individual teachers are likely to decide on using additional PLOs and developing other theme activities designed solely for implementation with their own classes. Such specifically designed activities help to make the theme more relevant to the each class that is involved. Determining suitable activities requires creativity and problem solving skills. For educators who relish a challenge this is probably the most stimulating part of the whole theme planning process. Effective collaboration amongst team members lubricates the whole process--making it more manageable, interesting, exciting and satisfying.

Step Four: Identifying a Body of Resources

This next procedure is carried out to confirm that there is an adequate and accessible resource base to support the theme from planning to completion. It is advisable for all team members to consult with their own school and district Librarians at the outset of this step. The theme originator should set up and maintain an electronic listing of resources in spreadsheet or data base format to facilitate the adding, sorting and sharing of resources put forth by all joining team members. Appendix Q (p. 63) illustrates a spreadsheet template for this purpose. Again, for those comfortable with web page construction, having this list available on the Intenet would benefit teachers at the planning stage and be a useful resource for students during progress through the theme. For example, at the planning stage teachers may become aware of resources that they could borrow from other team members or have ordered into their school's collection prior to the theme being carried out. Later on, as one of the theme activities, students could be required to view the resource list and identify and request information via email from students at other schools. This would give practice in copying and pasting into emails, sending email attachments, identifying all

the necessary reference source information (i.e. publisher, place, date, author, etc.)--all appropriate information management skills. Where time permits, annotations for resource listings would be very helpful, but it is to be assumed that any teacher making a recommendation to the list would have first evaluated the resource for suitability. Again, electronic format is the preferred medium because it allows for efficient storage, revising and sharing of information. Those not familiar with using email and email concurrently with a word processor should seek out the assistance of a colleague, the local school district technology expert or a student who has such expertise. Sometimes the best teaching occurs when students and teachers feel comfortable switching roles. Another excellent task that would meaningfully involve students at this point in the planning is to challenge them to locate Internet sites that suitably support the theme topic. Students would forward site addresses to the theme coordinator who would then check them out and upload them to a theme resource site.

Step Five: Communicating

Communication of the original idea and a draft theme proposal must occur unless a teacher plans to develop the theme without input from other teachers. If the latter is the case, then the RADICAL process in conjunction with the WAT content structuring would still be used, except that this fifth step of communication would be carried out between the teacher and his/her *students* who are to be a part of the theme. Steps 5, 6 and 7 could conceivably be followed by one teacher with the class or classes that he/she teaches. The RWA is flexible enough to be adapted to many different educational situations. The remainder of this section does however, assume that there are a number of different subject area teachers involved.

The willingness of others to become involved in a collaborative, multidisciplinary theme cannot be engendered without their first being apprised of and excited by the theme's concept. The overall quality, appeal and sending date of the initial invitation for participation is crucial to the success of attracting interest from other educators. In reality, the invitation is an advertisement devised to catch the receiver's eye and imagination. If it does not, it will likely go the way of many a message--into the circular file. Teachers are very much consumed with the daily demands of their profession, so one might wonder if

there *is* a best time to approach them with a request for their commitment to the planning and implementation of a theme. Timing varies greatly from one situation to another, but experience suggests that the most opportune time is at the start of a new school year or just prior to the start of a new semester. For those teachers who need to intellectually ruminate on a topic before judging it worthy of their interest, it may be worthwhile to make initial contact at the end of a school year and follow it up with a second invitation at the very start of the ensuing year. This is another crucial step in the RADICAL process and reflects the originator's passion for the theme and his/her commitment to making it a reality. For the truly determined person who lacks the necessary desktop publishing skills to produce an invitation that will capture interest, it is recommended to find someone else (student or teacher) who is capable meeting the challenge. In order to reach a wide audience, the invitation should publicized in as many different formats as possible--email, fax, listservs, web pages, placement in district newsletters or in announcements to be read or passed out at meetings, on posters placed in staffrooms, on leaflets in conference packages and by any other feasible means. A sample communication form which could easily be altered for other themes is shown in Appendix R (p. 64).

Once a committed theme team is formed, the names, locations and contact numbers (email, fax, telephone, snail mail) of all group members should be communicated to each of the group members. An initial face-to-face meeting of all teacher participants is usually a welcome event although not always practical as might be the case where members are from distant geographic locations. If a face-to-face meeting is possible, it provides an excellent opportunity for the theme initiator to distribute packages containing planning document templates in hard copy and on diskette. It is also an opportune time for team members to ask questions about the use of the documents and about the whole theme planning approach--the RWA with its content and process models. Ideas for major theme learning activities/events along with tentative timelines could be introduced at this meeting for ongoing consideration and final decision making at a later date.

The forming of a collaborative working group should be viewed as a celebratory event. In order to build team spirit and to recognize the willingness of people to share their time, effort and expertise there should be perks for the participants. These could be things

such as a free lunch, a specially designed calendar, pen, portfolio, bag or even a coffee mug; a number of these could be made up and used along with a few dinner certificates in a series of draws or as rewards to people for completing tasks on time. Since collaborative work groups and integration of technology are being encouraged in most school jurisdictions, administration might be willing to offer some financial support.

Step Six: Acquiring and Accommodating

Acquiring and accommodating the ideas of others requires an open mind, organizational skills, human sensitivity, negotiation skills, and a collaborative spirit. Properly functioning electronic networks can greatly expedite the completion of this step.

Members may use any chosen method for passing on their input to the team coordinator, but to facilitate this essential collaborative process, it is worthwhile to ensure that all team members can use email, set up email groups and send attachments. Appendix S (p. 65) shows a template form that allows the team coordinator to keep track of ideas contributed by team members. In the best case scenario, the team coordinator posts pertinent information from incoming email onto a web page ensuring that all theme team members are seeing the same information and that it is available soon after being submitted to the coordinator. As members supply new ideas to the coordinator they are incorporated into the developing theme plan shown on this working web page. This method works well for collaborative teams that are geographically spread out, but is equally useful to team members teaching at the same school site especially if classrooms are networked to a school server and the Internet. Theme planning is not impossible without the support of modern telecommunications technology equipment and skills, but the development of complex plans such as collaborative, multidisciplinary learning themes by groups that are physically dispersed over long distances may be too time consuming to be practically achievable without the convenience and speed that it adds to the process. Once it seems that all persons have had ample opportunity to submit their ideas, final choices of whole group activities must be made. This can be done by each member casting a vote for a given number of choices or could be arrived at by consensus of a specially struck committee. If choices become obvious through the repetition of incoming ideas, then it is acceptable for the theme originator or the coordinator to simply notify team members what the major learning events

will be. It is likely that the theme initiator will have had some well thought out major learning event possibilities to offer at the outset, but these may not end up being the ones that are finally chosen. In a collaborative work group it is important that all contributed ideas be considered.

Step Seven: Laying Out Timelines

Laying out timelines requires patience, communication and managerial skills because the needs of many must be taken into account and reflected in the final product. This latter statement is made in reference to the theme's main timeline. The purpose of this step is to set target dates for theme learning events and any major meetings that call for involvement of all or a sizable number of the teachers and/or students participating in the collaborative theme. Appendices T and U (pp. 66, 67) offer some possible forms for use as timelines, although it is recognized that any group using the RWA is likely to favor their own designs. What is important here is to recognize the importance for setting major event timelines and making sure that once agreed upon, they are effectively communicated to all theme team participants. Teachers' timelines for the completion of lessons, projects, presentations and evaluations that are specific to their own classes are set out by those individuals using whatever method they prefer. Because some of the points on these specific class timelines will be dependent upon the target dates for whole group learning events, it is beneficial to lay out the major timeline as early as possible. Timelines may be sent out as email attachments on forms such as the ones provided, but preferably the same information would be posted and kept updated on the theme team web page.

This RADICAL process model requires the use of the seven planning steps described above. However, the length of time required for each of the seven steps to be completed will vary depending upon the magnitude and complexity of the theme and the collaboration and communication skills of those taking part. Some of the steps may be repeated a number of times before moving ahead to the next step or before repeating a previous step. For example, where individual letters represent each of the planning process steps some possible sequences are reflected in the following combinations: **R A D I C A L**, or **R A A A D I I I C A A A A L**, or **R A A D I C D I C C A L**, or **R A D A D I D I D I C A A LA A L**. In every planning scenario, the seven steps follow in sequence

as to when they are first (as shown in bold letters) brought into the process, but any step may be repeated as required. The theme initiator in most cases will work his or her way through the first four steps before other persons are brought into the process (see Appendix C, p. 49). Once the initial communication of ideas between the theme initiator and other potential group members has occurred, it is inevitable that steps 2 to 6 will be repeated several times by individual group members and by the theme coordinator before step seven --the layout of a main timeline, is finally reached.

The RADICAL Weaving Approach Applied to Theme Planning for, *Ivanhoe:*

A Quest for Quality Education

Information shown in Appendices V through FF (pp. 68 - 78) essentially documents the use of the RWA in planning the *Ivanhoe* theme beginning with the recording of an inspiration for the theme and going as far as the fifth step--Communicate, where the planning is on hold pending the beginning of a new school year. The documents represent the thinking of the theme originator only, since the formal communication of the theme idea to others has not yet been carried out. Rather than repeating information shown in the Appendices, a description of the flow of events using the two models--RADICAL and WAT, is provided here so that the reader may better envision how the RWA has been and continues to be applied in this instance.

