4MAT: APPLYING A LEARNING STYLE SYSTEM TO CREATE

INTERESTING AND INNOVATIVE PRESENTATIONS

SANDRA E. CRAVEN

B. Ed., University of Lethbridge, 1980

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Dedication

For Joan,

who was my Mother

Abstract

Unlike a large percentage of the population, I have always found it very comfortable and natural to be in front of an audience. Therefore, I am constantly surprised at the negative and often fearful reactions of many when they are required so to do. Effective oral communication and teamwork skills are essential and invaluable tools in both the education system and the workplace. This is evidenced by the fact that Department of Learning has mandated Speaking and Representation as part of Alberta's Language Arts Curriculum. Furthermore, the Conference Board of Canada's Employability Skills Profile lists teamwork as one of the three critical skills required for success in the Canadian workplace. (Appendix 1) I firmly believe that the 4MAT System provides a vehicle by which these skills can be acquired, therefore it has been incorporated into my Language Arts/Social Studies Program both at the planning stage and at the student level. Implementation of Dr. Bernice McCarthy's 4MAT System at the student level, specifically as it relates to making oral presentations, is the focus of this project. Because students at the Junior High level are extremely self-conscious, therefore reluctant to be singled out, students are introduced to oral presentations using the 4MAT System in a less threatening situation, that of cooperative learning. The purpose of this project is three fold: 1) to improve student communication and presentation skills using the 4MAT System.

2) to teach students to honor their own learning styles while becoming more adept in the other three quadrants of the 4MAT System.

3) to improve teamwork skills in a cooperative learning environment.

Acknowledgements

To all, whose thoughts,
                words,
                        and actions,

provided the incentive to complete one of my life's most worthwhile experiences,

                                        my sincerest thanks.

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Part I. Introduction

<u>And on Centre Stage</u>

"Sandra Eleanor Brown, what with those beautiful blue eyes, your long blonde hair, and those dimples," said Mrs. Scanlon, in her very British, very 'librarianish' tone, "you <u>will</u> make the perfect Alice in Wonderland. Have your mother make a sign with the title on it and be prepared to go on stage at 7:00 PM with the 'other books' for this month's award presentation."

And so it was decreed. At 6:45 PM the following Saturday evening, there I stood in the wings of the Medicine Hat Public Library stage waiting to be summoned by Madame Librarian. Precisely at 7:00 PM the presentation began. Mrs. Scanlon talked about the importance of books; some of the 'older' kids of ten and eleven put on a skit; the 'really old' kids of twelve and thirteen read selections from their favorite novels; and then it was time for the grand finale, the March of the Books.

We little kids of six and seven, stood there, expectantly, nervously, waiting as our titles were read out. "And finally," said a far off voice, "We have Lewis Caroll's classic novel, <u>Alice in Wonderland</u>." The audience looked expectantly, Mrs. Scanlon looked expectantly and all the other 'titles' who had marched so smartly and so immediately on to the stage, turned and looked for 'Alice'. But 'Alice' did not, could not move, rooted as she was to the floor by some unknown force. Again Mrs. Scanlon heralded 'Alice's' entrance and again 'Alice failed to materialize. Just as our Honoured Lady opened her rather pursed lips, 'Alice' stepped sideways onto that well-worn, heavily varnished, wooden stage, clutching a 'mum-made' sign from a Kellogg's Cornflakes box, with the book title carelessly printed boldly in large black pencil.

A stomp of a tiny foot, a nod of her seven year old head, and with eyes incredibly wide with fear, 'Alice' announced in a staccato, but very determined voice which could be described as being somewhere between uncertainty and authority in tone, "I - YAM - ALICE - IN - WONDERLAND!"

The audience laughed and applauded. Mrs. Scanlon nodded approvingly. And the other 'titles' looked up and down and around. Some were smiling, some were confused, some were bored, but all were wanting to get to the free lunch of cookies, cakes and freshie.

However, for Sandra Eleanor Brown, she had glimpsed into a new world, the world of performance. For the next forty years, performing, whether it be on stage or in front of my own students, became very much a part of my life. Unfortunately, I had equated performance as a 'fun' activity not worthy of any scholarly pursuit. It was not until a few years ago when I began to re-evaluate my educational philosophy, did I begin to see the power of performance as both a teaching and a learning tool.

<u>Serendipity</u>

Serendipity: the faculty of making fortunate and unexpected discoveries by accident. (Morris, 1982)

In the summer of 1969, I was again enrolled in a class offered by Dr. Eugene Falkenberg, Innovations in Education. Unlike other courses taught in this era, which encouraged research and regurgitation, Dr. Falkenberg now expected students to research then present and defend their findings. In effect we, the students, were to assume the role of expert. We were expected to present, to discuss and to debate not only our presentations but also those of our fellow classmates. Furthermore, and most surprisingly, we found that our opinions were valued and considered worthy of discussion. For the first time in my academic career I felt I

was really learning. I truly felt I had "come home." Unfortunately, few of the following

courses in my undergraduate degree kept me so engaged. Yes, I did learn as I have always

had an unquenchable thirst for knowledge, however, learning was not in the natural, easy

manner of that summer.

In July of 1996, for the third time in as many decades, Dr. Eugene Falkenberg and I once

more crossed paths when I enrolled in another course he was offering, Education 5702,

Leadership in Educational Organizations. And Dr. Falkenberg, although quite unknowing,

was once again to become my muse; for it was during this course, that I was introduced to a

very rudimentary form of Dr. Bernice McCarthy's cycle of learning known as the 4MAT

System (1981,1987). Without sounding too dramatic, I can quite honestly say that Dr.

McCarthy's findings, with regards to learning styles and the 4MAT System, were in effect an

epiphany as they defined and explained my very being with regards to behavior and learning

style.

Two other women and I were to give a presentation dealing with women in

administration as one of the course requirements in Dr. Falkenberg's class. As the three

members discussed, debated, and discarded idea after idea, it became evident that although

we had ample research material and many excellent ideas, we had not developed a vehicle

that would effectively communicate our topic. Frustration was mounting when finally, one

member suggested we try a method called the 4MAT Wheel, for making effective

presentation, which she had recently used with her gifted class. She hastily drew a circle,

dividing it into quadrants. Each quadrant, she explained had its own purpose. Quadrant One

was the hook to capture the audience's attention; Quadrant Two provided the context or

information; Quadrant Three engaged students in some meaningful way so they could apply

the information taught; Quadrant Four gave the students a chance to adapt and expand on the information taught. The efficiency of this method/wheel was evident, as in approximately twenty minutes, we had not only created a rough outline for the presentation but, each member had definite tasks to complete for the next meeting. Furthermore, I noticed that as we worked through the quadrants, not only did input become more democratic, but each member seemed to shine in certain quadrants more than the other members. Two more brief thirty minute sessions followed in which rough edges were smoothed out before the presentation date. To say that presentation was successful is an understatement, as during the next three weeks at summer school, students not only from the Leadership class, but from other Master's classes approached me to discuss it. For the remainder of summer school, the 4MAT method/wheel was applied to all my presentations and, as with the leadership presentation, the same results were evidenced: the group was more organized and focused, presenters experienced personal satisfaction in that their opinions and contributions were valued, and learning had occurred for both presenters and audience, often through novel activities. I had to find out more about this 4MAT, as I could see its potential in my own classroom.

The source for that hastily drawn graphic organizer was an article, *Using 4MAT To Improve Student Presentations*, by Patricia Weber and Frank Weber published in Educational Leadership, October 1990. The Webers claimed, "student presentations went from ho-hum to appealing when their teacher showed them how to use a 4MAT wheel to plan their oral reports" (Educational Leadership, p. 41). The phrase, "went from ho-hum to appealing,' definitely piqued my interest, as every teacher, including this author, has at one time or another debated the effectiveness of oral presentations, since the final product is often:

- Predictable

- Not indicative of the effort expended by students and teacher

- Discouraging for the student whose work was greeted with indifference and polite applause

- Discouraging for the teacher who questions, "Why didn't I do it myself in a more informative, time-efficient, and interesting way?"

With these thoughts in mind, the Webers' statement only reinforced the belief that I had indeed found the solution to the dreaded oral report.

As I gained more insight into the 4MAT Method, I began to look on my natural ability to perform in a new light; it was more than just a "parlor trick." And my penchant for asking, "Why?," for being inquisitive, was not a negative, not the trait of a rude, outspoken "impudent girl" as my Grade One teacher had labeled me. These attributes were the very core of my being, of my learning style. I was the embodiment of a Quadrant One Learner. How many other students had been negatively labeled because their learning style did not fit the tradition format of learning? How many students had their "joy for creativity and expression" silenced?

I saw the potential of 4MAT, not merely as a tool for students, teachers, and administrators, but as a lifestyle because it advocates understanding of individual differences, enabling the individual to function more effectively in a variety of situations, be it the school, the workplace or the home. I may not be able to affect change globally, however, I could "awaken the joy," of which Einstein spoke.

And so it was that over the next two years I used a simplified version of the Webers' 4MAT Wheel. Although student evaluations indicated the students themselves felt the

method was extremely useful, I always felt something was lacking in their overall presentations. After rereading Bernice McCarthy's (1990) article, *Using the 4MAT System to Bring Learning Styles to Schools*, which defines 4MAT as, "...an eight step cycle of instruction that capitalizes on individual learning styles and brain dominance processing preferences." (Educational Leadership, p. 31), I found my answer. In my efforts to make this method easier for students to understand, I had not dealt with the second, but equally important part of the cycle, brain dominance. I assumed that students were not competent enough to deal with this second matter related to brain dominance processing. I was determined to correct this rather arrogant oversight by introducing the topic in a manner which would be understood.

With my penchant for 'the dramatic,' a belief that effective oral communication and teamwork skills are essential and invaluable tools in both the education system and the workplace, and a strong commitment to individualizing learning, it is not surprising that these elements would be the impetus for this project. Furthermore, one vehicle for the successful implementation of these aforementioned elements is Dr. Bernice McCarthy's 4MAT System. Not only do students learn to make effective and interesting oral presentations as they move through the eight step cycle, they are taught to honour their own learning styles while becoming more adept in the other three quadrants of the 4MAT System.

Standing in front of an audience is intimidating at any age, but none more so than at the Junior High level. Students must not only cope with greater academic and social expectations than in primary and elementary grades, but with hormonal changes brought on by puberty. It is a time of change, a time of uncertainty. Because of the uncertainty, this age group seeks solace in numbers. The importance of peers and the need to belong, although important in all

age groups, is far greater at this level. Hence, the peer group functions as a surrogate family offering support, safety, and dictating codes of conduct. In short, 'the group' becomes one of the most influential aspects of the young adolescents' life. Recognizing this socializing drive, if you will, of the adolescent, this educator has over the years successfully incorporated the more positive elements of group dynamics into numerous collaborative learning settings.

The collaborative learning process, places equal emphasis on the development of both academic skills and social skills. In this learning environment, academic opportunities are provided wherein students share expertise, practice critical thinking skills, and act as both learner and teacher. Social skills are taught and nurtured as students assume the various roles associated with cooperative learning activities. Therefore, the pairing of the 4MAT System with cooperative learning provided a less threatening environment, especially when oral presentations were given. Furthermore, the objectives of both concepts were complementary as will be illustrated in Part II. Major Concepts.

In conclusion, the purpose of this project is:

1) to improve student communication and presentation skills using the 4MAT System.

2) to introduce and develop student awareness of learning styles.

3) to teach students to honour their own learning styles while becoming more adept in the other three learning style quadrants of the 4MAT System.

4) to improve teamwork skills in a cooperative learning environment.

A Language Arts literature study unit of the novel, Julia, by Cora Taylor, provided the starting point for this project. Six collaborative learning groups of four or five students were

established. Students then researched various topics associated with the novel's theme of the paranormal or the unexplained. Once information had been collected, students planned oral presentations using the 4MAT System.

The ensuing pages will review literature about learning styles, the 4MAT System, cooperative learning, and research methodology. The specifics of this case study will be detailed with regards to participants, methods of student evaluation, expectations, and daily procedure. Furthermore, teaching methods employed will be critiqued and their impact on students will be discussed. Student response to the project as whole will be investigated in the section dealing with the interpretation of instruments. The final section will conclude with this author's personal observations.

Implementation of the 4MAT System will, this author feels, go a long way to meeting the objective of the Mission Statement for Medicine Hat School District #76 which states,

> "As a partner in education, MHSD #76 is committed to offer an
>
> appropriate education with in a caring and innovation environment
>
> enabling its students to pursue their goals and dreams."

Part II. Major Concepts

"The pupil who is never required to do what he cannot do, never does

what he can do" John Stuart Mill (Zenkel, 1994).

Learning Styles

Differentiating instruction, constructivism, progressive education, language experience,

whole language, child-centred education, mastery learning, phonics or sight based learning,

all have been touted as "the" method for teaching at one time or another. Furthermore, the

impact of individuals such as Howard Gardner and his theory of multiple intelligences

(1983), Maria Montessori's method for young children (1964), and A. S. Neill's Summerhill

School experience for adolescents (1960), varied though they maybe, all have one element in

common - all methods and individuals seek to provide an effective education for the learner.

Horace Mann said of education, "Education, beyond all other devices of human origin, is the

great equalizer of the conditions of men - the balance-wheel of the social machinery. . . . It

does better than to disarm the poor of their hostility towards the rich; it prevents being poor"

(Zenkel, 1994).

Dr. Bernice McCarthy's 4MAT System, is one educational tool, which attempts to reach

this educational goal by applying the behaviorialist concepts of learning styles to the

classroom.

Learning style refers to the pattern of behavior an individual uses for new learning. The

importance in understanding learning styles is to develop one's strengths to the fullest, while

addressing deficiencies, thereby creating a more balanced or whole individual. In her book,

Learning Styles: Quiet Revolution in American Secondary Schools, Rita Dunn, describes

learning style as,

> ". . . a biologically and developmentally imposed set of characteristics that make the same teaching method wonderful for some and terrible for others. . . . Learning style also considers motivation, on-task persistence, or the need for multiple assignments simultaneously, the kind and amount of structure required, and conformity versus nonconformity levels."
>
> (Dunn, 1988. p. 3)

To be effective, educators must address what Dunn refers to as those "imposed set of characteristics," (Dunn, 1988. p. 3) thereby making education wonderful for all. Charles C. Schroeder (1993) suggests that a new and very different type of student exists today, a student who does not succeed in the traditional, content laden, passive learning system. Although Schroeder focuses on post secondary education, his findings are applicable to all levels.

> "Learning is not a spectator sport. If we can expand the repertoire of learning activities open to us, perhaps we can greatly increase both our own satisfaction and our students' learning. . . . what I am suggesting is that an overall understanding of how students learn and where they are in the process can help us meet the needs of the new students who sit in our classrooms. Engaging in such a process will clearly indicate that there are many paths to excellence; and perhaps the greatest contributions we can make to student learning is recognizing and affirming the paths that different from our own."
>
> (Schroeder, 1993)

Schroeder's observations are supported by the findings of educator Sandra Rief (1993) with regards to student retention of material:

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they say
- 90% of what they say and do

Consequently, knowledge of learning style and its application through a multisensory approach appears to create more effective learners. Further to this, Richard M. Felder (1996) states,

> "an objective of education should thus be to help students build
> their skills in both their preferred and less preferred modes of learning.
> Learning style models that categorize these modes provide good
> frameworks for designing instruction with the desired breadth.
> The goal is to make sure that the learning needs of students in each
> model category are met at least part of the time. This is referred to
> as 'teaching around the cycle'."

The Myers-Briggs Type Indicator (MBTI) (Tieger, 1995), the Kolb Learning Style Model, (1984) and Dr. Bernice McCarthy's 4MAT System (1987) are three of the many instruments available for typing personality and/or learning style. Both MBTI and Kolb's model will be discussed more fully as the former is one of the more commonly known and frequently utilized indicators, while Kolb's model provided a stepping stone for McCarthy's 4MAT System. As this project deals with McCarthy's 4MAT System, this indicator will receive greater focus.

The Myers-Briggs Type Indicator (MBTI), (Tieger, 1995), had its origins in the work of Swiss psychologist Carl Jung, whose research indicated that behavior could be predicted if one understood an individual's preferred mental functions and attitudes. In 1921, his theory of personality types was published in the book, Psychological Types. Katherine Briggs and daughter, Isabel Myers built upon Jung's work of personality types. Whereas Jung suggested three preference scales and eight personality types, Briggs and Myers offered four personality preference scales and sixteen distinct personality types. (Tieger, 1995)

A summary of the four personality types follows:

- extraverts, (E) hands on, people oriented; or introverts (I) reflective of self and ideas

- sensors, (S) practical, detail oriented; or intuitors, (N) imaginative, concept- oriented, focus on meaning and possiblities

- thinkers, (T) skeptical, rational, logical; feelers, (F) appreciative, considerate, humanistic

- judgers, (J) set and follow agendas, seek closure; perceivers, (P) adaptable, resist closure to obtain more information (Felder, 1996)

A combination of the four types would indicate an individual's learning/personality type; for example, this author is an ENTP or extrovert, intuitor, thinker, perceiver.