As indicated in Appendix V (p. 68), the process model--RADICAL, was the first model to be activated with the recording of an inspiration for the Ivanhoe theme. Following this and over a period of time, the second RADICAL step--Analyze, involving the confirmation of a sufficient teacher and student interest base and a topic fit with curriculum goals was carried out. Appendix W (p. 69) clearly illustrates how this latter step unfolded. It was at this point that the WAT content model really came into play. The PLOs which I had painstakingly listed in an electronic spreadsheet template greatly facilitated this analysis process which can be discerned by viewing Appendices X through CC (pp.70 - 75). During this study of the PLOs, my mind was simultaneously moving into step three-- Determine, of the RADICAL process as ideas for activities relating to the identified PLOs began to emerge. With the completion of the PLO analysis, I moved fully into the Determine step of the process. This began with looking at each of the PLOs chosen in the previous step and check marking those fundamental learning elements to which they related--also shown in Appendices X through CC (pp.70 - 75). Using the WAT model, I determined what activity or activities might work in each cell (the point at which a subject strand intersects with a fundamental learning element strand) that would integrate the Ivanhoe theme, subject area PLOs and the fundamental learning elements. This is shown in Appendices DD, EE and FF (pp.76 - 78). Once again, being able to use the forms as electronic templates contributed significantly to the proficiency by which the whole process

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proceeded. There was movement back and forth between steps 2 and 3 (Analyze and Determine) prior to step 3 being complete. It should be kept in mind that the activities shown by the forms in Appendices DD, EE and FF (pp.76 - 78) are the ones that I as the theme originator have determined to be of educational value. It is my hope that these learning activities or some version of them will be used as the major theme activities by all teachers and their classes who participate in the Ivanhoe theme. However, these major activities are just my proposals and as such, are only the starting points from which the whole theme team will begin their collaborative planning. It is likely that they will undergo many alterations before acceptance by the whole team's is reached. Finalization will occur only after each of the team members has had the opportunity to individually work through-- in varying degrees of intensity, steps 2 through 5 of the RADICAL process (see Appendices B and C pp. 48 and 49). Persons who have committed themselves to the collaborative theme team will be provided with document templates as shown in the applicable Appendices either as email attachments or preferably as part of an actual theme team package to be distributed at an early meeting. For those team members not able to attend the initial meeting, theme packages will be delivered by courier or regular post. It is hoped that some participants will be from geographically distant locations so 100% attendance at meetings is not expected. Communication and collaboration will rely heavily on electronic technology.

This leaves me sitting at step four of the RADICAL process which is the identification of useful resources. Appendix Q (p. 63) shows a hardcopy of the electronic form that is being used. I have begun to fill this in for my own purposes (which involves the Grade 8 teachers at my school) and look forward to receiving copies as email attachments from future theme team members at other schools throughout the district. Identifying resources for specific theme support as requested by teachers fits perfectly with my role as Teacher-Libraian at McKim Middle School. Classroom teachers at other schools may find that their own schools' Teacher-Librarians would be happy to use a diskette with the electronic template of the resource identification form shown in Appendix Q (p. 63). Once all team members have identified available resources and recorded the information in the electronic forms, these would be forwarded to me (as the theme originator) so that I

could amalgamate all lists into one complete listing. The complete listing could be electronically sorted by each separate user in any way that suits their needs. Posting of the amalgamated resource list to the theme web site is anticipated.

Step five of the RADICAL model is ready to put into action within the next month. Along with communicating the idea via an invitation for participation, a copy of the Arts and Entertainment (A & E) Channel's Canadian Teacher Grant Application (see Appendix HH, p. 80) will also be sent. Two Grade 8 teachers of Social Studies and English Language Arts at McKim School expressed interest in becoming involved in the Ivanhoe theme when I casually introduced the idea to them last Spring. One of them was particularly attracted by the Ivanhoe video series and excellent teaching resource materials offered by A & E. The prospect of receiving the A & E Canadian Teacher Classroom Grant is also attracting teacher interest. It is my hope that the A & E contest with its allure of winning some very substantial prizes will help to snare a few more theme team members from outside of my own school.

Step six--Acquiring and Accommodating, and step seven--Laying out Timelines, are still awaiting trial. For all teachers who do become involved and share their ideas as per RADICAL step six, there will be definite benefits. For example, all participants will receive a collection of activity ideas from their colleagues which (even if not used as main group activities) could prove helpful when designing learning activities for use solely within individual classes.

It is anticipated that timelines could be a difficult hurdle to leap since planning and coordinating events even within the confines of one school can be a daunting challenge. Again, it is expected that effective use of electronic telecommunications along with a spirit of collaboration will greatly facilitate the whole timelining process.

Reflections

Any educator reading this document who has never used the RWA may be left with the impression that the approach is no more than a cumbersome way to plan themes based on models with strange sounding titles that have little to do with education. There may also be a perception that the RWA is not widely applicable because it appears tied to the British Columbia Ministry of Education curriculum for Grade Eight. Admittedly, the RWA as it is portrayed in this paper does connect to the latter. The RWA would however, work just as well for any subject area choices at any grade level in any province of Canada provided the person using the approach first adjusts the electronic documents to reflect the curricula descriptors used by his/her province. For example, rather than setting up documents (refer to Appendix F, p. 52) that list Prescribed Learning Outcomes (PLOs) an Alberta teacher would instead set up lists of Specific Learner Expectations or Outcomes while a teacher in Ontario would set up lists of Curriculum Expectations.

Evidence of the five fundamental learning elements may be found peppered throughout the curricula mandated by various provincial ministries of education. The problem is, they are not always given the emphasis that they deserve. A major thrust of the RWA is to intentionally emphasize the five fundamental learning elements by weaving them throughout content and process and by insisting that they form a major part of any multidisciplinary theme. The overall goal of the RWA is to provide a method for weaving a rich educational fabric comprised of learning experiences that integrate the needs, abilities and interests of learners and teachers with mandated curricula and with what I believe to be the five learning elements that are fundamental to quality education.

Emphasis on these learning elements does not preclude the importance and necessity of recognizing disciplinary goals, the promotion of student development in all areas of intelligence or the significance of the affective domain in learning.

The RWA's Weave a Theme content model and its RADICAL process model have worked very well for me in the development of the Ivanhoe theme although the approach has not yet been 100 % implemented. The specially designed electronic planning templates have greatly expedited my use of the approach thus far by providing some clear, easily accessible (i.e. I don't have to dig through a thick binder to find PLOs amongst all

the professional literature contained in the IRPs.) guidelines for my thinking and time saving forms for the processing of data. Colleagues have commented that the uncluttered, simple spreadsheet listings of PLOs in electronic format are greatly appreciated as they will be useful in many ways even beyond the planning of the Ivanhoe theme.

The review of critical thinking, problem solving, media literacy, information management, and collaboration which was an essential step in the RWA development project has deepened my understanding of and strengthened my commitment to ensuring that these fundamental learning elements be included in all of the educational activities that I plan, Through discussions with colleagues and other teachers I have found it reassuring to receive their firm support for the prominent role played by the five fundamental learning elements that are essential to the RWA. A commonly held view is that critical thinking, media literacy, and information management fit naturally together and are extremely essential to successful learning and living in the media saturated, technological contemporary world. Furthermore, because many regional problems are becoming global in magnitude it is imperative that individuals learn to communicate effectively and work in collaboration with one another in order to solve problems that threaten the earth and possibly, human existence. Yes, they agree that the five fundamental learning elements should be a vital part of education. They see the RWA with its WAT model (see Appendix A, p. 47) which weaves these elements into subject area activities and the RADICAL process with its forms (see Appendices X through CC, pp.70 - 75) that cause teachers to consider which fundamental learning elements may be developed through activities aimed at achieving specific PLOs, as a viable approach to ensuring the inclusion of the five fundamental learning elements in education.

I anticipate that further interest in and use of the RWA will be generated when the web site for the Ivanhoe theme is completed since it will feature links to information about the RWA. Meanwhile, any interested persons would rely on contact with me and having access to the electronically formatted documents which could be supplied to them on diskette or as email attachments.

Once other educators become familiar with the use of the RWA it will prove to be not just the radical notion of an individual who is both a weaver and a teacher, but a viable

approach that is widely applicable to the planning of collaborative, multidisciplinary themes; themes that create quality educational experience involving the five fundamental learning elements of critical thinking, problem solving, media literacy, information management and collaboration. I invite others to join me in the use of the RWA because together "weave" got it made.

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Appendix A: The Weave a Theme Content Model
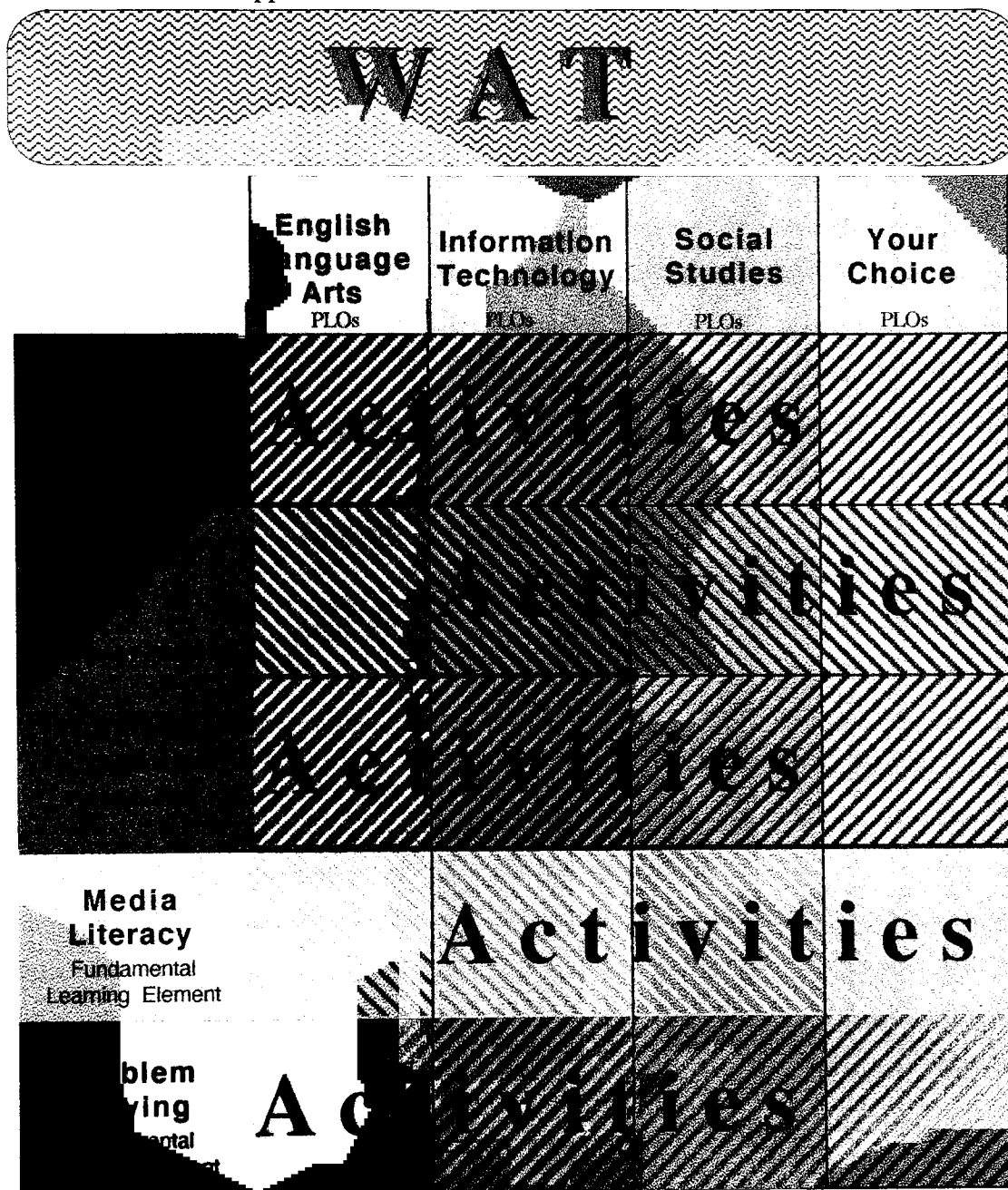
Key

PLOs - Prescribed Learning Outcomes as mandated by the British Columbia
Ministry of Education in the curriculum documents known as Integrated
Resource Packages (IRPs)
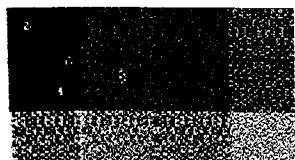
- Each of the woven blocks represents the interlocking
of a PLO with a Fundamental Learning Element that
is achieved through the purposeful design of activities.

Appendix B: The Radical Process Model

R→ A→ D →I→ C→ A→ L

a
Process Model
for
Collaborative, Multidisciplinary Theme
Development

01. **R**ecord an inspiration for a theme.

02. **A**nalyze the inspiration for connection to curricula
and for fit with student / teacher interests.

03. **D**etermine possibilities for infusing critical
thinking, problem solving, media literacy,
collaboration and information management
into activities for achieving curricular goals.

04. **I**dentify and keep an electronic record of theme
related teacher and student resources.

05. **C**ommunicate the theme idea to others and invite
their membership into a collaborative theme
team; continue to communicate progress as the
theme is developed by the team.

06. **A**cquire and accommodate the ideas of theme team
members into an easily accessible electronic
version of the theme plan.

07. **L**ayout the major theme event timeline so members
may layout their individual timelines
accordingly.

Appendix C: Flow Chart of the Radical Weaving Approach

WAT

R → A → D → I → C → A → L

Theme
Implementation

Theme
Evaluation

Reconsider
Revamp
Reuse
Theme

Key

Start
Here

WAT

Weave a Theme
Model. See Fig.1

RADICAL

The RADICAL Process.
Model used 1st by theme
initiator then by other team
members. See Fig. 2

Theme Team Member using
RWA's WAT and RADICAL
Models. See Figures 1 & 2
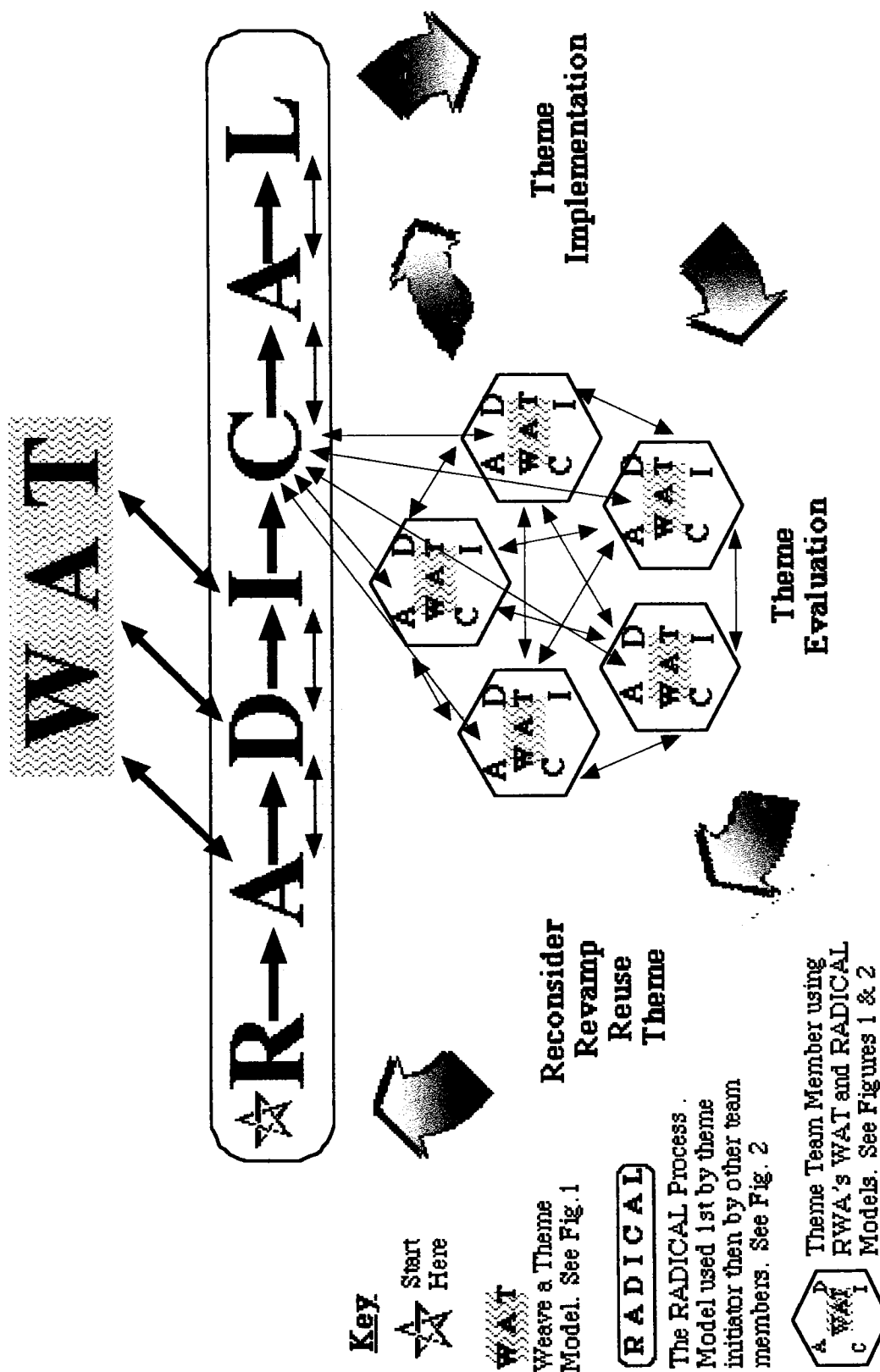
Appendix D: WAT Model Applied at Process Step D in the Radical Model

Determine Activities

	Collaboration	Critical Thinking	Information Management	Media Literacy	Problem Solving
ENLA	Type Here	Type Here	Type Here	Type Here	Type Here
IT	Type Here	Type Here	Type Here	Type Here. This is the WAT model turned 90 degrees. It represents a template which may be used either in electronic or hard copy when recording ideas for activities that combine PLOs with fundamental learning elements. A teacher using this form would also be using forms such as shown in Figures 3b, 3c, 3d, 4e, 5a and 5b (pp. 48 - 55). See Figures 15 through 20 (pp. 66 - 74) for a completed versions of this form and forms in Figures 3b through 5b.	Type Here
SS	Type Here	Type Here	Type Here	Type Here	Type Here

Appendix E: Determine English Language Arts Activities for Step D of the Radical Model