The Kolb Learning Style Model, authored by David A. Kolb, a leader in the field of experiential learning, identified two separate learning activities: perception and processing. Perception involves taking in information by concrete experience or abstract conceptualization. Processing involves internalization of information through active experimentation or reflective observation. These activities are divided into opposites and when placed on an intersecting continuum, form four quadrants of learning behavior. (Kolb, 1984)

Felder's summary of Kolb's four learning types combination follows:

- Type 1 (concrete, reflective): ask "Why?"; course material must be relevant to their experiences, their life and future. Teacher is a motivator.

- Type 2 (abstract, reflective): ask "What?"; course material must be presented in an organized, rational manner. Teacher is an expert.

- Type 3 (abstract, active): asks "How?"; course material should be well defined and allow for hands-on, trial and error in a non-threatening atmosphere. Teacher is a coach.

- Type 4 (concrete, active): asks "What if?"; course material allows for self-directed solving of real life problems. Teacher stays out of the way. (Felder, 1996)

Although Kolb viewed these learning styles as a continuum which the individual moved

through over time, he determined that one preferred style became evident. (1984)

The 4MAT System: The Three Elements

The 4MAT System, designed by Dr. Bernice McCarthy is defined as, "... an eight step

cycle of instruction that capitalizes on individual learning styles and brain dominance

processing preferences" (McCarthy, 1994, p. 31). Furthermore, Dr. McCarthy has based her

system on research from the fields of education, psychology, and neurology, incorporating

the theories of David Kolb, Carl Jung, Jean Piaget, and John Dewey. The 4MAT System

consists of three elements therefore, those being 1) learning styles 2) brain mode and 3)

modalities all structured with in cyclic framework.

The First Element: Learning Styles

The theoretical foundation of the 4MAT System is built on how individuals perceive and

process reality. According to McCarthy (1990), some perceive reality mainly by

sensing/feeling or intuition, while others rely on thinking through a situation or rationale. No

one way, be it sensing/feeling or thinking, is totally exclusive of the other, nor is one superior

to the other. On the contrary, one should complement the other, working in tandem. The

second component in learning, is processing which involves the functions of watching and

doing. Some individuals are watchers first, others doers who dive right in. However, both are

equal and complementary in that doers need to reflect on their actions and watchers need to

act on their reflections. When the elements that make up perception and processing are

viewed on a continuum, one's place on the continuum determines their learning style.

"Kolb found that it is the combination of how we perceive and process that forms the

uniqueness of our own learning style, our most comfortable way to learn" (McCarthy, 1994,

p. 25). It must be acknowledged that other factors such as age, environment, and life

experiences, to name a few, also affect learning style.

Dr. McCarthy's 4MAT model is formed when the continuums of perceiving and

processing are juxtaposed, thus creating four quadrants or four major learning styles.

Furthermore, when Dr. McCarthy overlaid her four strands with those of other researchers,

similar conceptualizations of perceiving and processing are apparent.

It is evident that researchers from diverse fields are identifying similar strands. Running through the different descriptions of perceiving and processing are many of the same conceptual insights. One way to see how similar they are is to summarize their findings by overlaying them on the model developed by Kolb. I want to make it very clear to the reader at this point that these connections are my own. As I studied the work of these researchers, the similarity of their results struck me and corroborated my insights and findings about student differences. In some instances, as is the case with any overlay, the correspondences are approximate rather than exact.
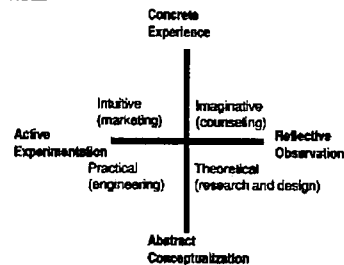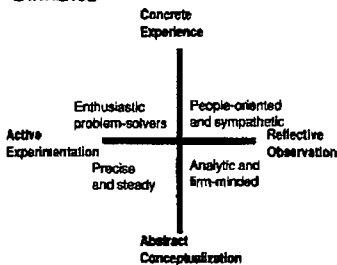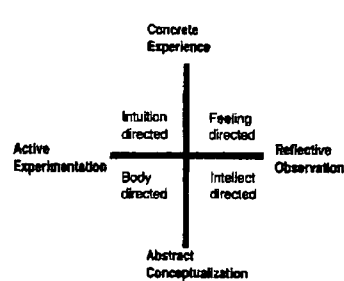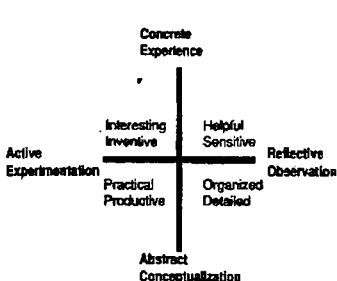
Figure 1: Comparison of Kolb's Model (McCarthy, 1981, 1987. p. 34)

<u>The Four Major Learning Types</u>

Type I. Imaginative Learners (Quadrant One)

- Perceive information concretely, process reflectively

- Learning must have meaning to their lives, therefore school often seemed disconnected from the real world

- They need discussion, are idea people

- Favorite question: Why?

Type II. Analytic Learner (Quadrant Two)

- Perceive information by thinking/abstractly, process by watching/reflecting

- Want intellectual competence through facts. The traditional school structure favors Twoness.

- Favorite question: What?

Type III. Common Sense Learners (Quadrant Three)

- Perceive information abstractly, process by doing

- Prefer to learn by trying things out, skills oriented, can't stand boring, inactive exercises

- Pragmatic, often have tough time in school

- Favorite question: How does it work?

Type IV. Dynamic Learner (Quadrant Four)

- Perceive information by concretely/sensing feeling, process by doing

- Learn by trial and error, action oriented, adaptable, flexible, risk-takers

- Favorite question: What can this become?

(McCarthy, 1994, p. 9) (see Appendix H for more detail)

<u>Piaget's Ladder</u>

The nineteenth century philosopher, Jean Piaget's belief that human intelligence is developmental in nature, wherein growth is viewed as age related stages, going from concrete to abstract reasoning, forms an important part of 4MAT's theoretical foundation. Piaget felt the progress through these levels or ladder, was 1) from concrete to abstract reasoning 2) a series of age related stages and 3) ongoing wherein interaction between the environment never ceased. (see Appendix I for details of Piaget's Ladder)

Dr. McCarthy felt that Piaget's ladder concept, although important, was only a part of the learning experience, suggesting that development is four dimensional and cyclical in nature wherein the individual develops: 1) values and meanings 2) conceptual connections 3) problem solving skills 4) new creation. Individuals develop in all four quadrants, however, are stronger in some quadrants than others as indicated by the chart, The Four Learning Types. Therefore, "each learning style has a favorite way of going up Piaget's ladder. But all learners need to experience the entire cycle. So we must stop focusing on the ladder. We must attend to the cycle" (McCarthy, 1994, p. 58).

Although learning is continuous, educators have focused on Piaget's ladder of age-related stages and the neglected the process/cycle. In doing so, traditional education has accorded more importance to the abstract, cerebral and analytical or Quadrant Two, at the expense of the concrete and active or Quadrants Three and Four. Consequently, Type Two: Analytic Learners are highly valued and reward, whereas Type Three: common Sense Learners are undervalued since many educators view concrete/active learning as a dumbing-down of learning.

Each of the four types of learners has its own weaknesses and strengths. It is the responsibility of educators to honor the individual's preferred learning style while at the same time develop, refine, and strengthen not only the preferred style, but the other three as well.

The Second Element: Right-mode and Left-mode Brain Functioning

Anatomically, the brain is divided into left and right hemispheres with each side performing different functions. The left hemisphere is the realm of the analytical, systematic and rational, while the right hemisphere is intuitive, random, and creative. The left is viewed as the mind or the head, the right, the heart. Joseph Bogen's Concept of Hemisphericity, (cited McCarthy, 1981, 1987, p. 75) suggests that individuals have a preferred brain modality. However, to say that one hemisphere is superior does a disservice to the other. Unfortunately, education has done just that by revering the 'head' while downplaying the importance of the 'heart'; whereas, the purpose of education should be moving towards wholeness.

> "The dichotomy between the two modes of knowing has gone
> on long enough. It is a false dichotomy. It is time to teach both
> analysis and synthesis. It is time to teach to the whole brain,
> intellectual and intuitive, mind and heart, content centered and
> student centered." (McCarthy, 1994, p. 75)

Learning Style and Hemispheric Dominance

When hemispheric dominance was tested in each of the four learning styles, Quadrants Two and Three revealed a tendency to left mode bias, whereas Quadrants One and Four were right-mode biased. It is to the bottom of the 4MAT cycle in Quadrants Two and Three that schools primarily function thereby reinforcing the notion of students as passive receptacles. The back and forth movement between Two and Three are what McCarthy refers to as the

pendulum style of teaching. By its very nature, it engages only two-eighths or twenty-five percent of the learners.

Because findings from the McCarthy Hemispheric Mode Indicator revealed that right, left and wholebrained learners are present in each of the four quadrants, the 4MAT model added alternating right-mode and left-mode brain function to each quadrant in effect creating a wheel with eight equal wedges.

Wholeness and Balance

Kolb's research shows a correspondence between learning style and type of career chosen. He also noted a correlation between a student's own learning style and that of the teacher who had the most impact on the student. This raises the question, is it the teacher's charismatic nature which in effect overpowers the student's preferred learning style thereby sublimating said student's own learning style? That being the case, Dr. McCarthy argues for the necessity of teaching all four modes of learning.

Although the 4MAT System seeks to determine learning style and brain mode preference, it should not be used as an instrument for labeling or pigeon-holing students. Quite the reverse, its sole purpose is for wholeness and balance in learning and by doing so, educators are creating individuals who are better equipped to deal with personal and global issues.

The Complete 4MAT System Model

As the diagram on the following page illustrates, the left modes of quadrants Two and Three are what happens in schools. McCarthy has labeled this sector Problem Solving. It is here that students are taught the analytical or problem solving techniques. The right modes of quadrants One and Four are what she terms Problem Finding, or the sector where ideas are conceived and/or improved upon. The insight of Problem Finding needs the analytical

rational aspect of Problem Solving to be fruitful. Hence the importance of completing the

cycle by shifting from the problem finding to problem solving then back to problem finding.

> "The 'shift' comes from taking experience and reflecting on it, analyzing it,
> developing it into and integration with acknowledged knowledge. The 'shift'
> also comes when one takes defined concepts (based on experiences and
> reflections) and tries them out, personally getting involved and then
> analyzing this person involvement. Schools must structure learning to bring
> about these 'shifts,' these integrations." (McCarthy, 1994. p. 125)

Progression through the 4MAT System brings with it a change in roles as teachers give up

total control and students become active participants. Furthermore, both student and teacher

assume dual roles as learners and teachers.

**The Complete
4Mat System Model**
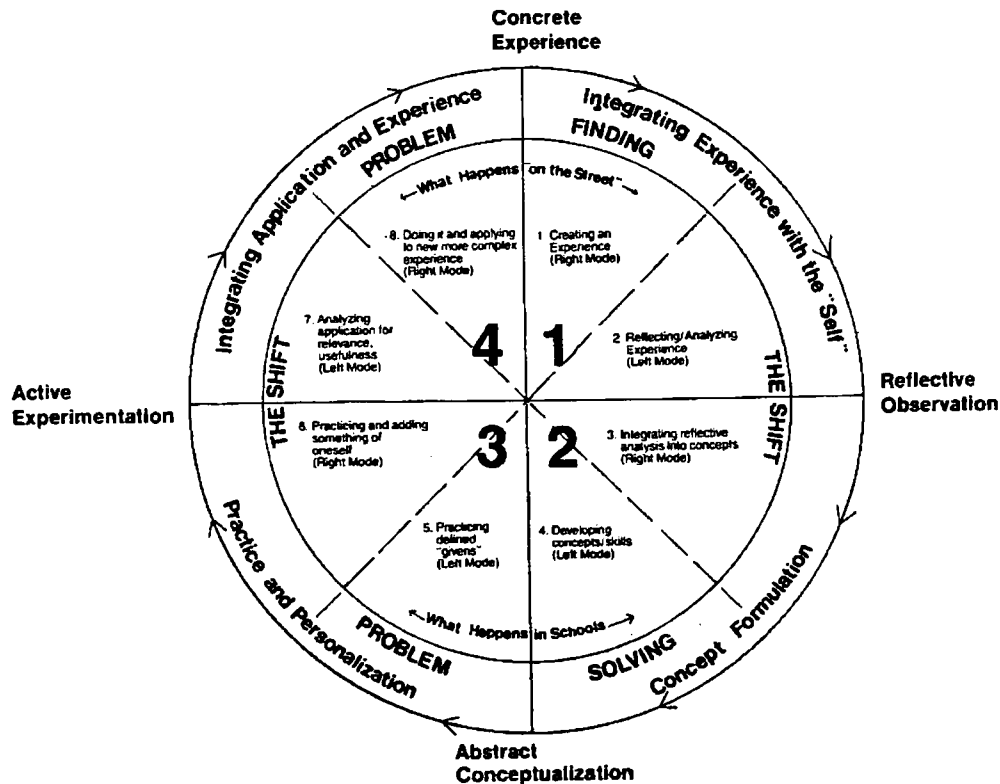
Figure 2: The Complete 4MAT System Model (McCarthy, 1981, 1987, p. 122).

The Third Element: Modalities

The third and final element in the 4MAT System is modalities, that being the sensory

channels by which we receive information. The three modalities are visual, auditory, and

kinesthetic. Individuals not only exhibit preferences for learning style, brain mode, but

modality also. Visual learners need to see and imagine; auditory learners need to hear and

verbalize; kinesthetic learners need to do and manipulate. By addressing the three elements,

learning style, brain mode, and modality, teachers will go a long way to meet the individual

needs of students.

> "Learning is both reflective and active, verbal and nonverbal, concrete
> and abstract, head and heart. The teacher must use many instructional
> methods that are personally meaningful to each student. The more students
> can travel the cycle, the better they can move to higher-order thinking."
>
> (McCarthy, 1997, p.51)

Collaborative Learning: What is It?

> "Thoroughly to teach another is the best way to learn for yourself"
>
> Tryon Edwards (Zenkel, 1994).

What is collaborative learning? "'Collaborative learning' is an umbrella term for a

variety of educational approaches involving joint intellectual effort by students or

students and teachers together" (Goodsell, 1992, p. 10). Innocent as this statement

appears, collaborative learning flies in the face of many past and currently held

educational beliefs as the following tenets or cornerstones of this philosophy illustrate.

- Learning is an active, constructive process wherein students become critical thinkers and

  problem solvers.

- Learning depends on rich content wherein students have access to information thereby

  affording the opportunity to become active learners.

- Learners are diverse thereby allowing for exposure to differing perspectives.

- Learning is social thereby giving students a forum to discuss, debate, to make public not

  only their point of view, but those of others.

- Learning has affective and subjective dimensions wherein students see themselves as

  both receptors, transmitters, and creators of knowledge.

"By its very nature, collaborative learning is socially and intellectually
involving. It invites students to build closer connections to other students,
to their faculty, to their courses and to their learning" (Goodsell, 1992, p. 11).

Collaborative Learning: To be or not to be?

"Every noble acquisition is attended with its risks: he who fears to encounter the one must

not expect to obtain the other." Metastasio (Bolander, 1987, p. 213)

Not to Be

Introducing collaborative learning into one's classroom can be unsettling as it shakes the

very foundation of our educational system, the most obvious being the new roles of teacher

and student. Critics of collaborative learning would argue that the role of the teacher is to be

"centre stage", the command centre from which all knowledge, activities, rewards and

penalties emanate. This power is so designated by virtue of extensive education and an

educational belief still widely held that students are not competent or knowledgeable enough

to contribute to the educational process, except under teacher prescribed circumstances.

Another commonly heard criticism of collaborative learning addresses the issue of

efficiency (Goodsell, 1992). Again, this harkens back to the role of the traditional teacher

who, it is argued, because of training could have delivered the lesson more effectively and in

less time than the collaborative learning approach. Furthermore, there are those, educators

and non-educators alike, who believe that collaborative learning is the lazy teacher's choice

as it becomes a coffee break or marking time when the 'good' teacher would be in front of

the class teaching (Goodsell, 1992).

If the role of the teacher is to be centre stage, then it follows that the role of the student is

to be 'in the wings' or subordinate. This traditional philosophy assumes the student/teacher

relationship is that of a child, dependent on a benevolent authority. The student's role

therefore is to be passive, receptive, and submissive (Locke, 1889).

Apart from the change in roles of teacher and student, other concerns have been raised

with regards to the effectiveness of the collaborative approach. For instance, this approach

appears to encourage cheating as it allows the weaker and the lazier students to hitchhike on

the labors of the workers. In the short term this hitchhiking results in an unfair evaluation, but in the long term, this approach could prove disastrous as students may be unable to function in post secondary education or the workplace.

Furthermore, many individuals hold to the philosophy that education is to prepare students for the competitive 'dog eat dog' world of the workplace. That being the case, it follows, by allowing students to operate in the cooperative, non-competitive environment of collaborative learning, not only teachers, but the educational system as a whole, are doing students a disservice.

Lastly, opponents to collaborative learning question whether this approach can successfully cover the curriculum and ensure student academic success.

To Be

Instituting collaborative learning is not without its problems. Change by its very nature creates dilemmas, but it can also produce benefits. Because of this approach, a change in educational philosophy occurs from transmissional to transactional and in some varieties to transformational. No longer is the teacher the centre of learning, the omnipotent oracle, dispensing knowledge to passive receptacles. Students and teachers are now partners, part of the same team. No longer the 'tabula rasa' (Locke,1889) of traditional education, students become active share holders in their own educational experience. The classroom evolves into a community wherein academic and interpersonal skills are learnt and reinforced due to the give and take, non-competitive cooperative environment of the collaborative approach. Berkeley (cited in Goldenberg, 1992. p. 177)

> "The myths about interpersonal competition - that it is motivating,
> enjoyable, character-building, and necessary for success in a competitive
> workplace and world-have been debunked increasingly in the past
> twenty years, both in theoretical terms. Astin, 1987; Brickner, 1989; Nichols,
> 1989; Palmer, 1983 (cited in Goodsell, 1992, p. 20) and throughout extensive
> research. Johnson & Johnson, 1989a: Kohn, 1986 (cited in Goodsell, 1992, p. 20)
> Most troubling of all, more than 50% of the students who begin college leave,
> often never to return. Much of this student leaving has to do with feelings of
> isolation and a lack of involvement with the college environment.Tinto, 1987 (cited
> in Goodsell, 1992, p. 20)

The above quote clearly demonstrates a place for collaborative learning in our educational system. However, as with any new project it takes planning, energy, and an open mind to successfully implement collaborative learning into the classroom.

Johnson and Smith's (1991) table provides a concise comparison of old and new paradigms of teaching.

FIGURE 11.1

Comparison of Old and New Paradigms of Teaching

	Old Paradigm	New Paradigm
Knowledge	Transferred from Faculty to Students	Jointly Constructed by Students and Faculty
Students	Passive Vessels to be Filled by Faculty's Knowledge	Active Constructor, Discoverer, Transformer of Knowledge
Faculty Purpose	Classify and Sort Students	Develop Students' Competencies and Talents
Relationships	Impersonal Relationship Among Students and Between Faculty and Students	Personal Transaction Among Students and Between Faculty and Students
Context	Competitive/Individualistic	Cooperative Learning in Classroom and Cooperative Teams Among Faculty and Administrators
Assumption About Teaching	Any Expert Can Teach	Teaching Is Complex and Requires Considerable Training
Ways of Knowing	Logico-Scientific	Narrative
Epistemology	Reductionist	Constructivist
Mode of Learning	Memorization	Relating
Climate	Conformity/Cultural Uniformity	Diversity and Personal Esteem/ Cultural Diversity and Commonality

Source: O.W. Johnson, and K. Smith. (1991). *Active Learning*. Edina, Minn.: Interaction Book Company.

Figure 3: Comparison of Old and New Paradigms of Teaching.

<u>Cooperative Learning, a Branch of the Collaborative Learning</u>

As mentioned previously, numerous approaches to collaborative learning are practiced of which cooperative learning is the most structured. Johnson, Johnson and Holubec, 1990 (cited in Goodsell, p.12), defined cooperative learning as, " the instructional use of small groups so that students work together to maximize their own and each others learning." However, in order to be successful, several key elements must be present in a cooperative learning situation:

- Positive interdependence

- Promotive interaction (face to face, supportive)

- Individual accountability and personal responsibility

- Individual performance assessment

- Interpersonal skills and academic learning of equal importance

- Interpersonal skills need to be taught and reinforced

- Debriefing time allows students to reflect on both their academic and social performance

Further to their definition of what cooperative learning is, Johnson, Johnson and Holubec

reiterate in their book, The New Circles of Learning, what cooperative learning is not.

- Cooperation is not having students sit side-by-side at the same table
  to talk with each other as they do their individual assignments.
- Cooperation is not assigning a group report that one student does
  and the others put their names on.
- Cooperation is not having students do a task individually with instructions that
  those who finish first are to help the slower students.

(Johnson, 1994, p. 35)

Creating Positive Cooperative Learning Outcomes

Good intentions are not enough to ensure success in cooperative learning activities. In

order to help facilitate a successful outcome, these elements should be present:

- Expectations, both academic and social, should be not only be well planned but clearly

  communicated.

- Realistic expectations should be established for group work and for student and teacher

  roles.

- The classroom should be set up with sufficient resources to successfully complete

  activities.

- The teacher should drop in and out of groups.

- The project should be relevant.

- A wide variety of activities should be employed.

- Immediate feedback should be given to reinforce positive group performance.

What follows is a summary by Goodsell, Maher, Tinto, Smith, and Mac Gregor, of the

pitfalls of cooperative learning with regards to forming groups, project evaluation, group

feedback and unit planning.

<u>What Not to Do</u>

When forming groups, *do not*
- allow students to form their own groups or deliberately create homogeneous groups.
- establish groups that are either too small (3 or fewer members) or too large (8 or more members.)
- dissolve and reform the groups on a frequent basis, such as after each activity or simulation.

When formulating grading policies, *do not*
- minimize the extent to which group performances affects students' grades.
- limit group work's influence to less than 20% of the total grade (or base a very large portion of the grade [60% or more] on a single assignment - this one didn't show up very often but when it did the negative consequences were severe).
- leave out any form of peer evaluation in the grading system.

When providing feedback on group work, *do not*
- structure the group assignments so that students can easily figure out a way to work independently and still get the job done.
- have the group work turned in as late as possible in the term.

When planning group activities and assignments, *do not*
- assign two or more class presentations.
- assign four or more cases or other written reports
- avoid group exams and do not give more than four
- use the absolute minimum of class time for group work (1992, p. 65 Table 3)

<u>Research Methodology</u>

Observation: "Every man who observes vigilantly and resolves steadfastly grows unconsciously into genius." Edward G. Bulwer-Lytton (Bolander, 1987, p.176)

Science: "Science is simply common sense at its best--that is, rigidly accurate in observation, and merciless to fallacy in logic." Thomas Huxley (Bolander, 1987, p. 216)

Qualitative or Quantitative Research

The choice of research methodology is of paramount importance. Without the proper instrument, effective results cannot occur. This raises two questions, 1) Which method would best serve my needs, qualitative or quantitative? 2) Which method is the best? Therein lies the 'great debate.'

<u>The Great Debate: Qualitative Vs. Quantitative</u>

> The two postulates central to the positivist persuasion are, first, that a radical break exists between empirical observation and nonempirical statements, and second, that because of this break, more general intellectual issues - which are called "philosophical" or "metaphysical" - have not fundamental significance for the practice of an empirically oriented discipline.
>
> Berkeley (cited in Goldenberg, 1992. p. 177)

> Qualitative methodology allows the researcher to "get close to the data," thereby developing the analytical, conceptual, and categorical components of explanation from the data itself - rather than from the reconceived, rigidly structured and highly quantified techniques that pigeon hole the empirical social world into the operational definitions that the researcher has constructed.
>
> Filstead (cited in Goldenberg, 1992. p. 177)

The aforementioned quotes typify the 'great debate' about which research method, quantitative or qualitative is superior.

Bogdan and Taylor, in their book, Introduction to Qualitative Research Methods, defined qualitative methodologies as research procedures which produce descriptive data: people's

own written or spoken words and observable behavior (1975, p. 4). For these authors the phenomenological perspective is central to qualitative methodology. They state further that two major theoretical perspectives dominate the social sciences, positivist and phenomenological.

The positivists which stems from the late 19th and early 20th century theorists, Auguste Comte and Emile Durheim, was concerned with facts or causes. The phenomenological perspective of Max Weber, concerned itself with understanding human behavior from the actors' point of view. Phenomenologists study how the world is experienced. The important reality then is what individuals imagine it to be.

> "The 'forces' that move human beings, as human beings rather than
> simply as human bodies...are 'meaningful stuff.' They are internal
> ideas, feelings and motives.
> Douglas (cited in Bodgan & Taylor, 1975. p. 2)

Goldenberg suggests the key feature of the interpretive approach is the goal of insider understanding whereas the positivists adopt an external view; therefore, it follows that the approach or methods used to attain data and reach conclusions must be different.

This positivist approach tries to find facts and causes through questionnaires and inventories which produce quantitative data, allowing for statistically proven data between operationally defined variables. Great care is taken to avoid contamination of data by personal involvement. The positivist approach is, in their minds at least, clean, detached, and objective.

The phenomenological approach on the other hand tries to find understanding through participant observation, open-minded interview, personal interview and personal documents. The descriptive data collected permits the researcher to see the world through the actor's eye.

A quote from Bogdan and Taylor with regards to a study about a juvenile delinquent

succinctly sums up the phenomenologist belief:

> By putting ourselves in Stanley's [the author's] skin we can feel and
> become aware of the deep biases about such people that ordinarily
> permeate our thinking and shape the kinds of problems we investigate.
> By truly entering into Stanley's life, we can begin to see what we take
> for granted (and ought not to) in designing our research...
>
> Becker (cited 1975. p. 7)

Figure 4: <u>Predispositions of Quantitative and Qualitative Modes of Inquiry</u>, clearly

illustrates the differences in assumptions, purpose and approach between the two methods of

inquiry. (Glesne & Peshkin, 1992. p. 7)

Quantitative Mode	Qualitative Mode
Assumptions	
-Social facts have an objective reality	- Reality is socially constructed
- Primacy of method	- Primacy of subject matter
- Variables can be identified and relationships measured	- Variables are complex, interwoven and difficult to measure
- Etic	- Emic
Purpose	
- Generalizability	- Contextualization
- Prediction	- Interpretation
- Causal explanation	- Understanding actors' perspectives
Approach	
- Begins with hypotheses and theories	- Ends with hypotheses & grounded theory
- Manipulation and control	- Emergence and portrayal
- Uses formal instruments	- Researcher as instrument
- Experimentation	- Naturalistic
- Deductive	- Inductive
- Component analysis	- Searches for patterns
- Seeks consensus, the norm	- Seeks pluralism, complexity
- Reduces data to numerical indices	- Makes minor use of numerical indices
- Abstract language in write-up	- Descriptive write-up
Researcher Role	
- Detachment and impartiality	- Personal involvement and partiality
- Objective portrayal	- Empathic understanding

Figure 4: Table 1.1 <u>Predispositions of Quantitative and Qualitative Modes of Inquiry</u>

(Glesne & Peshkin, 1992, p. 7)

Having dwelled on the difference of approaches for each methodology, Glesne and

Peshkin (1992) point out that both qualitative and quantitative researchers use similar

elements in their work:

- State purpose
- Pose problems or raise questions
- Define a research population
- Develop a time frame
- Collect and analyze data
- Present outcomes which rely explicitly or implicitly on theoretical framework
- Are concerned with rigor or exactness

The difference is how the researchers put these elements together that creates distinctive

differences in the process and the final project. Consequently, the research method one

chooses speaks to their values and perspective on the nature of reality.

Although qualitative research may not produce that which quantitative researchers refer to as

'hard data,' assessments of validity can be made according to several criteria. Becker and

Deutscher suggest the following hierarchy of credibility:

1. Volunteer statements are preferred to elicited ones
2. Criterion of redundancy based on time in the field. If the researcher has spent
   sufficient time in the field, a data saturation point will be reached at which no
   new data is being added.
3. Criterion of triangulation wherein a claim had been verified repeatedly and in
   various ways.

Further to this, Douglas (cited in Goldenberg, 1992, p. 196) suggests the concept of

interaction effectiveness wherein a new comer could study and use the information and then

pass as authentic. Schatman and Strauss, (cited Goldenber, 1992, p. 196), put forth the

member validations test. If all members agree to its authenticity the findings are viewed as

valid. Also in the absence of negative feedback from members confirms credibility.

The key premise of interpretive social science is that the social scientist must seek access to the 'universe of discourse' of the actors. (Goldenberg, 1992, p.197) This being the case, the researchers must go into the study with a tabula rasa. They must assume that they not the actors are without expertise. The positions are therefore reversed, with the actors assuming the dominant position and the scientist the subordinate. Perhaps most crucial to the role of the researcher involves the issue of neutrality in that one's own beliefs must be suspended. The following quotes by Bogdan and Taylor (1979), "Sound a warning for, the researcher seeks not truth and morality but understanding" (p. 9).

". . . And while you do not have to agree with your subjects' views of the world, you must know, accept and present them for what they are" (p. 11).

Summary of Major Concepts

<u>Learning Styles Summary</u>

- Learning style refers to the pattern of behavior an individual uses for new learning.

- Learning style preferences are not set in stone, and change with age and experience.

- Indicators such as the Myers- Briggs Type Indicator and Kolb Learning Style Model

  determine learning style preference.

- Dr. Bernice McCarthy's 4MAT System, " . . . an eight step cycle of instruction that

  capitalizes on individual learning styles and brain dominance processing preferences"

  (McCarthy, 1994, p. 31), incorporated David Kolb's model of experiential learning.

- Knowledge of learning styles is to create a wholeness or balanced individual and not as a

  labeling device.

<u>Collaborative Learning Summary</u>

- "'Collaborative learning' is an umbrella term for a variety of educational approaches

  involving joint intellectual effort by students or students and teachers together"

  (Goodsell, 1992, p. 10).

- Cooperative learning, a branch of collaborative learning, is "the instructional use of small

  groups so that students work together to maximize their own and each others learning"

  (cited in Goodsell, p. 12).

- Collaborative learning challenges the tradition roles of teacher and students.

- Students become more active, responsible shareholders in the educational process

- Collaborative learning is much more than 'group work, therefore, in order to facilitate a

  successful cooperative learning outcome, expectations and procedures must be taught.

Research Methodology Summary

- Qualitative (non-empirical) and quantitative (empirical) research methods are both valid research methods. How the researchers put the elements of modes of inquiry together that creates the distinctive differences in the process and the final project.

- Most crucial to the role of the researcher involves the issue of neutrality in that one's own beliefs must be suspended.

The purpose of Part II was to introduce and clarify the aforementioned major concepts of this project. Without examining these foundational concepts, the premise for said project could not be fully appreciated.

My criteria in choosing a project was three fold in that the topic must be meaningful, beneficial, and practical for both teacher and students. The topic, learning styles pointed the direction, however, it was too broad and too academic in scope. The 4MAT System therefore provided a tool for this teacher to apply learning style concepts while being practical, meaningful and beneficial to both parties. However, to more fully meet the three fold criteria for students, the student had to become the teacher, and oral presentation provided the perfect teaching vehicle.

In many instances, oral presentations become an exercise in oral reading and benefits are limited to the presenter, as the audience/class is inactive and frequently bored. Application of the 4MAT System to oral presentations forces the students/audience to participate, to interact, and to engage in learning as the student presenter works through the four quadrants. Consequently, the very structure of 4MAT enables the students, both the presenter and the audience, to experience success in their preferred learning mode.

Although the concept of research methodology was not directly related to this particular

project, its inclusion was intended to clarify the distinction between quantitative and

qualitative research, validate both methods and relate the role of the researcher.

Part III. Case Study

Participants

Participants were members from one of my Grade Eight Language Arts classes, consisting

of twenty- eight students, twelve females and sixteen males, age 12 to 13 years, and of

average to above average ability. The profile is that of what I consider to be a 'typical' Junior

High class. This project stemmed from a Language Arts Unit, The Unusual and the

Unexplained, which I built around the novel, Julie, by Cora Taylor which deals with a young

girl's coming to terms with her psychic powers. Upon completion of the novel, students, in a

collaborative learning situation, were to research a topic of choice based on said unit.

Groupings

Six heterogeneous groups with four or five members were established based on the article,

Three Steps to Setting Up Effective Groups. (Educational Forum, 1991) (Appendix B) Group

membership was determined using the modified "select your own group' concept wherein

each student was asked to choose one classmate with whom they would want to work. Using

the students' choice in combination with my choice, which was based on the high-low

ability, groups were thus set.

Procedure

Prior to reading the novel, students completed a brief questionnaire, Your Opinion of Oral

Reports (Appendix C) which provided the teacher with insight into their feelings negative

and/or positive about oral presentations. To prepare students for their final presentations they

received instructions in the following concepts: cooperative learning, personality type,

4MAT and learning style.