English Language Arts Activities
a Little More Info

Collaboration
Type here

Critical Thinking
Type here

Information Management
Type here

Media Literacy
Type here

Problem-Solving
Type here

Appendix F: First of 3 English Language Arts PLO Listings

PLO Code	English Language Arts	Activity	C	TIMELINES
LACRSS1	describe and assess the strategies they use for reading, viewing, and listening for various purposes			
LACRSS2	use various strategies to cope with difficult or dense communications			
LACRSS3	use a variety of resources to obtain background information			
LACRSS4	identify and interpret the effect of literary techniques and figures of speech including foreshadowing, metaphor, alliteration, simile, and onomatopoeia			
LACRC1	demonstrate an understanding of the main ideas, events, or themes of a variety of novels, stories, poetry, other print material, and electronic media			
LACRC2	locate and interpret details in stories, articles, novels, poetry, or non-print media to respond to a range of tasks			
LACRC3	organize details and information about material they have read, heard, or viewed using a variety of written or graphic forms			
LACRC4	interpret and report on information obtained from more than one source to inform others			
LACRC5	describe the purpose of specific works of communication and explain how their key features aid understanding			
LACRC6	explain the motivation of the characters in works of communication providing evidence from the text of each work			
LACREP11	demonstrate a willingness to explore a variety of genres and media			
LACREP12	explain their preferences for various genres or specific authors			
LACREP13	identify and explain connections between new ideas and information and their previous beliefs, values, and experiences			
LACREP14	make connections among different texts and media by comparing features, including themes, issues, styles, and appeal			
LACREP15	describe and give examples to explain their personal criteria for assessing and responding to what they view, read, or hear			

Appendix G: The Second of 3 English Language Arts PLO Listings

PLO Code	Language Arts PLOs	Activity	C	CRITERIPS
LACRCA1	identify and discuss various persuasive and advertising strategies			
LACRCA2	identify and discuss the advantages and limitations of a variety of media and explain their effects on people's behaviour			
LACRCA3	analyse stereotypes and other distortions of reality in music videos, song lyrics, prime-time TV serials, and other aspects of popular culture			
LACRCA4	identify bias and false reasoning in communications as these relate to their contexts			
LACIIKL1	consistently use accurate and precise terminology to talk about language use grammatically correct language when writing and speaking			
LACIIKL2	apply their knowledge of conventional spelling patterns, syllabification, root words, prefixes, and suffixes to monitor their work			
LACIIKL3	identify how the conventions of language have shifted over time and as a result of exposure to other cultures			
LACIICC1	formulate pertinent questions to help them develop works of communication on a wide variety of topics			
LACIICC2	compose or create works of communication for specific audiences and purposes, including to entertain, persuade, or inform			
LACIICC3	locate, access, and select relevant information from a variety of sources (including technological sources) for defined purposes			
LACIICC4	identify gaps in information obtained			
LACIICC5	organize and structure information in a variety of literary, expository, persuasive, and other forms			
LACIICC6	identify the purposes and audiences for their communications			
LACIICC7	acknowledge sources in their written work			
LACIICC8	apply various strategies to generate and shape ideas			

Appendix H: The Third of 3 English Language Arts PLO Listings

PLO Code	Language Arts PLOs	Activity	Citizenship
LACIIIC1	appraise and make suggestions for the revision of their own and others' presentations using predetermined and student-developed criteria		
LACIIIC2	revise and edit their work to improve content, organization, and effect to best suit their audience and purpose		
LACIIIC3	adjust their form, style, and language for specific audiences and purposes		
LACIIIC4	practise, assess, and offer feedback on oral presentations - including informal speeches and debates - focussing on such features as the inclusion of appropriate introductions and conclusions, eye contact, and pacing		
LACIIPV1	demonstrate pride and satisfaction in using language to create and express their thoughts, ideas, and feelings		
LACIIPV2	demonstrate a willingness to experiment with language and enjoy the ways in which language is used in popular culture		
LACIIPV3	create a variety of academic, technical, and personal communications, including poems, stories, personal essays, oral and written reports, group presentations, and informal dramatizations		
LASSPA1	demonstrate confidence in using language in a variety of formal and informal contexts, both inside and outside the classroom		
LASSPA2	identify personal strengths and goals related to using language and use this information to set new goals		
LASSPA3	explain how new information, language experiences, and technology have shaped their ideas, knowledge, and beliefs		
LASSWT1	use various strategies to prompt and support others		
LASSWT2	use various strategies to resolve conflicts, solve problems, and build consensus		
LASSWT3	evaluate group processes and their own contributions to them by using established criteria		
LASSBC1	interact purposefully, confidently, and respectfully in a variety of situations		
LASSBC2	use language to demonstrate that they respect and value diversity		
LASSBC3	use language to contribute to school celebrations of special events and accomplishments		

Appendix I: Determine Information Technology Activities

Information Technology Activities
a Little More Info

Collaboration
Type here

Critical Thinking
Type here

Information
Management
Type here

Media Literacy
Type here

Problem-Solving
Type here

Appendix J: Listing of Information Technology PLOs

PLO Code	Information Technology IRPs	Activity	C	CT	IN	HI	PS
ITF1	identify information technology tools used to access information						
ITF2	protect information using information technology tools						
ITF3	enter information accurately using appropriate keyboarding techniques and software that allows for the storage, retrieval, and editing of material						
ITF4	demonstrate the ability to formulate questions and to use a variety of sources and tools to access, capture, and store information						
ITF5	use appropriate information technology terminology						
ITF6	evaluate a variety of input and output devices						
ITF7	demonstrate the ability to install software						
ITF8	describe and practise appropriate safety procedures when working with information technology tools						
ITF9	apply a variety of troubleshooting techniques related to information technology						
ITF10	demonstrate an awareness of the impact of [i.t.] tools on society						
ITF11	identify careers and occupations that use information technology						
ITPro1	apply management skills to complete a project						
ITPro2	use a variety of information technology tools to help them solve problems						
ITPro3	apply predetermined search criteria to locate, retrieve, and evaluate [info]						
ITPro4	create electronic text documents						
ITPro5	evaluate [info] retrieved electronically for authenticity, bias, and timeliness						
ITPre1	identify and consider ethical and legal issues when presenting information						
ITPre2	use a variety of software to present messages						
ITPre3	demonstrate the ability to arrange [info] in different forms to create new meaning						
ITPre4	analyze the effects of information technology on presentations						
ITPre5	describe the effect of multimedia presentations on intended audience						

Social Studies Activities

a Little More Info

Collaboration
Type here

Critical Thinking
Type here

Information Management

Media Literacy
Type here

Problem-Solving
Type here

Appendix L: First of Two Social Studies 8 PLO Listings

PLO Code	Social Studies PLOs	Activity	C	CT IM MI PS
SS.A1	identify and clarify a problem, an issue, or an inquiry			
SS.A2	gather and organize a body of information from primary and secondary print and non-print sources, including electronic sources			
SS.A3	interpret and evaluate a variety of primary and secondary sources			
SS.A4	assess a variety of positions on controversial issues			
SS.A5	plan, revise, and deliver written and oral presentations			
SS.A6	co-operatively plan and implement a course of action that addresses the problem, issue, or inquiry initially identified			
SS8C1	identify factors that influence the development and decline of world civilizations			
SS8C2	compare daily life, family structures, and gender roles in a variety of civilizations			
SS8C3	describe a variety of diverse cultural traditions and world religions			
SS8C4	demonstrate awareness of artistic expression as a reflection of the culture in which it is produced			
SS8C5	identify periods of significant cultural achievement, including the Renaissance			
SS8C6	describe how societies preserve identity, transmit culture, and adapt to change			
SS8PL1	demonstrate understanding of the tension between individual rights and the responsibilities of citizens in a variety of civilizations			
SS8PL2	assess the impact of contact, conflict, and conquest on civilizations			
SS8PL3	describe various ways individuals and groups can influence legal systems and political structures			
SS8PL4	explain the development and importance of government systems			
SS8ET1	compare basic economic systems and different forms of exchange			
SS8ET2	analyze the effect of commerce on trade routes, settlement patterns, and cultural exchanges			
SS8ET3	compare the changing nature of labour in rural and urban environments			
SS8E5	analyze how people interacted with and altered their environments, in terms of population, settlement patterns, resource use, cultural development			

Appendix M: Second of Two Social Studies 8 PLO Listings

PLO Code	Social Studies PLOs	Activity	c	CT	IN	MI	PS
SSET4	describe the impact of technological innovation and science on political, social, and economic structures						
SSE1	construct, interpret, and use graphs, tables, grids, scales, legends, and various types of maps						
SSE2	locate and describe major world landforms, bodies of water, and political						
SSE2	locate and describe major world landforms, bodies of water, and political boundaries on maps						
SSE3	locate and describe current and historical events on maps						
SSE4	describe how physical geography influenced patterns of settlement, trade, and exploration						

Appendix N: Strategy List: 35 Dimensions of Critical Thought (Paul, et al., 1989 p. 56)

Affective Strategies

thinking independently
developing insight into egocentricity or sociocentricity
exercising fairmindedness
exploring thoughts underlying feelings and feelings underlying thoughts
developing intellectual humility and suspending judgment
developing intellectual courage
developing intellectual good faith or integrity
developing intellectual perseverance
developing confidence to reason

Cognitive Strategies--Macro-Abilities

refining generalizations and avoiding oversimplifications
comparing analogous situations: transferring insights to new contexts
developing one's perspective: creating or exploring beliefs, arguments, or theories
clarifying issues, conclusion, or beliefs
clarifying and analyzing the meanings of words or phrases
developing criteria for evaluation: clarifying values and standards
evaluating the credibility of sources of information
questioning deeply: raising and pursuing root or significant questions
analyzing or evaluating arguments, interpretations, beliefs, or theories
generating or assessing solutions
analyzing or evaluating actions or policies
reading critically: clarifying or critiquing texts
listening critically: the art of silent dialogue
making interdisciplinary connections
practicing Socratic discussion: clarifying and questioning beliefs, theories, or perspectives
reasoning dialogically: comparing perspectives, interpretations, or theories
reasoning dialectically: evaluating perspectives, interpretations or theories

Cognitive Strategies--Micro-Skills

comparing and contrasting ideals with actual practice
thinking precisely about thinking: using critical vocabulary
noting significant similarities and differences
examining or evaluating assumptions
distinguishing relevant from irrelevant facts
making plausible inferences, prediction, or interpretation
evaluating evidence and alleged facts
recognizing contradictions exploring implications and consequences (Paul, et al., 1989)
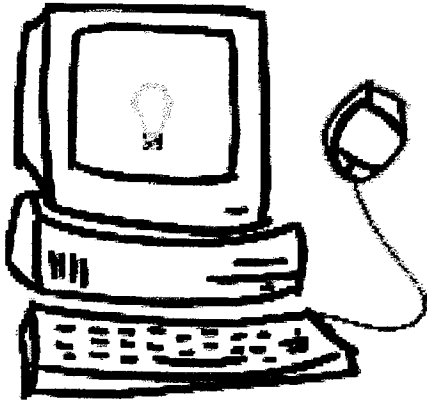
Record Your Inspiration

Type here....