Daily Routine

To ensure that expectations were clear, the following daily routine was established:

- Students and teacher met as a whole at the beginning of each class to set the daily agenda.

- Students began and ended the class in promotive group formation in which all members face each other.

- The teacher completed two on-task analysis each class. This involved observing and recording each student 's work habits twice each fifty minute period.

- Initially the teacher called the students together halfway through the class to discuss problems and/or share ideas. This time was coined by a student as 'Beefs & Bouquets'.

- Journal writing (reflective time) occurred for the last ten minutes of the period.

- As students neared the end of data collection, the 4MAT System was reviewed.

- The teacher "dropped-in" to each groups at least twice daily.

Evaluation

Graded evaluation was based on:

1) Twice daily on-task analysis by the teacher.

2) Journal evaluation by teacher

3) Evaluation of final presentation by the teacher (Appendix D)

4) Evaluation of student application of the 4MAT (Appendix E)

5) Peer evaluation of their group's participation (Appendix F)

A non-graded unit evaluation was completed by the students to determine the effectiveness of the unit, especially the 4MAT Method. (Appendix G)

Student Expectations

- Improved communication and social skills

- Greater awareness of learning styles on the part of students

- Greater independent work skills

- Presentations that are both informative and entertaining

- Carry over of presentation skills to other situations both in and out of my classroom

- Greater self-confidence

- Improved organizational and research skills

<u>Teacher Expectations</u>

- Greater awareness of student needs

- Implementation of the 4MAT System in my teaching

- Teaching students to make effective and interesting presentations using the 4MAT

  System

Part IV. From Theory to Practice

> "The best laid schemes of mice and men
> Gang aft a-gley;
> And leave us naught but grief and pain
> For promised joy.
>
>   Robert Burns, To a Mouse (Thatcher, 1980, cited Zimmerman, p.118)

Part IV. From Theory to Practice, chronicles student involvement as this educator

attempted to successfully implement the theories of cooperative learning and the 4MAT

System. A review of the effectiveness of said plans and solutions to problems encountered

during their implementation will be detailed in Part VI. An outline of the unit lesson plans

follows:

<u>Lesson Plans</u>

Part I. Novel Study
        Julie by Cora Taylor
Part II. Oral Presentation Using 4MAT/Cooperative Learning Approach
Lesson 1: Cooperative learning
        - Pitfalls of group activity, Freestanding balloon structure group activity
        - Basic elements of cooperative learning
        - Roles, negative & positive
Lesson 2: Research topic introduced
        - video <u>Chariots of the Gods, the Mysteries Continue</u>
Lesson 3: Effective groups
        - student & teacher made groups determined
        - building team spirit (Cooperative learning)
        - class management
        - cooperative learning and conflict resolution
Lesson 4: Review research skills
Lesson 5: Personality types (Cooperative learning)
        - The Personality Compass at a Glance
        - Easy Ways to Identify Personality Types
        - Knowing Your Weakness Helps Identify Your Strengths
Lesson 6: 4MAT System introduced
        - demonstrating a 4MAT lesson by teaching punctuation
        -discussion of the four quadrants in the wheel related to the punctuation lesson
Lesson 7: Assessing your own learning style
        - article <u>A Tale of Four Learners</u> & left and right brain functions
Lesson 8: Students apply the 4MAT to organize their research (Cooperative learning)
        -Megan's story & how 4MAT can make presentations interesting and fun
        - PIE Principle: participation, interaction, engaging & project ideas

Lesson 9: 4MAT PRESENTATIONS (Cooperative learning)
Lesson 10: Viewing of the taped presentations & Wrap-up party

Figure 5: Lesson Plans

Student Involvement

As Figure 5 illustrates, Part I was a literature study of the novel, Julie by Cora Taylor. Part

II focused on teaching students to make effective oral presentations using the 4MAT System

in a cooperative learning setting. Lesson 1 introduced the concept of cooperative learning

with a hands on group activity. Students were placed in three groups of eight or nine, and

asked to build a free standing structure using only their nine balloons and masking tape in a

twenty minute time frame. After giving the initial instructions, I stood back and observed.

This was without a doubt the most difficult time for me during the entire project, for as

teachers we are use to being in control and diffusing situations. Furthermore, barring physical

injury, I was determined to be the non-judgmental observer, a neutral collector of data as

described by Bogdan and Taylor (1979).

Students voted on the best structure, after which a spirited discussion followed wherein

students listed the positive and negative aspects of cooperative learning on the board.

Discussion about the free-standing structure activity revealed that for many, what had begun

as an enjoyable activity soon turned sour with the negatives outweighing the positives.

Negatives included:

- Some students fooled around while a few did all the work.

- Some hogged all the materials

- Some wouldn't listen to the group and did what they wanted to do.

- Groups were too large.

- The teacher just stood there not doing anything and wouldn't help.

- The teacher didn't discipline those misbehaving and things were getting out of hand.

The positive comments were:

- It was a fun activity.

- I liked working with my friend.

- Because there were more people, we were able to come up with more ideas.

Then students offered the following solutions to the pitfalls encountered.

- Smaller groups

- More rules

- More teacher involvement

- Working with a friend

Students returned to their free-form structure groups and discussed their experiences with the group. At this point I stressed that the positives and negatives were to be discussed in an appropriate manner which I clearly outlined. During this time, I dropped into the groups, listening, questioning, and commenting. Some students were quite blunt about the negative behavior of certain group members, letting them know in no uncertain terms how they felt. The reaction of those who had misbehaved and were confronted was that of disbelief, in that it was their peers, and not the teacher who was chastising them. And for those doing the confronting, there was definite evidence of empowerment as shown in body language and verbal comments. What surprised me was that many female students heretofore quite reticent, were the ones doing the confronting. My reaction was, "Why haven't I given them (students) more say before?"

Next, a formal lecture time introduced the basic elements of cooperative learning.

In Lesson 2, students watched a video, <u>Chariots of the Gods, the Mysteries Continue</u>, which not only stimulated interest in unexplained and unusual phenomenon, but also offered new ideas for research. As a whole, the class then discussed and listed on the board possible research topics. To begin Lesson 3: Developing effective groups, students shared their past experiences and made suggestions as to how they felt groups should be selected. After reading the transparency, <u>Three Steps to Setting up Effective Groups</u>, (see Appendix B for details) students agreed that the 'modified select your own group', was the best method as it allowed students input into group formation. To ensure confidentiality and to eliminate hard feelings that might arise if someone's close friend chose another, students listed their first and second choice for a group member on a piece of paper to which the teacher alone was privy. The next day students met with their group. Their first assignment was to agree on a topic, then design a group logo. This logo would serve as a rallying point for the group during this project and hopefully foster team spirit. A formal lesson followed which examined class management, cooperative learning theory, and conflict resolution.

Lesson 4 briefly reviewed the various methods of gathering and organizing data and introduced the daily procedure format, after which students began researching for the next three – fifty minute periods (see Part III. Case Study p. 35 for details). These three periods gave students an opportunity to work in a cooperative learning environment. The next lesson afforded a break from researching and introduced the idea of wholeness or balance of character for the individual. To begin, students were asked to discuss the various ways the members of their group researched information. Next students shared these observations about themselves and their group with the entire class. From this discussion, students began

to understand the connection between the way an individual works, interacts and reacts, and personality.

This lesson provided the lead-in to personality types and learning styles of Lesson 5; however, to avoid the rather cerebral area of the psychology of personality types, a light-hearted approach was favored using excerpts from Turner and Greco's book, The Personality Compass at a Glance (1998). In a cooperative learning setting, students attempted to identify their personality types using Turner and Greco's compass, after which results were shared with the class as a whole. Students agreed that: 1) awareness of different personality types can lead to better cooperation, communication, and understanding with others. 2) by acknowledging the strengths and weakness in ones own personality, the individual can work towards wholeness or balance of character.

In Lessons 6 to 8, the 4MAT System was modeled, taught, and discussed in depth as to how student data would be organized according to the four quadrants of 4MAT. A bank of project ideas was posted listing numerous activities that would encourage variety in the presentations. After discussing these ideas with the class, students returned to their groups and adapted their research material to the various project ideas. As the deadline for presentations neared, students were given in-class rehearsal time to see what worked, what needed attention, and what should be dropped. Students also made displays and gathered costumes and props. Furthermore, this time enabled students to see if they had met the requirements of the 4MAT System.

As students felt more rehearsal time was required the actual presentation dates were set back a few days. Students were also given the opportunity to choose their own presentation date rather than having it arbitrarily assigned. Presentations, which averaged sixty to seventy

minutes in length were video taped and continued over the next week and a half. Prior to

each presentation, students received an evaluation guide (see Appendix D). Following a brief

explanation of the guide, students then proceeded to give an evaluation for each presentation.

The objective of this exercise was to involve students in the evaluation process these

individual student evaluations were not intended for use as a formal mark. After all

presentations were made, students shared their opinions of the presentations, the use of the

4MAT System and their own experiences. Prior to this, students were reminded that the value

in sharing was to learn and applaud the efforts of others, and not a time for mean spirited

comments. Students were given private adjudications which not only detailed the positive

aspects but gave suggestions for improvement. Over the course of the next week,

interspersed with other non-presentation related Language Arts activities, students watched

the videos of their work. Lastly, students participated in a wrap-up party celebrating their

achievements.

Part V. Interpretation of Instruments

Quantitative/positivist or qualitative/phenomenological, that is the rub. The research method one chooses speaks to their values and perspective on the nature of reality. Because of my gregarious nature and genuine fascination with people, I lean towards a phenomenological approach. Also, my topic readily lent itself to the need for 'thick description'. According to Goldenberg (1992), "Thick description is that which presents a detailed and highly contextualized description of what the actors themselves experience. . . .(Geertz, 1973, p. 42, cited p. 195). Furthermore, this approach would allow me to explore those concepts whose essence, joy and frustration is otherwise lost in quantitative research.

My first choice for data collection was the personal interview, however, the logistics showed this to be impractical. Specific, direct questions, fact based questionnaires would be efficient and provide hard data; however, this approach would be too impersonal for my purpose. Consequently, I compromised using elements of both quantitative and qualitative modes of inquiry. Because of the unique environment provided by the classroom, much thick, rich data was gathered from group discussions, one on one conversations, observation, and student and teacher journals. Two questionnaires were also administered. These were deliberately open ended to allow for unstructured responses. Although this type of instrument can produce long, rambling responses, I felt it would come closest to a personal interview. Further data was obtained from evaluation tools such as the on task analysis, peer evaluation, and a graded presentation mark. To determine the success of the project, the aforementioned sources were reviewed using the criteria described in Becker and Deutscher's hierarchy of credibility:

1. volunteer statements preferred

2. criterion of redundancy

3. criterion of triangulation (Goldenberg, 1992)

In order for real learning to occur, an atmosphere of trust and respect must be present. The classroom must be a safe haven wherein opinions may be freely expressed. During the course of this project, I felt this atmosphere was present for the most part. Furthermore, the responses given on both questionnaires, during discussions, and in the journals attest to this declaration as at no time did I sense that students felt they were being coerced into saying the 'right' thing. This fact is evidence with their frank opinion of the journal. (See Appendix L2 Question # 11) This being the case, Becker and Deutscher's first criterion was successfully met with regards to volunteer statements.

Redundancy refers to the point at which information saturation occurs. Consequently, no fresh information is forth coming, merely a restating of the same data. The criterion of redundancy was more than met as the analysis of Questionnaire #2 and the journals illustrated. In point of fact, too much information was collected, making the task of organization quite overwhelming at times. The up-side of this embarrassment of riches, was that it afford triangulation or the repeated verification of data. The next section, <u>Summary of Student Responses</u>, will provide a summary of data collected, beginning with Questionnaire #1.

Student Responses

Questionnaire #1: Your Opinion of Oral Reports (see Appendix J for a complete listing of responses)

At the onset of this unit, Questionnaire #1: Your Opinion of Oral Reports, was administered to determine the students' past experiences with oral presentations. Data revealed that 56% of the twenty-five students had negative experiences. Embarrassment, nervousness, and reading in front of the class were the three common themes cited for these negative experiences. Of the 40%, who had positive experiences, fun sharing of knowledge and the resulting benefits were listed as reasons.

Student Responses

Questionnaire #2: Presentation Project Evaluation

(see Appendix K for a complete listing of student responses)

Questionnaire #2 contains fourteen questions, however they will not be analyzed in chronological order, but grouped to show redundancy and triangulation.

Questions 4, 9, and 13 address the effectiveness of the 4MAT System.

** N indicates the number of participants for that question. **

Question #4: Did using the 4MAT METHOD help you make a better presentation? Explain.

N = 28, Yes = 26, (93%) No = 2

Yes = 26 (93%)

Twenty-six of the twenty-eight students felt that the 4MAT METHOD helped them make better presentations.

Common Themes   (number indicates times mentioned)

- Helped organization - 20

- Helps presentations - 10

- Helps creativity/easier - 8

- Helps learning - 4

- Audience involvement - 2

- Group involvement - 2

Of the two NO, respondents, a common theme was not noted, in fact one comment, "We never looked at the 4MAT wheel because it didn't give us any good ideas", is contradicted by those answering in the affirmative.

Question #9: Did this way of learning help you to understand the material better?

Explain.

N = 26 Yes = 21 (81%) No = 4 (15%) Unclear = 1 (4%)

Yes = 21 (81%)

Common Themes

- Provided understanding

- Provided framework

- Awareness

No = 4 (15%)

Reasons varied, no commonality

Question #13: Please rate this project by circling one of the following:

	Great	Very Good	Fair	Poor	
N = 28	4 (14%)	19 (68%)	5 (18%)	0	

Results show that twenty-three or 82% of the students rated the project very good to great. While analyzing the results, two weaknesses were discovered. The first, the descriptor "Good" had been omitted. The questionnaires were redistributed, students added "Good", then reevaluated the unit. However, students said this addition would not change their choice. The second weakness was due to the ambiguity of the word, "project". While students were completing the questionnaire, someone asked whether it meant their own presentation or the project as a whole. Once that was cleared up, three students said they had rated their own presentation as "Fair", but thought that the project was "Very Good". One student rated his presentation as "Poor", but the project as "Fair".

Interpretation of Questions #4, 9, 13 as to the effectiveness of the 4MAT System

#4 = helps make a better presentation = 93%

#9 = provides a better way of learning = 81%

#13 = effectiveness of the project as a whole = 82%

Questions #5, 6, 7, and 8 were structured to assess student awareness and understanding of learning styles.

#5. What quadrant did you find the easiest to do? Explain why.

N = 27

Quadrant One = 8 (30%) students

Quadrant Two = 7 (26%)

Quadrant Three = 5 (19%)

Quadrant Four = 7 (26%)

The numbers indicate a fairly even distribution of students amongst the four quadrants. Analysis of student response reveals however that students were confused as to what the question actually meant. For instance, a student may have found this the easiest quadrant for a variety of reasons other than learning style.

#6. What quadrant did you find the most difficult? Explain why.

N = 27

Quadrant One = 3 (11%) cited application difficulties/problem "finding" difficulties

Quadrant Two = 10 (37%) cited researching and making presentation difficulties

Quadrant Three = 7 (26%) cited application difficulties, problem finding difficulties

Quadrant Four = 7 (26%) cited application difficulties

Only 37% felt this was the most difficult compared to the combined total of the other three quadrants. Therefore, results from question #6 may be interpreted as supporting the

contention that schools traditionally teach in Quadrant Two. However, as with question #5, confusion as to what exactly is being asked, is apparent.

#7. Did the 4MAT Method make you aware of your learning style?

N = 27 YES = 23 (82%) NO = 4 (18%)

Key to this question are the words 'aware' and 'your'. This question was structured to be closed, in that it does not infer or suggest understanding of learning style, focussing only on awareness. To that end, 82% stated an awareness of learning style but not necessarily their own. Again ambiguity of wording affects the interpretation.

#8. Did the fact the teacher discussed learning styles help you when working on this project? Explain.

N = 27 YES = 20 (74%) NO = 7 (26%)

Although 74% of students felt that teacher discussion helped them, student responses indicated that eleven (55%) confused the 4MAT system process with learning style. Of the remaining nine (45%), they showed an awareness of one's own learning style and that of other's.

Of those responding NO, three (43%) revealed the same confusion, but four (57%), showed awareness of learning styles although they did not see the necessity of teaching to that concept as is evidenced by one student's comment. ". . . we could have done this project without discussing learning styles."

Interpretation of questions #5, 6, 7, and 8

#5 – referring to which was the easiest quadrant: inconclusive results due to ambiguity of the question

#6 – referring to which was the most difficult quadrant: no conclusive findings due to ambiguity of the wording

#7 – referring to awareness of learning style: 82% felt the 4MAT made them aware of learning styles in general, not necessarily their own; questionable wording

#8 – referring to the need for teaching learning styles: confusion noted with the process of the 4MAT cycle and learning styles.

Students did become aware of the concept of learning style and some actually realized what was their preferred learning quadrant. Furthermore, it is important to note that awareness of learning style, not labeling, was one of the goals of the project. Furthermore, in past years students have been taught to make successful presentations based on the 4MAT System without being instructed on learning styles.

Questions #1 and 3 addressed evidence of learning and indirectly support the effectiveness of the 4MAT System.

#1. If I could do my presentation again I would:

N = 28

Two main themes were noted: 1) issues of content, preparation and organization 2) issues related to less reading, more and better activities.

#3. I enjoyed this presentation because:

Two main themes emerged. Students enjoyed presentations in which they were involved, participated and were engaged. Second, students enjoyed those presentations in which they had an interest.

<u>Interpretation of questions #1 and #3</u>

By citing specific elements which are required for a successful presentations, elements

such as those of the P.I.E. Principle, responses from #1 and #3 show that learning had

occurred and attested to the efficiency of the 4MAT System.

Questions #10 and 11 addressed the concept of cooperative learning.

<u>#10. Did the review of cooperative learning help you to work better in a group? Explain.</u>

N = 27 Yes = 18 (67%) No = 9 (33%)

Yes: Eighteen or 67% stated the review helped them to act properly thereby making the

group function more efficiently.

No: Nine or 33% felt the review was unnecessary, as they already knew how to act in a

group.

<u>#11a. Assuming different roles is an important part of cooperative learning. What role did</u>

<u>you find yourself playing quite often? Explain.</u> (Due to an editing error, two #11 appeared.

Therefore, for clarity, this question will be 11a.)

The intent of this question was to provide triangulation for #10. However, hindsight has

shown this to be poorly worded therefore it contributed nothing to advance the purpose of

this project with regards to cooperative learning or the 4MAT System.

Interpretation of #10 and 11a

Response to question #10 showed 67% felt the review of cooperative learning was

helpful whereas 33% felt this unnecessary. Of the nine students who felt a review was not

needed, six were students who have difficulty staying on task when group activities occur.

Furthermore, question #11 did nothing to show that cooperative learning had occurred or was

useful.

Question #12 addressed the issue of student growth.

#12. During the course of this project did you discover traits or qualities about yourself? Explain.

N = 28 Yes = 21 (75%) No 7 (25%)

Yes = 21 (75%) No one main theme was apparent. Students cited growth in the awareness of learning style, group interaction, shyness and tolerance.

No = 7 (25%) Four students stated previous awareness of their traits and three did not notice any change.

Interpretation of Question #12

75% of student felt they discovered qualities about themselves. As an observer, I too noticed student personal, social, and academic growth. Personal and social growth was noted with positive group interaction on a daily basis. Academic growth was seen as students used the 4MAT System to complete their projects as students displayed problem finding skills needed for Quadrants One and Four, and problem solving skills of Quadrants Two and Three. The final presentations provided perfect examples of growth in the three aforementioned areas. Furthermore, the more democratic sharing of skills and ideas of which this author personally experienced each time she had used the 4MAT System, was displayed daily by the students. Triangulation of data with regards to the effectiveness of the 4MAT System was therefore noted with regards to Questions 4, evidence of learning in Question 3, and cooperative learning in Question 10.

Question #14 was a vehicle for triangulation and redundancy.

#14. Teachers are always changing their lessons to make them more enjoyable and more effective. Do you think this project could be improved? If so please list your ideas.

N = 27

Fifteen or 56% felt no improvement was needed. Nine or 33% suggested that <u>one</u> improvement was needed, most notably with regards to the need for more time. Two or 7% students suggested that <u>two or three areas</u> were in need of improvement.

<u>Interpretation of #14</u>

Question #14 provided fertile data supporting triangulation and redundancy. Responses from question #13, which rated the project, were clarified and corroborated. Triangulation to show evidence of learning, as tested in Question #3, was also evidenced in student responses in this question.

Question #11b was included to provide feedback for the teacher.

<u>#11b. Did the use of the journal help? Explain.</u>

N = 28 Yes = 12 (43%) No = 16 (57%)

Yes: Twelve or 43% felt it kept them organized and showed what they had accomplished.

No: Sixteen or 57% felt it was a waste of their time.

<u>Interpretation of #11b</u>

Although 57% of students felt the journal writing activity was a complete waste of time, from an researcher/educator's point of view it was quite the opposite as the journals provided the thick, rich data that is so essential to the qualitative approach. It truly allowed this author to see the world through the actors' eyes. Furthermore, it was the journal which most vividly documented student learning and verified the importance of the 4MAT System as a means to an end; that end being the successful application of the 4MAT System to create interesting and innovative presentations.

Evaluation Tools

<u>On-task Analysis</u>

(N = 27)

Mark distribution	# of students	%
90 – 100%	18	67%
84 – 89%	3	11%
70 – 79%	3	11%
60 – 69%	1	4%
Below 50%	2	7%

Twenty-five on-task analysis occurred over the course of the project. In and of itself, this tool means little, however when compared with the peer evaluation, a more balanced view of student activity and work habits may be determined.

<u>Peer Evaluation</u> (see Appendix F for criteria)

Except for two students who have a history of discord, marks indicate students were on the whole quite tolerant of each other. Initially I feared that with this particular class the evaluation would be used as a popularity contest. However, such was not the case due to 1) the mix of the group and 2) the pre-evaluation 'hype'. As the groups were a mix of student choice and teacher choice, a greater balance was created. Also, before students completed the peer evaluation, great care was taken to impart the importance and value of student input thereby making students active shareholders in the decision making process. During discussion time, numerous students express their delight in having a say in this as it gave them a chance to make sure those who worked got recognized and vice versa.

Presentation Evaluation

Student presentation were evaluated according to 1) performance (Appendix D) and 2) application of the 4MAT System. (Appendix E) As expected, performance marks, ranging from 68 – 92%, were higher than the 4MAT marks, ranging from 68 – 83%. Giving a separate mark for the 4MAT Systems proved beneficial for both students and teacher. For students it indicated which quadrants needed more work; for the teacher it indicated which quadrant needed clarification and guidance. Students were weakest in Quadrant Three, right mode and strongest in Quadrant Two, left mode. Findings from the evaluation, when compared with responses from student journals and Questionnaire #2, point to this teacher's trait for over teaching as a reason for the students' confusion as to the expectations for Quadrant 3 and to a lesser extent for Quadrant Four. Also, students appeared most comfortable in Quadrant Two, left mode, where incidentally they received their highest mark. This may be due in part to the fact that schools traditionally function in this quadrant thereby providing a historical model for students. Furthermore, the use of video provided the teacher and student with another invaluable avenue to review student performance and application of the 4MAT System.

Student Journal Evaluations (see Appendix L for details)

Students were awarded marks based on clarity of writing and insight into academic, social and personal growth. The marks tended to be above 80% due to the depth of reflection. Those receiving lower marks did so mainly because parts of the journals were lost. As mentioned earlier, it was the comments in the journals which gave the fullest picture of what was actually transpiring in the day to day workings of the group.

At the onset of the unit, the issue of a fair allotment of marks was discussed, with several students expressing discontent over the fact some people do not work as hard as the others, yet still get the same mark. Consequently, journal information, the on- task analysis, and the peer evaluation results provided the redundancy of data, which addressed this contentious issue and allowed for these adjustments to be made to student final marks.

Summary of Instrument Interpretation

1. Previous experiences with oral reports

    56% had negative experiences.

    40% had positive experiences.

2. Effectiveness of the 4MAT System

    93% stated it helped make a better presentation.

    81% stated it provided a better way of learning.

    82% stated it was a very effective project.

3. Awareness of learning style

    81% were now aware of learning style, but not necessarily of their own style.

4. Students enjoyed doing presentations using the 4MAT System as they were involved, engaged, and participated in all presentations not just their own.

5. Cooperative learning review

    67% felt the review was helpful.

    33% felt the review was not necessary.

6. Effectiveness of journals

    43% of students felt the use of journals was effective.

    57% of students felt the use of journals was ineffective.

    Teacher response: The journal provided the thickest, richest data. The journals most vividly documented a) student learning.

                        b) verified the importance of the 4MAT System as a tool to create

                        interesting innovative presentation.

c) honoured preferred learning style, while expanding learning in the other three quadrants.

Part VI. Evaluation of Teaching Methods

Cooperative Learning

> "It is a luxury to learn; but the luxury of learning is not to be compared with the luxury of teaching."
> R. D. Hitchcock (Zenkel, 1994)

When I began planning this project I did not intend to teach collaborative learning, my prime concern was the 4MAT System. However, as I researched collaborative learning, misconceptions about this concept surfaced with regards to:

- The difference between 'group work' and collaborative learning.

- That cooperative learning is just one type of collaborative learning.

- Group formation and size.

- Seating arrangements.

- The variety of roles and responsibilities of students within the group.

- The change in status quo for student and teacher.

- The importance of peer evaluation.

Consequently, I made a conscious decision to formally teach collaborative learning, more specifically cooperative learning. I reasoned that if I as an educator, was not clear on the premise of cooperative learning, students would be confused also.

Part II. Lessons 1 and 3 illustrate how collaborative/cooperative learning was introduced and taught. Application of this concept is found in Lessons 3, 5, 8 and 9. Lessons 8 and 9 utilize the 4MAT System in a cooperative learning setting. Data gathered in Lesson 1 alone was truly thick as indicated by the entries from my journal.

In order to gain experience in the 4MAT System, I developed my cooperative learning lesson plans accordingly. In Quadrant One, right mode, an experience was created with the

group balloon structure activity. Quadrant One, left mode, allowed students to reflect, analyze and discuss their group experience. Quadrant Two, right mode encouraged students to integrated their reflective analysis from Quadrant One. Students had been involved, engaged and participating in the first three of the eight parts of the model. Old habits die hard, and this was evident by my heavy handed attempt to teach the concepts of cooperative learning. Armed with Dr. McCarthy's directive for Quadrant Two, left mode, to 'give them facts,' I reverted to a transmissional style of teaching, becoming the embodiment of what Dr, McCarty referred to as the pendulum style of teaching so common in many schools, swinging back and forth in the left modes of Quadrants Two and Three. I had not only neglected the learning styles of the active learners of Quadrants Three and Four, but reduced all students to passive observers.

Hindsight clearly shows that I gave too much detail and for too long. In short, the result was overkill as evidenced by the students' vacant looks, the yawns and the sighs. The cooperative learning aspect of this lesson should have been taught earlier on in the year thereby allowing students sufficient time to become familiar with its process. Also, teaching two such involved concepts in one project was totally unrealistic time wise, as it stretched what should have been a three to three and one-half week activity, to nearly six weeks. Teacher journal entries show that the concepts were introduced on October 27, 1999, and finally completed on October 29, 1999. In all, four - fifty minute periods were wasted discussing a concept which could have been explained in fifty minutes at most! Finally, in my overly zealous, overly protective, effort to properly prepare students, I had given too much background information and almost derailed what had started out to be a highly successful unit.

Displeased as I was about the overall presentation of cooperative learning, I felt that the free standing structure exercise and the ensuing discussion were highly successful and in keeping with the requirements of Quadrant One and the right-mode of Quadrant Two of the 4MAT System and in the future would remain as is. However, the information giving (Quadrant Two left-mode) which looked at the elements of cooperative learning, working roles and social roles, classroom management, and group formation would be only briefly touched on in future. Cooperative learning activities would be structured into Language and/or Social Studies classes thereby giving students opportunities to practice their skills (Quadrants Three and Four).

Another successful aspect of the collaborative learning unit dealt with group formation. Past experience has taught me that this is one aspect of group work which can make or break a project. For this project, the modified group formation concept was used. (see Appendix B) In past years I have used a variety of grouping combinations which were mainly teacher structured. However, none was as successful as the method employed for this project and this can be attributed mainly to the fact students had a say in the make up of their group.

Evaluation of Teaching Methods Relating to the 4MAT System

> "My heart is singing for joy this morning. A miracle has happened! The light of
> understanding has shone upon my little pupil's mind, and behold, all things are
> changed!"
> Annie Sullivan (Zenkel, 1994)

"Notes, everyone backstage for notes!" And so after every performance, the actors gather

en mass to hear the director's observations, hoping that the good out weights the bad, hoping

for a hit, not a stinker. Teaching is not unlike the theatre, as after every lesson, there are the

"notes." Did "the miracle" of which Annie Sullivan speaks, occur in this unit as result of my

efforts? Did "the light of understanding shine upon my little pupils' minds with regards to

their understanding of the 4MAT System?"

Students were introduced to the 4MAT System as I modeled a lesson on types of

punctuation. As they moved through the eight step 4MAT cycle, students were active and

receptive participants for what is normally a very dry topic. This enthusiasm is evidenced by

the responses in student journals. Of this lesson one student stated,

> "This way of learning was very fun and useful and I hope we do this more often.
> Yesterday we did a fun story-reading- punctuation assignment. I thought that it
> was really fun. Today we got in our groups again and made some posters, it was
> fun but not being allowed to use words made it alot harder. I think we should try
> to do some more assignments like this.
> (see Appendix L: Student Journal Entries. For a more complete analysis of Journal
> Responses see Part V. Interpretation of Instruments)

The class' initial introduction to 4MAT was highly successful, however my penchant for

too much detail caused the same problems in this section as it had in the cooperative learning

unit. Unfortunately, well intentioned though they were meant to be, my constant review and

attempts at simplification resulted in boredom for many and confusion for others. This

sentiment is succinctly put in a student's comment, dated November 16, 1999, and echoed by

numerous others. "I think the format (4MAT) Method is good. It's organized but I don't like

going through the steps except the teacher kept going further with details, it got boring and my attention was almost gone."

Furthermore, the responses to Question #6, of Questionnaire #2, What quadrant did you find the most difficult? Explain why., indicates that confusion about Quadrants Three and Four may also have been partly the result of the over-kill of information. To ensure this does not distract from future endeavors, I will be keeping strictly to the K.I. S. S. Rule. Simply put: Keep It Simple Sandra.

Because of the amount of class time lost to the 'over-kill' of information, I became overly paranoid about time, and cut back in some vital areas, most notably with regards to adequate rehearsal time. This fact did not go unnoticed by students, as seven or twenty-five percent of the twenty-seven students, felt more time should have been set aside for rehearsals. (see Appendix L, Question #14) After reviewing my comments on the evaluation forms and the videos of the presentations, I felt this was a valid criticism. Furthermore, it addressed a key element in any successful performance, the dress rehearsal, and was one which I had totally over looked in my obsession with time. With my theatrical background it is inconceivable that I could have overlooked such a vital activity.

In the future, therefore, time will be scheduled so that each group has a 'mini" dress rehearsal with the teacher. Prior to the dress rehearsal, students will receive a copy of an Evaluation Marking Guide: Overall Presentation, (see Appendix D) which will address the elements needed for a successful presentation. Furthermore, this allotted time will give the group a final chance to ensure they are correctly following the 4MAT System.

The use of video to record student presentations is a powerful teaching tool especially when students are properly instructed as to its purpose. Prior to the actual video taping,

students viewed presentations from past years which were later discussed with regards to such topics as movement, clarity of speech, use of props, and entertainment at the expense of content. However, next time not only the final presentation will be video taped, but the dress rehearsal as well. First, it will allow students to see and hear themselves in a less threatening situation thereby reducing camera jitters. Second, students are afforded the opportunity of seeing their performance from the audience's point of view. The video allows students to step back, observe, then correct details which would not have been noticed otherwise. Third, it will allow the teacher a chance to train individuals to operate the camera properly.

This latter reason came about due to a series of unfortunate incidences caused by inexperience wherein the individual operating the camera inadvertently turned off the record button while supposedly taping one group. On yet another occasion this same individual left the video in the camera and one and a half presentations were recorded over, thereby erasing them. Unfortunately, one of those taped over was the best presentation and would have provided a great visual example of a successful application of the 4MAT System.

Students did see the remaining presentations and were on the whole pleased with their performances. As to be expected, there were the usual squeals and giggles and comments about not realizing they sounded or looked like that. However, the viewing was successful in that students saw the strengths and weakness of their presentations. After the viewing, students met in their groups and discussed their performances.

The importance of debriefing in determining the level of understanding is essential in any learning experience. The viewing of the video recordings and the ensuing discussions both with the class as a whole and in individual groups showed student growth with regards to giving interesting and innovative presentations which was after the focus of this exercise.

The 4MAT System is just that, a system which addresses learning styles. It makes no mention of a Wrap-up Party; this was the idea of Patricia and Frank Weber (Weber, 1990) Because of the energy and time commitment on the part of both student and teacher, I believe this is an essential component of this project as it is an occasion to 1) celebrate the students successes 2) to show the students that their work is valued enough to set aside a period 3) to thank the students for their efforts. Although the students expressed varying views on what constitutes a good party, all overwhelmingly endorsed the concept of a wrap-up party. The following student testimonials attest to this.