Analyze Your Idea for Connections to Student and Teacher Interests Curricular Goals and Objectives

Evidence of Student Interest

Type here

Evidence of Teacher Interest

Type here

Evidence of Fit With Curricular Goals and/or Objectives

(A good idea is to use the P.L.O. Grids provided and fill in check marks under the Activities heading next to those PLOs that appear to be immediately achievable through this particular theme. Later these checks will be replaced by titles for activities and other check marks will be filled into the appropriate learning element columns depending on what the activitiy involves. A second choice is to go to the B.C. Ministry of Education's IRPs online site (http://www.bced.gov.bc.ca/irp/) and copy and paste from there into this document. A third--least desireable choice is to handwrite the PlOs into this document. However, in the interests of time saving and shareability via electronic networks, the first choice is best. this information emailed to the coordinator would help in the amalgamation of all data.

Identify Useful Resources
and
Keep an Electronic Listing

Author	Title, Isbn, Publisher, Date, Media Format, Etc.	School/Or?

IVANHOE

Collaboration

Media Literacy

A

Information Technology

Quest
For
Quality
Education

**Critical
Thinking**

**Problem
Solving**

**Information
Management**
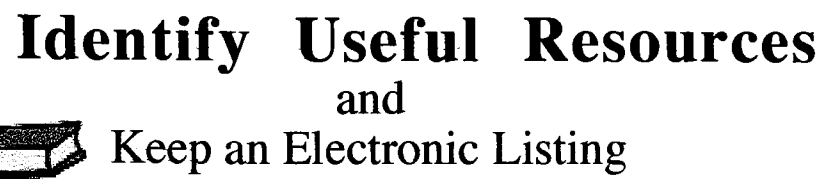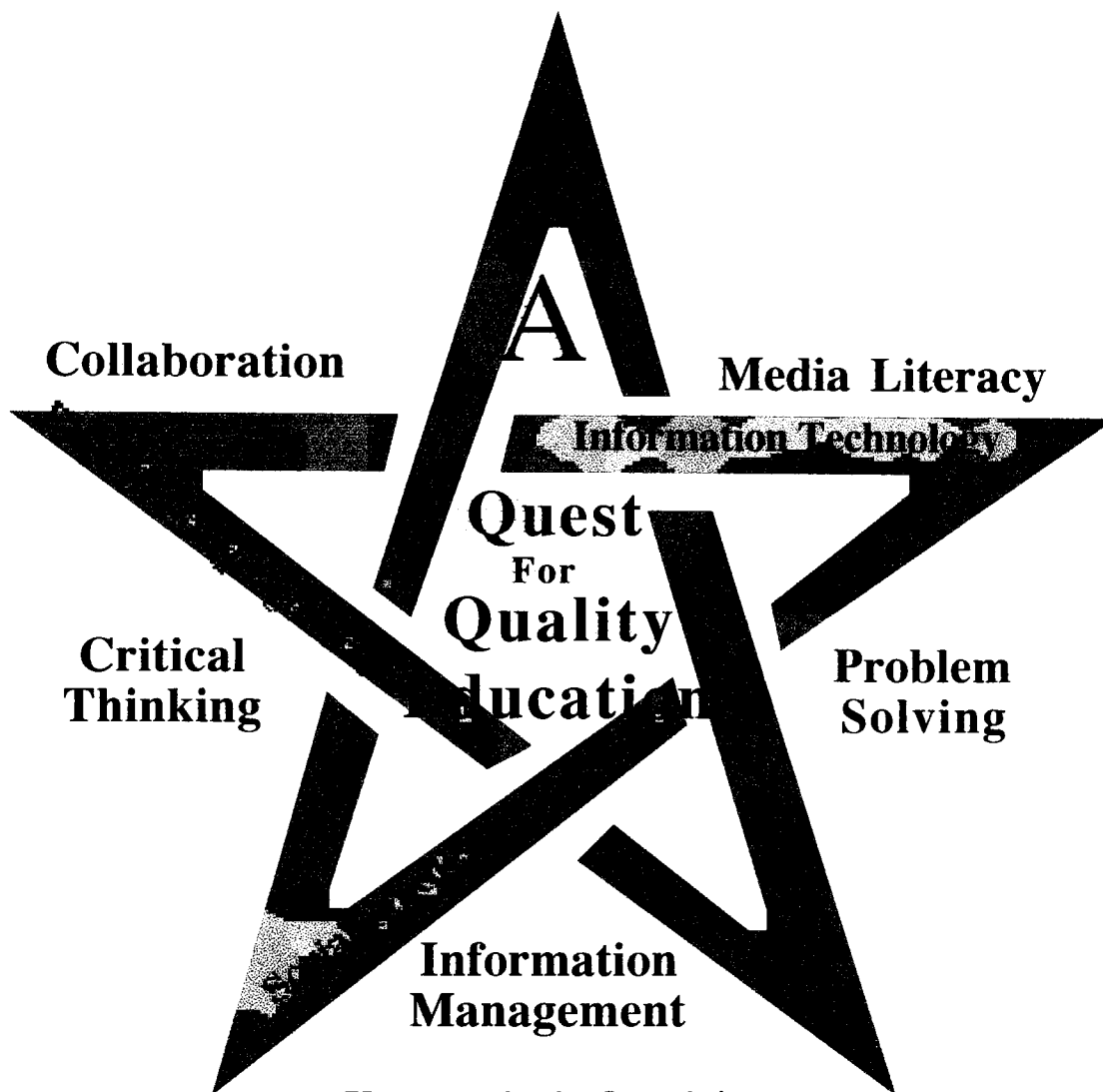
You are invited to join
into a collaborative, multidisciplinary theme for Grade 8
set to be implemented in Feb./Mar., 2000.
Much planning has been done and is ready to be shared with
you!
The theme utilizes the A & E video series,*Ivanhoe*, recorded
via Cable in the Classroom Aug.1999. It is also intended that
a write-up on the theme would form part of an application to
the A & E Canadian Teacher Grant Application.
Interested? Contact Wilma McRae - wmcrae@rockies.net, 250-427-2283
or Fax: 250-427-5301and join the team!

Appendix S: Acquire and Accommodate

Acquire & Accommodate

Email With an Attachment

Fax

Web Page Posting

Telephone

Listserv Posting

Meet and Discuss

Good Idea!

More Good Ideas!

Electronic records of email addresses, fax and phone numbers will facilitate the collaboration process!

Contributor	Their Idea and Where They Can Be Reached	Used	May Use	Not Used
Jill Smith	jsmith@rockies.net			
	online debate between six different groups in each of 2	√		
	different classes			
Jason Jones	jjones@cyberlink.ca			
	Medieval Faire - food, crafts, sports, jousting tourney		√	
	for all classes			

Appendix T: Layout a Timeline
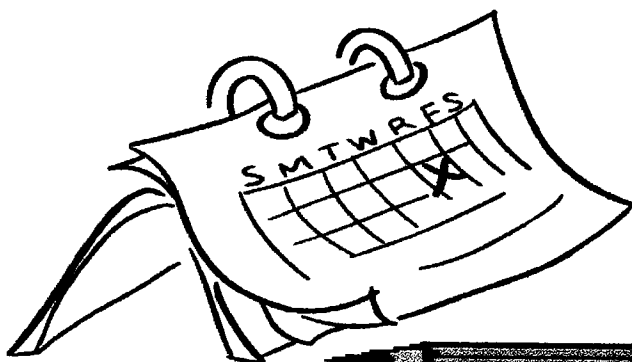
Layout
a
Timeline

September 06, 1999 - October 01, 1999

06 - Type here	07 - Type here	08 - Type here	09 - Type here	10 - Type here
13 - Type here	**14 - Type here**	**15 - Type here**	**16 - Type here**	**17 - Type here**
20 - Type here	**21 - Type here**	**22 - Type here**	**33 - Type here**	**24 - Type here**
27 - Type here	**28 - Type here**	**29 - Type here**	**30 - Type here**	**01 - Type here**

Appendix U: Layout a Timeline 2
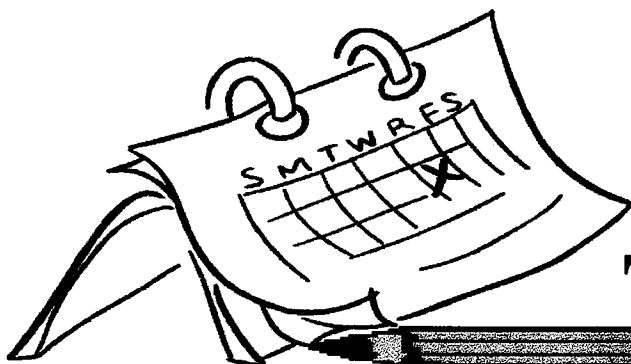
Layout a Timeline

Target Date 01   **Responsible Person(s)** -_____
Sept. 30, 1999   This is where to describe what task or tasks have to be completed by the target date. Persons using this electronic form would simply erase this typing and put in their own impotant data.