> "The wrap-up party was fun to have. I think it was a good idea to end the presentations with some thing like what we did. "
> "I enjoyed the wrap-up party because it gave everyone a chance to interact with other groups and talk about your opinions on the presentations."
> "I thought that the wrap-up party was a good way of showing that we did a good job on our presentation and that we deserved it. It made it even better."
> "I really enjoyed the end party! It was really nice to just have some fun and relax after all the hard work we did! It was highly enjoyable and I thank you for letting us have it!"

Another proactive measure that proved to be highly successful and I feel was in a large part responsible for the students staying on tract and being more organized, was my insistence that they complete the Activity for Implementation (see Appendix M), using it in the same manner as one would an outline.

Lastly, this author's attempts to democratize the classroom I felt were successful in that students did have input on numerous occasions: in group formation, topic selection, creativity, self-monitoring of the group and peer evaluation. Student evaluation, normally the sole domain of the teacher was shared with the students in that they contributed a peer evaluation mark. (see Part V. Interpretation of Instruments)

<u>Teaching Methods Conclusions</u>

Question #1 of Questionnaire #2 speaks to the students' point of view, asking, If I could do my presentation again I would: From this teacher's point of view it would read: If I could do my "teaching" again I would:

My response would be, if I could do my teaching again I would:

- teach cooperative learning in September

- teach making group presentations using the 4MAT System for a period of three weeks in mid-October

- avoid 'over kill' of information, and aim for more balance

- simplify the explanation of Quadrants Three and Four

- schedule and video tape mini-dress rehearsal

- include more activities throughout the year which provide opportunities for student to use a video camera

- celebrate student achievement with the wrap up party

Yes, adjustments need to be made, to ensure better teaching, therefore a better learning experience. However, I believe that yes, the miracle did happen. And yes, the light of understanding shine upon my little pupils' mind as was illustrated in Part V.

Part VII. Final Thoughts

Although this project was at times overwhelming and seemingly like a rudderless ship, it proved to be highly successful in all areas.

Meeting the Purpose and Fulfilling Expectations

Student communication and presentation skills using the 4MAT System showed marked improvement in that student application of the system included audience participation, involvement, and engagement. Furthermore, improved organizational and research skills produced presentations that not only entertained but informed. Although students did become aware of learning styles, to say that they understood their learning style, or were capable of truly honouring their own after only one experience, would be untrue. Only through repeated exposure brought about by the teacher during lessons will students reach this goal.

The collaborative learning experience was much more successful than this educator anticipated. This was evidenced not only by student actions during the project, but carry over has been noted in the classroom generally. Furthermore, because of the intensity of the project, students appear to have bonded and are now treating each other with greater respect.

Data collected during a project may prove or disprove a proposed theory. However, projects may produce unexpected results known as uncoverings. For many students this project revealed qualities and abilities which were heretofore unknown to them. These student awakenings, were the true "uncoverings" of this research. However, uncoverings were not the sole domain of the student, but of the teacher also. For this teacher, the primary uncovering was a newfound enthusiasm for teaching. By applying the 4MAT System to daily lesson plan, I have seen "the light in my pupil(s)' eyes" more frequently. In conclusion, the 4MAT System although a highly efficient presentation tool, speaks directly to child–centred

learning, better and more efficient teaching and learning experiences. It could be of this
method that Plato spoke:

> "Do not train youths to learning by force and harshness, but direct
>
> them to it by what amuses their minds so that you may be better
>
> able to discover with accuracy the peculiar bent of the genius of each."

<div align="center">Plato</div>

Part VIII. References

Bogdan, R., & S. Taylor. (1975). *Introduction to qualitative research methods.*

New York: J. Wiley & Sons

Bolander, D. (1987*). The new webster quotation dictionary.* U.S.A.:Lexicon

Publications, Inc.

Brandt, R. (1990). On learning styles: A conversation with Pat Guild. *Educational*

Leadership, October.

Dunn, R., & S. Brigs (1988). Learning styles: Quiet revolution in American secondary

schools. Virginia: *National Association of Secondary School Principals.*

Educational Forum: The Magazine for Professionals. (Spring, 1991). Cooperative

learning. <u>Vol. 17</u>, No. 1.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences.* New York:

Basic Books.

Glesne, C., & A. Peshkin. (1992). *Becoming qualitative researchers: An introductio*n.

White Plains, New York: Longman Publishing Group.

Goldenberg, S. (1992). *Thinking methodologically.* New York: Harper Collins

Publisher.

Goodsell, A. & M. Maher, V.Tinto, B.L. Smith, J. MacGregor (1992).

Collaborative learning: A sourcebook for higher education. Pensylvania: National Centre

on Postsecondary Teaching, Learning, & Assessment.

Johnson, D. W., R. T. Johnson, & C. J. Holubec (1994*). Cooperative learning in*

the classroom. Virginia: Association for Supervision and Curriculum Development.

Johnson, D. W., R. T. Johnson, & C. J. Holubec (1994*). The new circles of learning*. Virginia: Association for Supervision and Curriculum Development.

Kolb, D.A. (1984*). Experiential learning: Experience as source of learning and development*. Englewood Cliffs, NJ. Prentice-Hall.

McCarthy, B. (1994). *Learning differences: Designing instruction with the 4MAT system*. U. S. A.: The Video Journal of Education.

McCarthy, B. (1997). A tale of four learners. *Educational Leadership*, March.

McCarthy, B. (1981, 1987*). The 4MATsystem: Teaching to learning styles with right/left mode techniques*. Barrington, Ill.: Excel, Inc.

McCarthy, B. (1990). Using the 4MAT system to bring learning styles to schools. *Educational Leadership*, October.

Montessori, M. (1964*). The montessori method*. Cambridge, Massachusetts: Robert Bentley, Inc.

Morris, W. (1982). *The Houghton mifflin canadian dictionary of the english language*. Boston, U.S.A.: Houghton Mifflin Co.

Neill, A. S. (1960*). Summerhill: A radical approach to child rearing*. New York: Hart Publishing Co.

Rief, Sandra F. (1993. *How to teach ADD/ADHD children: Practical techniques, strategies, and interventions for helping children with attention problems*. Retrieved from the World Wide Web 5/16/00: http://members.aol.com/susan29/lsa.html

Setley, Susan. 1995. Taming the dragons:Real help for real school problems. Starfish Publishing Co. (314) 367-9611

Schroeder, Charles C. (1993). *"New Students – New Learning Styles"* Change,

Sept/Oct. retrieved from the World Wide Web 5/16/00:

http://www.virtualschools.edu/mon/Academia/KierseyLearningStyles.html

Thatcher, V. & A. McQueen. (1980*). The new webster encyclopedic dictionary of the English language.* New York: Avenel Books.

Tieger, Paul D. & Barron-Tieger, B. (1995). *Do what you are.* Boston: Brown and Company.

Turner, D. & T. Greco (1998). *The personality compass.* Boston: Element Books Limited.

Weber, P. & F. Weber. (1990). "Using 4MAT to improve Student Presentations" *Educational Leadership*, October.

Zenkel, S. S. (1994). *For my teacher.* White Plains, New York: Peter Pauper Press Incorporated.

Part IX. Appendices

Appendix A Employability Skills Profile

The Conference Board of Canada

Employability Skills Profile

What Are Employers Looking For?

Academic Skills	Teamwork Skills	Personal Management Skills

The academic, personal management and teamwork skills outlined in this profile form the foundation of a high-quality Canadian workforce both today and tomorrow.

The Corporate Council on Education invites and encourages students, parents, teachers, employers, labour, community leaders and governments to use the profile as a framework for dialogue and action.

Employability Skills Are Critical

Employability skills are the generic skills, attitudes and behaviours that employers look for in new recruits and that they develop through training programs for current employees. In the workplace, as in school, the skills are integrated and used in varying combinations, depending on the nature of the particular job activities.

The Council recognizes the need for employers to accommodate individual differences and to provide equal opportunities for women, native people, visible minorities and people with disabilities.

How Are Employability Skills Developed?

Employability skills are developed in school and through a variety of life experiences outside school. The student, the family and the education system, supported and enhanced by the rest of society, share this responsibility.

How Does This Profile Fit with the Goals of Education?

All the skills listed in this profile are already either explicit or implicit in general educational goal statements of the provinces and territories. Drawing attention to skills necessary for employability is compatible with and can enhance a school's efforts
to meet its other goals and objectives.

http://www2.conferenceboard.ca/nbec/eprof-e.htm   6/3/99

73

Employability Skills Profile: The Critical Skills Required of the Canadian Workplace

Academic Skills	Personal Management Skills	Teamwork Skills
Those skills which provide the basic foundation to get, keep and progress on a job and to achieve the best results	The combination of skills, attitudes and behaviours required to get, keep and progress on a job and to achieve the best results	Those skills needed to work with others on a job and to achieve the best results

Canadian employers need a person who can:	Canadian employers need a person who can demonstrate:	Canadian employers need a person who can:

Communicate

- Understand and speak the languages in which business is conducted
- Listen to understand and learn
- Read, comprehend and use written materials, including graphs, charts and displays
- Write effectively in the languages in which business is conducted

Think

- Think critically and act logically to evaluate situations, solve problems and make decisions
- Understand and solve problems involving mathematics and use the

Positive Attitudes and Behaviours

- Self-esteem and confidence
- Honesty, integrity and personal ethics
- A positive attitude toward learning, growth and personal health
- Initiative, energy and persistence to get the job done

Responsibility

- The ability to set goals and priorities in work and personal life
- The ability to plan and manage time, money and other resources to achieve goals
- Accountability for actions taken

Work with Others

- Understand and contribute to the organization's goals
- Understand and work within the culture of the group
- Plan and make decisions with others and support the outcomes
- Respect the thoughts and opinions of others in the group
- Exercise "give and take" to achieve group results
- Seek a team approach as appropriate
- Lead when appropriate, mobilizing the group for high performance

results
- Use technology, instruments, tools and information systems effectively
- Access and apply specialized knowledge from various fields (e.g., skilled trades, technology, physical sciences, arts and social sciences)

Adaptability

- A positive attitude toward change
- Recognition of and respect for people's diversity and individual differences
- The ability to identify and suggest new ideas to get the job done creativity

Learn

- Continue to learn for life

This document was developed by the Corporate Council on Education, a program of the National Business and Education Centre, The Conference Board of Canada.

This profile outlines foundation skills for employability. For individuals and for schools, preparing for work or employability is one of several goals, all of which are important for society.

Corporate Council on Education
Core Purpose:

We are a catalyst to engage business and education in partnerships that foster learning excellence to ensure that Canada is competitive and successful in the global economy.

Member companies 1990-98

Air Canada	Imasco Limited/Pharmaprix
Alberta Education	Imperial Oil Limited
Atlantic Canada Telephone Companies	Inco Limited
AECL	Laurentian Financial
Bank of Montreal	McGraw-Hill Ryerson Limited/Chenelière
Bell Canada	National Defence
BP Canada Inc./Talisman Energy Inc.	Noranda Forest Inc.
British Columbia Hydro & Power Authority	Norcen Energy Resources Limited
British Columbia Telephone Company	Nortel (Northern Telecom)
Canada Post Corporation	NOVA Corporation
Canadian Microelectronics Corporation	Ontario Ministry of Education and Training
Canadian Occidental Petroleum Ltd.	Power Corporation of Canada
Chrysler Canada Ltd.	Royal Bank of Canada
CP Rail System	Shell Canada Limited
Crain-Drummond Inc.	Syncrude Canada Ltd.
Dofasco Inc.	Teleglobe Canada Inc.

Employability Skills Profile

Dufferin-Peel Roman Catholic Separate
School Board
General Electric Canada Inc.
General Motors of Canada Limited
Human Resources Development Canada
IBM Canada Ltd.

TELUS Corporation
TransAlta Corporation
TransCanada Pipelines Limited
Xerox Canada Ltd.

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Appendix B Three Steps to Setting up Effective Groups

1. Decide on group size

- 2 - 6 members most effective with 4 being the best

- smaller groups of 2 are most effective for shorter periods of time

- larger groups can cover more material, therefore use for more complex projects

2. Decide if the group should be homogeneous or heterogeneous

- groupings should be "heterogeneous in order to encourage the greatest development effective social skills and to take advantage of the opportunity for able students to become tutors to the less able."

- best method is to vary the grouping, offering both heterogeneous and homogeneous combinations depending on the activity

3. decide on a method to determine the heterogeneous or heterogeneous combinations

- teacher grouping according to ability

- random grouping such as numbering off, choosing someone you haven't worked with before, male and female

- modified "select your own group" wherein students have some choice as to group members

When grouping, it is essential that groups continually change as this will ensure the development of social skills and learning styles.

Educational Forum: The Magazine for Professionals. (Spring, 1991). *Cooperative learning.* Vol. 17, No. 1.

Appendix C Questionnaire #1: Your Opinion of Oral Reports

NAME:_____

Questionnaire: Your Opinion of Oral Reports

a. Have you ever given an oral report? YES   NO

b. Did you enjoy doing this? YES   NO

c. Briefly explain your answer to question {b}.

_____

_____

_____

_____

_____

d. Did you find that completing an oral report was a good way to learn? YES   NO

e. Briefly explain your answer to question {d}.

_____

_____

_____

_____

Appendix D Evaluation Marking Guide: Overall Presentation

NAME: _____

DATE: _____

CONTENT:

	2	1	0
1. Clear Introduction			
2. Interesting Details			
3. Organized Details			
4. Satisfying Conclusions			

PRESENTATION:

5. Clearly spoken			
6. Appropriately paced			
7. Varied and expressive			
8. Effective eye contact			
9. Prepared/Rehearsed Performance			
10. Appropriate gestures			

PROPS:

	3	2	1	0
Effective use of props				

|	2	1	0
Creativity			

TOTAL: [/25]

Appendix E Evaluation Marking Guide: Activity for Implementation

Activity for Implementation

The 4MAT® System will be best understood when teachers actually begin working on their own instruction. Have participants list the kinds of activities they use most often when they teach. Put them on the 4MAT wheel and discuss with a partner which areas of the wheel they least utilize. Have the partners give each other help on possible strategies they might add to their teaching.

Group_____

4MAT Mark
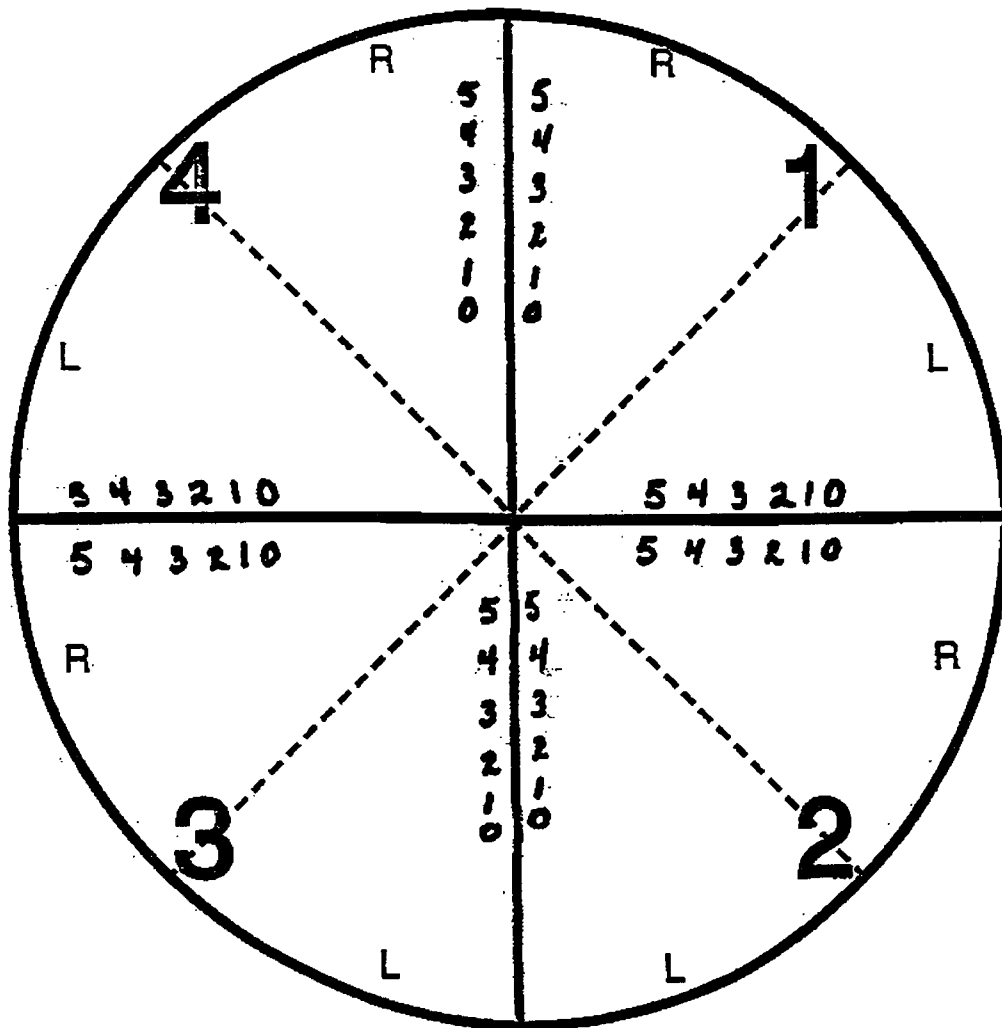
/40 = ____ %

Appendix F Peer Evaluation Marking Guide

PEER EVALUATION

This is not a popularity survey. You were given a job to do as a group, and each member of that group should have played a role in its undertaking.