Target Date 02   **Responsible Person(s)** -_____
Oct. 15, 1999   This is where to describe what task or tasks have to be completed by the target date. Persons using this electronic form would simply erase this typing and put in their own impotant data.

Target Date 03   **Responsible Person(s)** -_____
Oct. 30, 1999   This is where to describe what task or tasks have to be completed by the target date. Persons using this electronic form would simply erase this typing and put in their own impotant data.

Target Date 04   **Responsible Person(s)** -_____
Nov. 15, 1999   This is where to describe what task or tasks have to be completed by the target date. Persons using this electronic form would simply erase this typing and put in their own impotant data.

Target Date 05   **Responsible Person(s)** -_____
Nov. 30, 1999   This is where to describe what task or tasks have to be completed by the target date. Persons using this electronic form would simply erase this typing and put in their own impotant data.

Target Date 06   **Responsible Person(s)** -_____
Dec. 15, 1999   This is where to describe what task or tasks have to be completed by the target date. Persons using this electronic form would simply erase this typing and put in their own impotant data.

Target Date 07   **Responsible Person(s)** -_____
Dec. 30, 1999   This is where to describe what task or tasks have to be completed by the target date. Persons using this electronic form would simply erase this typing and put in their own impotant data.

Appendix V: RADICAL Model Step R Applied to Development of the Ivanhoe Theme

Record
Your
Inspiration !

April, 1999

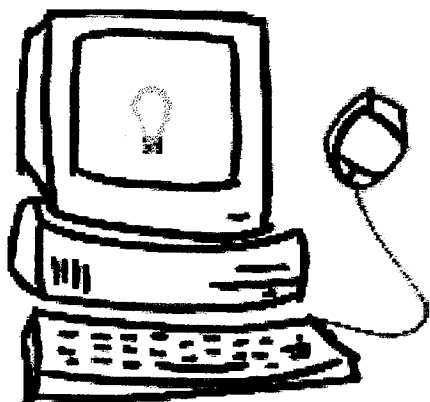Ahh hah! **Ivanhoe** as the central topic of a learning theme - yes, I think this is possible.

This inspiration came to light when I, in my Teacher-Librarian's hat was perusing the Arts and Entertainment Network's program listings in search of cable programming to support learning at my school. Tah dah -- a flash of excitement hits me when I see a listing for a six part series called, _Ivanhoe_, that is to be televised in August, 1999. As our school has Cable in the Classroom, we are privileged to tape and retain for use, copies of A&E Classroom programs for up to one year. I thought that _Ivanhoe_ might fit well with the Social Studies 8 curriculum goals relating to the study of the Middle Ages. Little lights flicked on in my mind like headlights on a highway at nightfall. Images of crusades, knights, castles, chivalry, and tournaments--oh to have been a medieval damsel! Recalling that I had witnessed a group of Grade 8 students engrossed in viewing a Rainbow Classic version of _Ivanhoe_ on TV while waiting for home room period one morning in our Middle School Library, I knew there was student interest in the story. At the time I had questioned the group of Grade 8s (in a teasing way) about watching what appeared to be a program for younger children. Their response was, " Oh no man, Wishbone is cool!". Then I thought of checking the library data base and to my great delight, there was listed a copy of the Wishbone Classic Series', _Ivanhoe_ that I had purchased (and forgotten about). Alright! After finally taking the time to read the book, I knew I had struck gold! Not only could Ivanhoe fit with Social Studies, but it held great promise of fitting with the English Language Arts Curriculum as well. Hmm - a multidisciplinary theme possibility.

Hauntingly from the back recesses of my thought box, came the spectre of my Master of Education culminating project concurrently with the recollection of the A & E Canadian Teacher Grant Application (see the A & E idea book) that I had previously envisioned pursuing, but in frustration had not due to time constraints. Such is the harried life of the full time teacher /M.Ed. student! My mind whirred with possibilities. Might it be possible to use _Ivanhoe_ as the centre of a multidisciplinary theme that could become part of my Master of Education culminating project and form a good portion of a future application to the A & E Canadian Teacher Grant AND provide a useful learning resource to support Grade Eight learning / teaching at my school? Not that I am into felling birds, but this project just might be enough to kill three birds with one stone! Time is short; life is too, short; why not make the most out of every moment and every bit of energy expended. Onward with the "Ivanhoe" quest for excellence in education, I say!

Special Note: It should be obvious to the reader that the manner in which the above inspiration is presented is somewhat different to the way in which most inspirations for teaching would be recorded. It is more likely that brain stormed ideas listed in point form would be used to record thoughts about a teaching inspiration.

Analyze Your Idea for Connections to
Student and Teacher Interests
Curricular Goals and Objectives

Evidence of Student Interest

As a Teacher Librarian I have witnessed the keen interest of students conducting research for their Social Studies unit on the Middle Ages. They are particularly fascinated by the topics of castle life, knighthood, chivalry and the crusades, thus making a multidisciplinary theme centered on *Ivanhoe* (Scott, 1941) a natural. Based on students' interest in viewing videos and knowing that A & E Classroom was airing a six part special called *Ivanhoe* (http://www.AandE.com/class/canadianclass/index.html) in August, 1999 that I could tape and retain for one full year, my interest in pursuing Ivanhoe as a theme was fueled even further. Finally, I had also had positive feedback about the topic of Ivanhoe from a group of students watching the televised program based on the Wishbone Classic by Joanne Mattern's (Scott, 1997) retelling of *Ivanhoe*.

Evidence of Teacher Interest

When I spoke casually with two teachers of Grade 8 English and Social Studies at my school their reaction to the idea of using Ivanhoe as a theme focus was positive especially when they were told of the Wishbone Classic novel and the A & E Classroom series that would be available for use. When it was explained to these two teachers that the Ivanhoe Theme could become part of an application to the Arts & Entertainment's Canadian Teacher Grant Application-- which could result in some rather attractive prizes for the school as well as individual teachers involved in the theme should we win, they then became very interested! See Figure 22.

Evidence of Fit With Curricular Goals and/or Objectives

Without doing any thorough reading of curriculum guides, I knew enough about Grade 8 Social Studies to realize that Ivanhoe would fit into a study of the Middle Ages. I also knew that Sir Walter Scott himself had admitted that not all of what is written in Ivanhoe is based on historical fact (Scott, 1941) Therefore a reading of either the original novel or the Wishbone Classic would provide the students with an opportunity to use critical thinking skills in researching what aspects of the novel are historically correct and what parts do not conform to history. I also felt that view's expressed by Scott's characters on the topic of Jews might lead to some interesting exploration of issues through history surrounding the topic of prejudice towards Jews. I also believed that the idea of the crusades and current conflicts rooted in differing religious views would fit with curriculum goals. For connections to English curriculum the concept of change in language being connected to events throughout history was likely to be of relevance in reading and viewing the story of Ivanhoe. My my next step was to look more carefully at the PLOs for English 8, Social Studies 8, and Information Technology 8 to 10 so as to identify some that could be addressed through the activities in a theme centered on the story of Ivanhoe. For this task I used the PLO Grids as shown in Figures 3b, 3c, 3d, 4a, 5a, and 5b.

Appendix X: Analyzing for English Language Arts PLO Connections to RWA's 5 Fundamental Learning Elements for the Ivanhoe Theme (1)

PLO Code	English Language Arts	Activity	C	CT	IM	ML	PS
LACRSS1	describe and assess the strategies they use for reading, viewing, and listening for various purposes						
LACRSS2	use various strategies to cope with difficult or dense communications					✓	
LACRSS3	use a variety of resources to obtain background information				✓		
LACRSS4	identify and interpret the effect of literary techniques and figures of speech including (foreshadowing, metaphor, alliteration, simile, and onomatopoeia					✓	
LACRC1	demonstrate an understanding of the main ideas, events, or themes of a variety of novels, stories, poetry, other print material, and electronic media		✓			✓	
LACRC2	locate and interpret details in stories, articles, novels, poetry, or non-print media to respond to a range of tasks			✓	✓		
LACRC3	organize details and information about material they have read, heard, or viewed using a variety of written or graphic forms			✓	✓		
LACRC4	interpret and report on information obtained from more than one source to inform others			✓	✓		
LACRC5	describe the purpose of specific works of communication and explain how their key features aid understanding					✓	
LACRC6	explain the motivation of the characters in works of communication providing evidence from the text of each work			✓		✓	
LACREP1	demonstrate a willingness to explore a variety of genres and media					✓	
LACREP2	explain their preferences for various genres or specific authors			✓		✓	
LACREP3	identify and explain connections between new ideas and information and their previous beliefs, values, and experiences			✓			
LACREP4	make connections among different texts and media by comparing features, including themes, issues, styles, and appeal			✓	✓	✓	
LACREP5	describe and give examples to explain their personal criteria for assessing and responding to what they view, read, or hear			✓		✓	