Grade each member of your group in each of the five categories below on a scale of 0 through 5 (with 5 being excellent).

GROUP MEMBERS >>>> _____ _____ _____ _____ _____

A) Remained on task
   and focused   12345 12345 12345 12345 12345

B) Offered relevant
   input and energy   12345 12345 12345 12345 12345

C) Listened respect-
   fully to others   12345 12345 12345 12345 12345

D) Completed assigned
   tasks   12345 12345 12345 12345 12345

E) Worked coopera-
   tively with all   12345 12345 12345 12345 12345

                  TOTAL=

Appendix G Presentation Project Evaluation Questionnaire

PRESENTATION PROJECT EVALUATION

1. If I could do my presentation again I would:

   _____

   _____

   _____

   _____

2. The presentation I enjoyed the most was:

   _____

   _____

3. I enjoyed this presentation because:

   _____

   _____

   _____

   _____

4. Did using the 4MAT METHOD help you make a better presentation? Explain.

   _____

   _____

   _____

   _____

   _____

   _____

   _____

5. What quadrant did you find the easiest to do? Explain why.

   _____

   _____

   _____

   _____

6. What quadrant did you find the most difficult? Explain why?

   _____

   _____

   _____

   _____

7. Did the 4MAT Method make you aware of your learning style? Yes / No

8. Did the fact the teacher discussed learning styles help you when working on this project? Explain.

_____

_____

_____

_____

9. Did this way of learning help you to understand the material better? Explain

_____

_____

_____

_____

10. Did the review of cooperative learning help you to work better in a group? Explain.

_____

_____

_____

_____

11. Assuming different roles is an important part of cooperative learning. What role did you find yourself playing quite often? Explain.

_____

_____

_____

_____

11. Did the use of the daily journal help? Explain.

_____

_____

_____

_____

12. During the course of this project did you discover traits or qualities about yourself? Explain.

_____

_____

_____

_____

13. Please rate this project by circling one of following:
   GREAT   VERY GOOD   GOOD   FAIR   POOR

14. Teachers are always changing their lessons to make them more enjoyable and more effective. Do you think this project could be improved? If so, please list your ideas.

_____

_____

_____

_____

_____

_____

_____

Thank you for taking the time to complete this questionnaire.

Appendix H Four Learning Types

THE 4MAT° SYSTEM

The Four Learning Types

TYPE FOUR

Dynamic Learners

- Seek hidden possibilities
- Need to know what can be done with things
- Learn by trial and error, self-discovery
- Enrich reality
- Perceive information concretely and process it actively
- Adaptable to change and relish it, like variety and excel in situations calling for flexibility. Tend to take risks. At ease with people but sometimes seen as pushy. Often reach accurate conclusions in the absence of logical justification.
- Function by acting and testing experience
- **Strength:** Action, carrying out plans
- **Goals:** To make things happen, to bring action to concept

Favorite question:
What can this become?

TYPE ONE

Imaginative Learners

- Seek meaning
- Need to be involved personally
- Learn by listening and sharing ideas
- Absorb reality
- Perceive information concretely and process it reflectively
- Interested in people and culture. They are divergent thinkers who believe in their own experience. excel in viewing concrete situations from many perspectives, and model themselves on those they respect.
- Function through social interaction
- They are idea people
- **Strength:** Innovating and imagination
- **Goals:** Self-involvement in important issues, bringing unity to diversity
- **Favorite question:** Why or why not?

Common Sense Learners

- Seek usability
- Need to know how things work
- Learn by testing theories in ways that seem sensible
- They edit reality
- Perceive information abstractly and process it actively
- Use factual data to build designed concepts. They need hands-on experiences, enjoy solving problems, resent being given answers, restrict judgement to concrete things. have limited tolerance for "fuzzy" ideas. They need to know how things they are asked to do will help in "real life"
- Function through inferences drawn from sensory experience
- **Strength:** Practical application of ideas
- **Goals:** To bring their views of the present into line with future security
- **Favorite question:** How does this work?
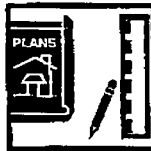
Analytic Learners

- Seek facts
- Need to know what the experts think
- Learn by thinking through ideas
- They form reality
- Perceive information abstractly and process it reflectively
- Less interested in people than ideas and concepts; they critique information and are data collectors. Thorough and industrious, they will re-examine facts if situations perplex them. They enjoy traditional classrooms.
- Schools are designed for these learners
- Function by adapting to experts
- **Strength:** Creating concepts and models
- **Goals:** Self-satisfaction and intellectual recognition
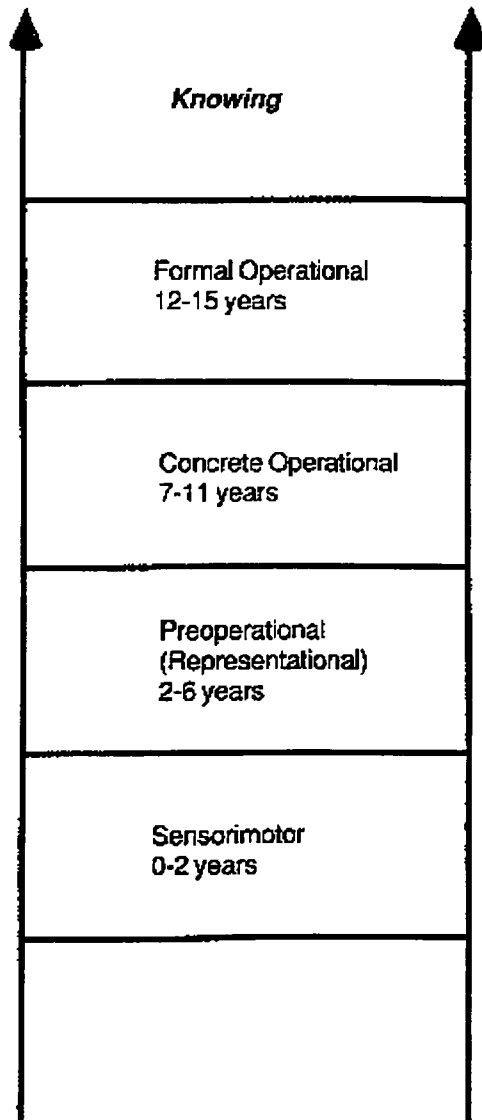- **Favorite question:** What?

TYPE THREE

TYPE TWO

9

The Ladder and The Cycle

Piaget:
Age-related regularities in reasoning processes

Kegan: (on Piaget)
The Evolving Self [3]

Knowing

Formal Operational
12-15 years

Concrete Operational
7-11 years

Preoperational
(Representational)
2-6 years

Sensorimotor
0-2 years

To integrate.
(Emerging from embeddedness, to better relate, to reintegrate)

Reflecting on one's own thinking.
From actual to possible,
"what is"
is only a piece of "what might be".
Generalizability

Embedded in the concrete.
Learning engaged with physical dimensions, the logic of classes and relations.

Embedded in the perceptions.
Life is a series of encounters.
Images of the world played with and manipulated.

Embedded in the reflexes.
Learning through feeling, touching, handling.
Movement toward experimental, exploratory.

Appendix J Student Responses: Questionnaire #1: Your Opinion of Oral Reports
N = 25

I. Question c: Did you enjoy doing this (giving oral reports)?

> Yes, I enjoyed doing this. [10]
> No, I did not enjoy doing this. [14]
> Mixed feelings. [1]

1. YES, I enjoyed doing this.
> Fun
- fun in groups
- fun if using props and costuming
- fun to talk about it and let people hear instead of being read by teacher
- enjoy public speaking
> Sharing
- interesting as able to give my point of view
- got to tell everyone what I learned about the topic
liked researching and sharing my knowledge with class
> Benefits
- easier
- builds confidence
- challenging
- acting out makes it easier to learn, but a lot more work, definitely worth it
> Miscellaneous
- report short, therefore not nervous
- like researching
- gave only one oral report and had a good experience
- get nervous in front of a class at first but try to have an awesome attitude
> 2. Mixed feelings
- didn't like it, but was told I did well

> 3. NO, I didn't enjoy this.
> Nervous/ embarrassed
- don't like standing in front of the class and talking
- when I stand in front of a class, I feel shy and awkward
- nervous
- people staring
- don't like going up in front of the whole class, can only do things like that in front of small groups
- embarrasses me to tell what I think and believe
- it's too quiet
- don't mind being centre of attention but not when made to stand up in front of the class

- find it hard to keep the audience's attention and when I do, I make a fool of myself
- I made a mistake and everyone laughed
- if you mess up people will laugh
- kept fumbling my words and nothing worked out for me
- do well at home but in front of audience mess up and get a lower mark
    Reading in front of class
- when you read it there can't be any mistakes
- I get nervous and messed up in reading when it's my turn
- don't like standing in front of the class and reading my work
- like doing research but not reading it out loud
- don't like public speaking

II. Question d: Did you find that completing an oral report was a good way to learn?   Yes

No

N = 25 YES = 19 (76%) NO = 5(25%) UNDECIDED = 1 (5%)

Appendix K Student Responses: Questionnaire #2: Presentation Project Evaluation

#1. If I could do my presentation again I would:

N = 28

Content, preparedness, organization
- I could have more information on the topic
- use more information and organize better, improve the introduction
- get more props, make a better activity, have less talking (by the presenter)
- let other members of the group talk more, refer to agenda
- make a better conclusion
- be a little more prepared with my ending, and know perfectly who was saying what and when
- do a better conclusion
- make our presentation more organized, arrange a better hook, have more information on our subject
- be more organized, have a person ready to present
- I would practice my parts more
- get it finished on time, not fool around so much, try to stay in my group
- try to rehearse it so we are more organized

Less reading/more, better activities to involve audience more
- read less, involve the audience more, have more information
- I would rehearse more and read off the cards less and explain things more
- I could do my presentation again I would try to remember my lines better. I would remind people not to read as much. I would include the audience more
- I wouldn't read as much and I'd explain the model better and prepare better make sure our group practiced our presentation more. We should also have overhead   projections rather than having a poster as well as making clearer instructions for people doing the word searches or writing the stories
- make it better, not read off a sheet, stand closer to audience, do something different than Jeopardy
- read less, be more prepared, and have more interesting activities and information
- if read less and discuss things with the class
- substitute the word search for a crossword or something else, that would teach them more
- put in more in put (be more actively involved in group)
- do something more fun, make the game show longer
- use more displays and models. I would also rehearse a little more so that we would be very sure on who did what and exactly what to say
- be more expressive and give better examples, do more fun activities
- keep it mostly the same, but I would be faster, read less, involve the audience more and give more directions
- change what we did, talk to the class or audience so much and get them involved more, don't do so much talking
- asked not to be video taped

#2. The presentation I enjoyed the most was:

I have not included student responses as it would destroy the anonymity of the participants.

#3. I enjoyed this presentation because:

N =28

- they didn't read lots, they had interesting detail and pictures, and they had a fun activity
- it was fun and interesting
- I am interested in (topic), they did it will, one of my friends was in it
- I enjoyed (topic) because people always tell me about it, I know psychics as well. Also (another topic) because I've never he(a)rd of it, after all they said I want to go see it
- it was nice to work in a group and it was nice to teach them about something in England
- I loved the hook and the idea of making up our own meaning for the lines on hands. It was well done
- we got to build things, they didn't go on about uninteresting facts
- I enjoyed it because I was not sit(t)ing around and I was involved
- it showed the people put lots or work in to get all the info
- (student) was funny
- most props, best activity
- I liked trying to figure out how to get beneath the iron plate. I also enjoyed their hook
- it told of how (topic) is done, showed what lines on palm mean and involved the audience
- they played a game with the audience
- I had never heard of it and it was very interest(ing) to learn about . It also had lots of good information
- they had special costumes and explained things
- you got to do a g(r)eat activity
- we got to be the teacher and it was fun
- I liked the skit at the beginning and also enjoyed reading the lines on our hand and the costumes they wore. Their whole group was also involved equally.
- It's on an interesting subject, lots of facts
- I enjoyed (topic) because I liked the light show and how they involved the audience better. I also enjoyed how they spoke clearly enough so I could understand them
- I enjoy know(ing) what people think abut superstitions and I knew a bit about them. Plus, it was fun
- it was about something that I was interested in and something that I wanted to learn more about.
- It was interesting, there were special effects
- I have never heard of (topic) before and I found it very interesting
- I got a good mark and I got to see people doing interesting presentations
- because it was creative, well paced and clearly spoken

#4. Did using the 4MAT METHOD help you make a better presentation? Explain.

N = 28, Yes = 26, No = 2

YES

Helped organize
- we're more organized
- it made it so were more organized and complex
- it helped us organize
- it really helped you organize and sort things out
- yes, it was really organized
- yes because it was more organized
- definitely! It helped us to be way more organized and know what we were doing when we were in front of the class.
- it helped you organize
- 4MAT wheel helped me make a better presentation in that it helped me decide what to do in every section and how to do this.
- It also kept us very organized
- it made it more organized
- was a helpful and valuable organizer
- helped organize what we were doing
- helped keep ourselves organized and focused on the 4 learning types (quadrants)
- it organized everything
- organized my information so I could present it easier
- it helped me get organized
- the 4MAT wheel helped a lot, helped us to get organized and prepared
- I think the 4MAT method helped because it helped us keep organized
- it organized the work

Helps presentation
- . . . remember what we need to do for our presentation
- It made all the presentations way more interesting and not so boring.
- it made the presentations funner
- it involved the audience & they didn't get bored as fast
- it helped us make our presentation
- spread out the timing of each activity
- makes presentations more interesting
- it did help us to make our presentations a fair length
- I enjoyed how we made a hook then go into explaining it instead of just going straight into the information
- did help us make a better presentation because we were more organized

Helps creativity/ easier
- . . . it helped us think of ideas for what we could do
- helped us plan what we were going to do

- helped us think of things that we could do for the project
- it helped plan out the presentation. It was really easy to plan it out and carry it out
- it was easier to fill out than just thinking stuff up
- because it help(ed) to give an idea of what to do for activities
- made it easier to do
- you could work on different quadrants at different times, didn't have to work from beginning to end when planning

Helps learning

- helped visualize
- I also think it was easier to learn from
- it helped all earning styles and was fun too
- 4MAT method helped me because it was easier to understand

Audience and group involvement

- really involved the audience
- . . . and to include the audience
- got everyone (in the group) involved
- it also seemed to get everyone in our group involved

NO

I didn't understand how to use it

- we never looked at the 4MAT wheel because it didn't give us any good ideas

#5. What quadrant did you find the easiest to do? Explain why.

N = 28
Quadrant 1
      Active participation

- One was easiest, I liked putting myself in a situation I wouldn't regularly be in. I liked doing skits
- the quadrant that was the easiest was #1. All you have to do is catch the attention of the audience and discuss it
- 1, because I really enjoyed working on the script and it was also very successful in the ex(ercise)
- I found quadrant 1 the easiest because the hook was fun and was something that we knew about and would be easy to explain
- quadrant 1 because I like to act and know how to grab people's attention, I like to entertain
- quadrant one, because we did a skit
- quadrant 1 was the easiest. Because all you have to do is add a catch then some info

Learning styles

- I found quadrant 1 the easiest to do because I also want to know why something is happening or why I am doing something

Quadrant 2
    Quadrant schools traditionally function
- I found Quadrant 2 the easiest because all it is, is gathering information
- 2 because its reading, and gathering information
- I find quadrant two the easiest because I like to do research and writing
- quadrant 2 - because I've had practice with giving information like, a documentary. The mock museum (visual teaching display) was easy and fun and helped people work.
- I thought the second quadrant was easiest because I like teaching and like finding information details
- quadrant 2 because it was easy to look up the information
- quadrant 2 was easiest because we did the mock museum and we didn't have to do much

Quadrant 3
    Referring to their own learning style
- I found quadrant three was easiest to do because I like involving the audience and doing skits and crosswords and things
- I found it easiest to do quadrant 3. I really enjoy finding out how thing are and how they work
- I found that quadrant 3 and 4 were the easiest because they are fun and there isn't much thinking involved
  Referring to their easiest teaching quadrant
- I liked quadrant 3 because it was mostly, the students and we just kind of had to listen and pass out things
- the easiest quadrant was number 3 because all we had to do was tell them and explain to the people what to do

Quadrant 4
    Learning style
- Quadrant 4 because its the Quadrant I'm the best in
I found that quadrant 4 was the easiest because I'm good at putting the final things together and I like to create things
Fun, hands on
- quadrant 4 because it allowed us to have fun
- 4, because it is the most fun
- quadrant 4, because I like hands on stuff

Referring to their easiest teaching quadrant
- 4, because it was the students that were doing the work and it was probably the fun(n)est for the audience
- 4. I just gave instructions then let the audience to these
- 3 - 4 less instructions, they worked on their own

#6. What quadrant did you find the most difficult? Explain why.