Appendix Y: Analyzing for English Language Arts PLO Connections to RWA's 5 Fundamental Learning Elements for the Ivanhoe Theme (2)

PLO Code	Language Arts PLOs	Activity	C	CT	IM	ML	PS
LACRCA1	identify and discuss various persuasive and advertising strategies		✓			✓	
LACRCA2	identify and discuss the advantages and limitations of a variety of media and explain their effects on people's behaviour		✓	✓		✓	
LACRCA3	analyse stereotypes and other distortions of reality in music videos, song lyrics, prime-time TV serials, and other aspects of popular culture					✓	
LACRCA4	identify bias and false reasoning in communications as these relate to their contexts		✓	✓		✓	
LACIIKL1	consistently use accurate and precise terminology to talk about language use grammatically correct language when writing and speaking						
LACIIKL2	apply their knowledge of conventional spelling patterns, syllabification, root words, prefixes, and suffixes to monitor their work						
LACIIKL3	identify how the conventions of language have shifted over time and as a result of exposure to other cultures		✓	✓		✓	
LACIICC1	formulate pertinent questions to help them develop works of communication on a wide variety of topics		✓	✓			✓
LACIICC2	compose or create works of communication for specific audiences and purposes, including to entertain, persuade, or inform		✓	✓	✓	✓	✓
LACIICC3	locate, access, and select relevant information from a variety of sources (including technological sources) for defined purposes				✓	✓	
LACIICC4	identify gaps in information obtained					✓	
LACIICC5	organize and structure information in a variety of literary, expository, persuasive, and other forms		✓	✓	✓	✓	✓
LACIICC6	identify the purposes and audiences for their communications				✓	✓	
LACIICC7	acknowledge sources in their written work				✓		
LACIICC8	apply various strategies to generate and shape ideas		✓	✓	✓		✓

Appendix Z: Analyzing for English Language Arts PLO Connections to RWA's 5
Fundamental Learning Elements for the Ivanhoe Theme (3)

PLO Code	Language Arts PLOs	Activity	C	CT	IM	ML	PS
LACIIIC1	appraise and make suggestions for the revision of their own and others' presentations using predetermined and student-developed criteria		✓	✓		✓	
LACIIIC2	revise and edit their work to improve content, organization, and effect to best suit their audience and purpose		✓	✓		✓	✓
LACIIIC3	adjust their form, style, and language for specific audiences and purposes		✓	✓			✓
LACIIIC4	practise, assess, and offer feedback on oral presentations - including informal speeches and debates - focussing on such features as the inclusion of appropriate introductions and conclusions, eye contact, and pacing					✓	
LACIIPV1	demonstrate pride and satisfaction in using language to create and express their thoughts, ideas, and feelings		✓	✓		✓	
LACIIPV2	demonstrate a willingness to experiment with language and enjoy the ways in which language is used in popular culture						
LACIIPV3	create a variety of academic, technical, and personal communications, including poems, stories, personal essays, oral and written reports, group presentations, and informal dramatizations		✓	✓	✓	✓	✓
LASSPA1	demonstrate confidence in using language in a variety of formal and informal contexts, both inside and outside the classroom				✓		
LASSPA2	identify personal strengths and goals related to using language and use this information to set new goals			✓			
LASSPA3	explain how new information, language experiences, and technology have shaped their ideas, knowledge, and beliefs		✓	✓	✓		✓
LASSWT1	use various strategies to prompt and support others		✓	✓			
LASSWT2	use various strategies to resolve conflicts, solve problems, and build consensus		✓				
LASSWT3	evaluate group processes and their own contributions to them by using established criteria		✓	✓			✓
LASSBC1	interact purposefully, confidently, and respectfully in a variety of situations		✓				
LASSBC2	use language to demonstrate that they respect and value diversity		✓				
LASSBC3	use language to contribute to school celebrations of special events and accomplishments		✓				

Appendix AA: Analyzing for Information.Technology PLO Connections to RWA's 5
Fundamental Learning Elements for the Ivanhoe Theme (1)

PLO Code	Information Technology IRPs	Activity	C	CT	DM	MI	PS
ITF1	identify information technology tools used to access information				✓		
ITF2	protect information using information technology tools				✓		
ITF3	enter information accurately using appropriate keyboarding techniques and software that allows for the storage, retrieval, and editing of material				✓		
ITF4	demonstrate the ability to formulate questions and to use a variety of sources and tools to access, capture, and store information			✓	✓		
ITF5	use appropriate information technology terminology				✓		
ITF6	evaluate a variety of input and output devices			✓	✓		
ITF7	demonstrate the ability to install software				✓		
ITF8	describe and practise appropriate safety procedures when working with information technology tools				✓		
ITF9	apply a variety of troubleshooting techniques related to information technology				✓		
ITF10	demonstrate an awareness of the impact of [i.t.] tools on society			✓	✓		
ITF11	identify careers and occupations that use information technology				✓		
ITPro1	apply management skills to complete a project				✓		✓
ITPro2	use a variety of information technology tools to help them solve problems			✓	✓		
ITPro3	apply predetermined search criteria to locate, retrieve, and evaluate [info]				✓		
ITPro4	create electronic text documents			✓	✓		
ITPro5	evaluate [info] retrieved electronically for authenticity, bias, and timeliness			✓	✓		
ITPre1	identify and consider ethical and legal issues when presenting information			✓	✓	✓	
ITPre2	use a variety of software to present messages				✓	✓	
ITPre3	demonstrate the ability to arrange [info] in different forms to create new meaning			✓	✓	✓	
ITPre4	analyse the effects of information technology on presentations			✓	✓	✓	
ITPre5	describe the the effect of multimedia presentations on intended audience			✓	✓	✓	

Appendix BB: Analyzing for Social Studies PLO Connections to RWA's 5 Fundamental Learning Elements for the Ivanhoe Theme (1)

PLO Code	Social Studies PLOs	Activity	C	CT	IM	MI	PS
SSA1	identify and clarify a problem, an issue, or an inquiry						✓
SSA2	gather and organize a body of information from primary and secondary print and non-print sources, including electronic sources						
SSA3	interpret and evaluate a variety of primary and secondary sources		✓	✓	✓	✓	
SSA4	assess a variety of positions on controversial issues		✓	✓	✓	✓	
SSA5	plan, revise, and deliver written and oral presentations		✓	✓	✓		
SSA6	co-operatively plan and implement a course of action that addresses the problem, issue, or inquiry initially identified		✓				✓
SSSC1	identify factors that influence the development and decline of world civilizations		✓	✓	✓	✓	
SSSC2	compare daily life, family structures, and gender roles in a variety of civilizations		✓	✓		✓	
SSSC3	describe a variety of diverse cultural traditions and world religions						
SSSC4	demonstrate awareness of artistic expression as a reflection of the culture in which it is produced						
SSSC5	identify periods of significant cultural achievement, including the Renaissance		✓	✓		✓	
SSSC6	describe how societies preserve identity, transmit culture, and adapt to change						
SSPL1	demonstrate understanding of the tension between individual rights and the responsibilities of citizens in a variety of civilizations						
SSPL2	assess the impact of contact, conflict, and conquest on civilizations		✓	✓		✓	
SSPL3	describe various ways individuals and groups can influence legal systems and political structures		✓	✓		✓	
SSPL4	explain the development and importance of government systems						
SSET1	compare basic economic systems and different forms of exchange						
SSET2	analyze the effect of commerce on trade routes, settlement patterns, and cultural exchanges						
SSET3	compare the changing nature of labour in rural and urban environments		✓	✓			
SSE5	analyze how people interacted with and altered their environments, in terms of population, settlement patterns, resource use, cultural development						

Appendix CC: Analyzing for Social Studies PLO Connections to RWA's 5 Fundamental Learning Elements for the Ivanhoe Theme (2)

PLO Code	Social Studies PLOs	Activity	C	CT	IM	ML	PS
SSET4	describe the impact of technological innovation and science on political, social, and economic structures			✓	✓	✓	
SSE1	construct, interpret, and use graphs, tables, grids, scales, legends, and various types of maps			✓	✓	✓	✓
SSE2	locate and describe major world landforms, bodies of water, and political boundaries on maps						
SSE2	locate and describe major world landforms, bodies of water, and political boundaries on maps						
SSE3	locate and describe current and historical events on maps				✓		
SSE4	describe how physical geography influenced patterns of settlement, trade, and exploration						

Appendix DD: WAT Applied Step D in the RADICAL Process Model for Debate Activity

	Collaboration	Critical Thinking	Information Management	Media Literacy	Problem Solving
E N L A	-working with other team members to: gather pertinent information, process info for argument and present argument	-determining a good topic for a debate (i.e. effectiveness of video portrayal Ivanhoe novel, value of simplified retelling of classic literature -evaluating whether pieces of information are relevant and substantial enough in terms of argument support -evaluating arguments presented by affirmative / negative debate teams	-reading, writing, speaking, listening, viewing and otherwise receiving / sending data, information, ideas, etc. -learning vocabulary and using language effectively in a variety of formats -recording, copying, and or storing information	-critically reading, listening and viewing of information in a variety of media -determining authority, source, accuracy, date, purpose, etc. of information in any medium	-using problem solving strategies for determining how to develop an argument(i.e. heuristics, graphic organizers, CoRT - de Bono strategies like OPV, PMI, CAF, etc.)
I T	-consulting, discussing, sharing information and ideas using a variety of technologies	-determining which media and formats within each type is best for accessing, processing and presenting information	-searching out information in a variety of formats -recording, copying, storing information using ready-made and self-made forms -communicating via email and listservs or similar electronic means	-developing the ability to use and produce information using a variety of software, hardware, and audio visual devices from the very simple to the complex	-using a variety of information technology to identify, clarify, simulate, and solve problems
S S	-establishing roles and tasks for debating team members and support persons	-determining a good topic for a debate (i.e. anti-Semitism, religious crusades, feudalism, memorialism, etc.) -evaluating whether pieces of information are relevant and substantial enough in terms of argument support -evaluating arguments presented by affirmative / negative debate teams	-using a variety of media to retrieve information (i.e. CDs such as encyclopedia, periodical databases, internet, video tapes, reference books such as historical accounts, timelines, maps, handbooks, gazetteers, yearbooks, primary source documents and people, photos, etc.)	-determining the historical and geographical accuracy of information in a variety of formats -determining and predicting the social and	-identify problems from throughout history relating to issues of geography, society, politics, religion, culture, economy / trade & commerce, technology and the environment.

Appendix EE: WAT Model Applied at Step D in the RADICAL Process Model for Video vs Novel Comparison

Determine Activities- Evaluate Effectiveness of the Video Series as Compared to a Simplified Retelling of Sir Walter Scott's Novel Ivanhoe

	Collaboration	Critical Thinking	Information Management	Media Literacy	Problem Solving
E N L A	-devise a questionnaire -completion of questionnaire -sharing of questionnaire results	-part of determining the questions and format for the questionnaire (see cells ML/EnLA & PS/EnLA -part of filling in forms and survey -evaluating how A&E's and Wishbone Classic's adaptations of Ivanhoe fit with Scott's purpose and his comments re: strength and weakness of his novel	-using language effectively in all information handling tasks whether speaking, listening, writing, reading, viewing or representing	-establishing a set of critical viewing and a set of critical reading strategies -using self-designed or ready-made forms for studying the "story elements" and the way the story is presented in A & E's video adaptation of Sir Walter Scott's Ivanhoe and in the Wishbone Classic retelling of Ivanhoe by Joanne Mattern	-devising a questionnaire to serve as an effective tool for gathering information to be used in a comparative evaluation of the two adaptations of Scott's Ivanhoe mentioned in cell ML/EnLA
I T	-using I.T. as a group to facilitate task completion and to facilitate communication needed for certain kinds of collaboration	-part of devising appropriate and effective forms for managing information, ideas etc.	-accessing and recording information about critical thinking, problem solving, media literacy, collaboration and information management on the Internet and from all other available sources -creating actual forms for use as in cells ML/EnLA and PS/EnLA	-filling in ready-made or self-made forms such as might be used for critical viewing and critical reading whether in relation to books, CDs, the Internet or videos	-designing the form (i.e. the physical/electronic form) for the questionnaire -determining how it will be distributed, responses returned, and a means of storing responses for analyzing and evaluation purposes -determining how evaluation of questionnaire results will be shared
S S	-collaborative group process applied to tasks outlined in cells CT/SS, IM/SS, ML/SS and PS/SS	-determining the historical accuracy of questionable material in regards to what is read, heard or viewed in the Ivanhoe book and video	-accessing, recording, processing, storing and sharing of information in relation to activities described in cells CT/SS and ML/SS	-questioning the historical accuracy of what is read, heard or viewed in the Ivanhoe video and book	-construct questions for the evaluation questionnaire that address historical accuracy of material presented in video and text format

Appendix FF. WAT Model Applied at Step D in the RADICAL Process Model for Online Comprehension Questions Competition

Determine Activities - In-Class and Online Comprehension Questions Competition

	Collaboration	Critical Thinking	Information Management	Media Literacy	Problem Solving
ENLA	-groups formed for researching, discussing and formulating responses to Discussion Questions related to English Language Arts (based on those provided by A & E plus some others as decided upon by teachers involved with this project)	-critical thinking skills required for well researched, well thought out responses to the Discussion Questions that have a basis in English Language Arts	-using I.M. strategies and skills in conjunction with Information Technology in the researching, processing and presenting of data during the formulation of responses for the En LA oriented Discussion Questions	-application of critical reading and viewing strategies to the video and novel so as to derive a deep understanding of these which will in turn help in formulating quality responses to EnLA oriented Discussion Questions -making good use of language skills for presenting ideas in a variety of media	-devising an effective group action plan for responding to the EnLA oriented Discussion Questions
IT	-same as in cell C/EnLA	-determining how I.T. can be used to facilitate arriving at quality responses to the Discussion questions	-using I.M. strategies and skills in conjunction with Information Technology in the researching, processing and presenting of data during the formulation of responses for the Discussion Questions	-recognizing that each form of information technology demands a set of critical literacy skills that are specific to it, but which have similarities to each other	-part of devising a group action plan responding to the Discussion Questions (cell PS/ EnLA)
SS	-groups formed for researching, discussing and formulating responses to Discussion Questions related to Social Studies (based on those provided by A & E plus some others as decided upon by teachers involved with this project)	-critical thinking skills required for well researched, well thought out responses to the Discussion Questions that have a basis in Social Studies	-using I.M. strategies and skills in conjunction with Information Technology in the researching, processing and presenting of data during the formulation of responses for the SS oriented Discussion Questions	-application of critical reading and viewing strategies to the video and novel so as to derive a deep understanding of the these which will in turn help in formulating quality responses to SS oriented Discussion Questions	-devising an effective group action plan for responding to the SS oriented Discussion Questions

Appendix GG: Semali's Critical Inquiry Questions

#	Inquiry	Key Question
1	The Issue	*What is the issue *What sense do media make of the world? *What do visuals mean to those who see them?
2	Definitions of the Issue	*What is the source of information? *What form does the issue take? *What information is left out?
3	Who is involved	*What groups are involved? *Who is the media intended for? *Whose point of view does the media take?
4	The Argument	*Why was a certain media selected? *What information in the visual is factual? *How is the message affected by what is left out?
5	The Assumptions	*What attitudes are assumed? *Whose voice is heard? *What points of view are assumed?

Appendix HH: A&E Canadian Teacher Grant Information

A&E Canadian Teacher Grant Info
(Details shown below are taken from *Cable in the Classroom* magazine, Jan-Mar 2000)

If you are using A&E Classroom, you are eligible to participate in A&E's CANADIAN TEACHER GRANT for a chance to win a cash award and video equipment for your school! See pages 8 -12 for more information and entry forms. The deadline to participate and have entry materials in is March 31, 2000.

All teachers in Canada are invited to create a unique classroom project based on an A&E Classroom program which they have integrated into their curriculum. **Entries will be judged on the basis of teaching objective, integration of A&E program into curriculum, innovative approach and benefit to students.** Projects must be completed in the classroom and all materials submitted, with entry form, by March 31, 2000.

We hope that you find your A&E Classroom materials useful and encourage you to duplicate and share them with your colleagues. If you have any questions or would like additional copies of The Idea Book for Educators, please call our A&E Classroom Hotline at 1-800-722-6146.

1st Prize $2,000 cash grant for the teacher plus an A&E Library Theatre (colour TV, VCR and a collection of A&E videos) for his or her own school.
2nd Prize $1,500 and A&E Library Theatre
3rd Prize $1,000 and A&E Library Theatre
4th Prize $500 Cash Grant plus an A&E Library Theatre.

Winners are flown to Ottawa and hosted at a dinner in their honour. All entrants receive a complimentary one-year subscription to _Biography_ magazine.

For more information regarding the Canadian Teacher Grant go to the A & E Classroom Canada web site - http://www.AandE.com/class/canadianclass/index.html

Since I have initiated and will be coordinating the project, I would like the trip to Ottawa (when we win); the $2,000 would be shared equally amongst all teacher participants and the A & E Library Theatre would become the property of the McKim Library Resource Centre for all students and teachers to use.

If A & E would sponsor two persons to Ottawa, we would have to decide how to choose the second person.

**Let's Think Positively and Give This
Our Best Shot!**

Appendix II: Coding System and Codes for PLOs in the IRPs
for English Language Arts, Information Technology and Social Studies

Enlish Language Arts Codes Used in Figures 3b, 3c, 3d, 15, 15a, 15b

A coding system as shown below is used to identify the category and subcategory of Language Arts in which each PLO may be found in the online IRPs. In each case the LA represents Language Arts.

LACRSS	Comprehend and Respond - Strategies and Skills
LACRC	Comprehend and Respond - Comprehension
LACREPI	Comprehend and Respond - Engagement and Personal Interest
LACRCA	Comprehend and Respond - Critical Analysis
LACIIKL	Communicate Ideas and Information - Knowledge of Language
LACIICC	Communicate Ideas and Information - Composing and Creating
LACIIIC	Communicate Ideas and Information - Improving Communications
LACIIPV	Communicate Ideas and Information - Presenting and Valuing
LASSPA	Self and Society - Personal Awareness
LASSWT	Self and Society - Working Together
LASSBC	Self and Society - Building Community

Information Technology Codes Used in Figures 4a and 16

A coding system as shown below is used to identify the category and subcategory of Information Technology in which each PLO may be found in the online IRPs. In each case the IT represents Information Technology.

ITF	Foundations
ITPro	Process
ITPre	Presentation

Social Studies Codes Used in Figures 5a, 5b, 17 and 17a

A coding system as shown below is used to identify the category and subcategory of Social Studies in which each PLO may be found in the online IRPs. In each case the SS represents Social Studies.

SSA	Applications
SSSC	Society and Culture (500 to 1600 AD)
SSPL	Politics and Law
SSET	Economy and Technology
SSE	Environment