N = 28
Quadrant 1
        Application difficulties/Problem finding difficulties
- Quadrant 1 because I had difficulty forming a hook
- quadrant 1 because I don't really ask "why" a lot I just accept things and find out more about them
- 1. It's hard for me to come up with a hook or beginning

Quadrant 2
        Difficulty collecting information/ presentation aspect
- I found that quadrant 2 was the most difficult because I'm not good at getting any extra details of finding extra information
- 2, too many facts
- 2 because I never have but I don't know why
- I found 2 quadrant was the most difficult because I'm not very good with straight information
- 2, I don't like to talk in front of the class
- quadrant #2 was the hardest because there is a lot of research and also a lot of talking and explaining
- the hardest quadrant was number 2 because we had to decide what to put in our teach(ing) and look up and write down lots of information
- 2, because it was the info part and the people probably found it hard to pay attention
        Prefer hands on activities
- two was difficult, I don't like to focus on just 1 or 2 things I like doing more hands on kind of things
- I find quadrant 2 the most difficult because I hate to just sit somewhere and read and study

Quadrant 3
        Application difficulty/Problem finding difficulties
- quadrant 3 because it's hard to get everything just right and that's what gave the most disagreement within our group
- quadrant 3 because we could not think of anything
- the most difficult quadrant was #3. It required the most thinking and you had to make an activity for the audience to do
- 3, because we knew boring information but we kinda sounded a little confusing and our instructions needed some improvement
- quadrant 3, because it was hard to find out what to put in it
- I found quadrant 3 the most difficult because our group was very confused in what to put there
- 3, because I don't like to think

Miscellaneous
- quadrant 3 because we got low marks but I forget what we did

Quadrant 4
     Application difficulties
- Quadrant 4 - I didn't totally understand it
- 4 because they would anticipate our answer
- I find quadrant 4 the hardest because I don't really like oral things
- quadrant four was the hardest. It took so long to decide what to do
- I found quadrant 4 most difficult because we weren't really prepared. The game was unorganized
- the most difficult quadrant was three their because I don't like asking questions to the audience very much
- quadrant two, because we didn't (have) much information to discuss about

#7. Did the 4MAT Method make you aware of your learning style?

N = 27 YES = 23 (82%) NO = 4 (18%)

#8. Did the fact the teacher discussed learning styles help you when working on this project?

Explain.

N = 27 YES = 20 (74%) NO = 7 (26%)

YES
Confusion with the 4MAT System process
- There was some things I didn't understand that were cleared by discussion
- there was examples and we (k)new exactly what to do
- because I would have been clueless about what I was and it would be very difficult to sty on track most of the time if someone hadn't of told me of the learning styles
- I thought about the different learning style and used them in the Ghost presentations
- it helped me to understand things better and helped get ideas for the group.
- I know what I needed to do to get the information straight to my mind
- it made me aware of what I should do when in the group
- it helped to understand what type of things we needed for each quadrant
- it gave us a good introduction and prepared us for what to expect
- it helped because it helped me understand exactly what the learning styles are and what to do to use them in the project
- it made me aware of what we needed to do

Learning style
     Awareness of one's learning style
- I recognized what learning style I was
- it showed me what my learning styles is what my best quadrant would be
- it made me feel comfortable working with my learning style and those of my group.
- she made me see why I'm not a very good worker

Awareness of other's learning style
- because then you know what each person's traits are
- it did because we could discuss the learning styles of the group members and have them work on that quadrant
- it helped us sort of pick out who were good at certain things and then they could help us out on the they were good at
- I got more familiar with the learning styles and helped us decide who would do what
- you could understand other students

NO

Confusion with the 4MAT System process
- not really because it was on the page and I just read it off of the page
- not really, I think I could have figured it out on my own
- Our group didn't understand the learning styles

Learning style application
- not really because each quadrant in a way told us what we had to include, we didn't think, "Oh, well these people are quadrant three's"
- I don't think it really helped us but it was fun to find out what other people's learning styles are
- no most people already knew they were good at information gathering etc.
- not really, we could have done this project without discussing learning styles

#9. Did this way of learning help you to understand the material better? Explain.

N = 26 YES = 21(81%) NO = 4 (15%)

YES

Understanding
- it helped a little because then the tests show whether or not they understand a book, and fun activities gave me a deeper understanding
- I could visualize information and get it straight in my mind
- yes it made it clearer
- it did it organized the material and that helped us to understand it
- it covered all the learning areas and made us understand
- because you handed out a lot of sheets
- at first I didn't understand because I wanted to know why
- I now knew how to do it
- it made it easier
- it was more explained in detail
- yes but I'm not sure

Provided framework
- there were lots of different ideas and ways to express making it fun
- we knew what to do because this was a new sort of learning
- it helped me understand where I had to be what I had to do and why I had to do it
- yes because we knew what to do

- it let me work easier filling out the wheel because I really understood what I was suppose to do
- it showed me what I could use and do with the presentation
- it enabled us to organize. . .

Learning Styles

- it showed that not everyone learns the same way so you need to be able to teach all four ways
- you pay attention because you're actually doing something

NO

Miscellaneous

- not really understand the material better, but it helped me become more interested
- not really because even if the 4MAT system wasn't used I would still learn
- it did not suggest any help for us
- no I didn't understand this way of learning

#10. Did the review of cooperative learning help you to work better in a group?

N = 27 YES = 18 (67%) NO = 9 (33%)

YES

- yes but I was always good at working in a group
- because then we remembered that we should cooperate and not be afraid to ask for help
- yes, if we had problems, we solved it quickly
- it made us all cooperate and learn from each other better
- it told the roles and how to act
- it helped me to try out different roles and give everyone a fair chance. I think it helped all of our group with our problems
- it reminded me of how to work effectively in a group and made working in a group a lot of fun
- because when you work together things go much faster
- because everybody got together and we knew each others limits
- it told us how to act when an argument happened and to prevent one
- because then we knew different ways to handle an argument
- because I made everybody feel equal and (no) one person was just superior
- we didn't argue as much and we didn't fight as much
- it helped me to get along with others so we could get our work done
- because it would help us remember when to share and listen
- I think it did but we had a pretty good group anyway and we cooperated well. But it did help when we were choosing what subject to do
- you knew what role you had to do and what others have to do so you can keep yourself and others on task
- we made sure we listened to everybody's ideas and was fair and thought of everyone when we were discussing what job everyone did or didn't want to do

NO
- I wasn't in a group
- I always work good in a group
- sometimes our group had trouble cooperating
- not really, people forgot or didn't pay attention during the review
- I've worked in groups many times before so I knew what to do
- working in groups depends on your personality types
- I remembered the important group learning in past years so don't think we needed it
- because if I'm with at least one friend I could do it fine already
- I've worked in other groups and in other grades and done far better. Going over cooperative learning doesn't help if the people don't apply them.

#11 Did the use of the daily journal help? Explain.

N = 28 YES = 12 (43%) NO 16 (57%)

YES
- them you can read it and know what you've done
- sometimes it did because it was easy to see who was misbehaving or off topic
- it helped us stay on the right track and helped to stop us from reading too much
- helped me to reflect on the day so I could remember the information or what I was suppose to do
- I already snow about places Area 51 and Roswell
- them you have a record of what you did
- helped me summarize and keep on top of what we were doing
- them we can reflect on what we did
- so we could see what we did and what we were working on
- I think it helped because when we wrote it down we could see what to do different the next day
- a little because if made me think about what we accomplished each day and gave me ideas of what else we could do if we wanted or needed to improve something
- yes and no because it helps me remember what were doing and no because I don't like writing what we did every day.

NO
- not exactly, I know what I did and I things easily
- I already know what I had to do and what I didn't have to do to help our group
- not really. All it did was refrain that we did that day and I could remember what I did
- not really, I was just writing down the feeling we already knew we had
- it just show(ed) what I thought. It doesn't help me
- it didn't really help me, it was just something I had to do, I never even read them over or anything
- no I thought that the journal wasn't a very good idea. I got tired of writing in it
- because it doesn't make any difference
- we just wrote down what we did that day
- because I don't really like to use the journal

- all we were doing was writing down what happened and I had already gone over the days events in my mind
- I did not like the daily journal. I think that it did not help me because I already knew what I did all day
- I think it didn't help and, no offense, was a waste of time
- hard to think of things and irrelevant to the project
- I found it to be a nuisance
- the journal is just extra writing

#12 During the course of this project did you discover traits or qualities about yourself?

Explain

N = 28 YES 21 (75%) NO = 7 (25%)

YES
- I wasn't as nervous
- I found out I can think of lots of stuff when I really want to
- something I learned about myself is that I am a good listener
- I discovered that I like doing hands on things
- I found that I am very judgmental on others ideas
- I'm not as shy as people think
- I noticed that having a friend in my group helped
- I discovered I need to practice talking in front of an audience but that I kept moving the presentation down to the next thing we needed to do. I also discovered that I love to collect a lot of information
- I learned I'm a natural team player
- I didn't realize I was such a people person. I always thought myself to be shy.
- I learned that I'm good at getting information but I can't find extra information
- sort of, Just that I'm not as shy as I thought I was
- I am not afraid to be presenting in format of people. . . . and I like to involve the class
- I like to be the leader if someone isn't taking control I will so the work will get done
- I found out that I can be nice
- because we got improved
- I'm no good at presentations
- I discovered that I was a good leader
- I found out that I need to visualize things I'm way different than a lot of other people. I need to do things myself or else I will feel like it was done wrong or not at all
- I sound different than what I thought on tape
- I realize that even though I tried, I'm still easily P. O.ed (annoyed)
NO
- most of the time I was confused or trying to get organized. I am unaware of any traits/qualities of myself
- I really didn't notice
- I don't think I did discover any I didn't know

- I just saw the things I already knew about my inner self
- I knew I was a leader from past experiences
- I've already found most of those out

#13. Please rate this project by circling one of the following:

GREAT   VERY GOOD   FAIR   POOR

N= 28   4 (14%)   19 (68%)   4 (!4%)   0

#14. Teachers are always changing their lessons to make them more enjoyable and more

effective. Do you think this project could be improved? If so, please list your ideas.

N = 27 Blank = 1

No improvements needed (15) (56%)
- it was good!
- Not really except ditch the journal
- No! You have done a wonderful job. Congratulations!
- no because it is already pretty good and gives people a challenge
- no I thought that the project turned out well. But we could have used more time.
- No, I think that the project was very enjoyable.
- no, because it's interesting and a fun way to give a presentation
- it was good don't need improvement
- no
- no it was great the way it was
- I think this project is fine just the way it is
- No! There not to be improved I thought it was a good idea and the 4MAT was really helpful
- not really
- I don't (think) the project could be improved. I think we should do more presentations like this because they were alot of fun
- no I don't really think it can be improved. It was quite fun but stressing

Some improvement needed
    More time (9) (33%)
- Yes, more time to practice and think of ideas
- yes more time to make a better presentation
- Yes, we could have more time to do our project. We could of also used more time to do our project, maybe one more class
- more time, little bigger groups
- yes make it longer, give the group as much time as they need

- yes, we could have had more time to rehearse or something we were just going by what we remembered
- I would improve this project by giving us permission to have notes
- well I don't think we should be taped and it was no fair that some people's project didn't get taped and that if they all weren't taped that we shouldn't of watched any
- I think instead of writing in the journal we could just have a discussion about what went on that day.

Numerous improvements needed (2) (7%)
- not say what order the groups go in, that way everyone can be prepared, and has to be in case it is their turn, more rehearsing time in class, don't record or tape
- make sure everyone helps the same amount, give different marks depending on how they participate, credit the right people, more time for presentations

Misunderstood the question
- yes, because we needed to share our ideas more and involve the audience more

Appendix L Student Journal Entries

Student Response to using 4MAT System as a teaching tool.

L1. Entry November 9 & 10: Teaching Punctuation Using 4MAT

N = 20 Positive 18 (90%) Neutral 1 (5%) Negative 1 (5%) No entry 8

Positive Response (18)
- This way of learning was very fun and useful and I hope we do this more often yesterday we did a fun story-reading- punctuation assignment. I thought that it was really fun. Today we got in our groups again and made some posters, it was fun but not being allowed to use words made it alot harder. I thing we should try to do some more assignments like this.
- I think that learning like this is fun
- . . . I had fun doing it, it (is) a fun way to learn about punctuation.
- I thought the punctuation learning was pretty good
- I don't like doing punctuation but, I like the way that we did it because it was funner
- I like doing this a whole lot better because we're not just sitting in our desks listening to her talk, learning this way is weird but it's fun
- we did a punctuation activity and I felt how deaf kids learn
- I didn't like the activities very much. I have fun working in a group though. I like to work a group because everyone tries ideas so you will get a better job done.
- Today we went into groups again, and had to create poster for people who were deaf. I liked the second day better because it was more fun to make posters
- I think learning punctuation this way is good, but I already knew punctuation was important and I knew how to use it.
- I really liked it
- learning punctuation this way was interesting but hard because you couldn't use words these last two days, we have learned lots of interesting stuff abut punctuation! We have also learned thing(s) about the different types of learning styles that each o us have. I feel that learning about punctuation in this way is very fun and helpful, and that seeing the work that other students do, really helps me to learn. I enjoy visual things and feel that this is a wonderful way to learn!
- I liked learning this way because it is easier to understand.
- It was good
- I think it was easier to rem(em)ber and learn punctuation this way
- this lesson was really fun and I really like drawing
- we discussed and did dif(f)erent learning styles it was OK
- we should do more like this

Neutral Response
- I think learning this way is okay. It's not the best, but it's not worst.

Negative Response
- I hate punctuation learning, it annoys me and this way was not any funner

L2. Entry November 16: Student Reaction to: 1) the 4MAT System initially (highlighted)
2) teacher's 'over kill' of information (underlined)
N = 22 Positive response to 4MAT = 20 (91%)
Negative Response to 4MAT = 2 (9%)
No input = 6

4MAT is useful as an organizational tool

- I think the format method is good. Its organized but I don't like going through the steps, except the <u>teacher kept going further with details</u>, it got boring and my attention was almost gone

- today and yesterday we worked on the 4MAT method. The 4MAT method is really cool and helped our group alot. Our group has really come along and are doing very well. We have done alot of stuff and this is really fun. I can't wait till the presentation, it's going to be the best

- I do not mind the format (4MAT) method, there are other ways I would prefer also thought that at first there was <u>too much (information)</u> and detail to get organized with our group got some ideas and wrote them on our chart .

- I think that <u>just the right amount of information</u> and detail was give. It helped to think of things easier. We have already decided on what most of our ideas are for the presentation.

- I thought that the format (4MAT) we are using really helps. It made us think about it more and if it wasn't for this format we probably wouldn't have included the rest of the class. We came up with some really good ideas with the help of Mrs. Craven. I thing our presentation will be quite good.

- The 4MAT circle helps alot to organize the work we(')re doing. We've learned about left and right brains. We got quite a bit figured out for our presentation.

- These last few days have been highly productive. I enjoy the new format (4MAT) very much and I'm very excited to present

- today we started working with the 4MAT method and using it to plan our presentations. I'm going to build a model of the money pit. I'm also going to be writing parts of the oral presentation part

- . . . Today in period we reviews the four basic learning type which I thought that it was a <u>bit too much overview</u>.

- I like the format (4MAT) method because it helps you decide what you are going to do.

- I like the format (4MAT) method, because it gives a good structure to give our presentation to the class. I also <u>liked all the detail</u> Mrs. Craven put into the format method because if helped me understand better. I guess I liked the details too because I'm in the second quadrant. It is a lot of fun learning different ways of teaching people.

- We decided on what our hook was going to be and a fun activity for the presentation. (Shows application of 4MAT)

- we worked on the format (4MAT) method I think that they are OK. . .

- I think the 4MAT method is great(,) it is very easy to understand yet very effective. Today we have done alot of work(,) we know exactly what we want to do and how we are going to do it. This project is getting very interesting and enjoyable.

- The 4MAT is kind of confusing for our topic, but otherwise it would be really good for other projects. The punctuation activities were also fun and I hope there is more for actives to come in future. . .

- today we learned how to use the 4MAT method. I didn't really like the guidelines but it did help us to get organized. . . .***
- the 4MAT is great! At first I didn't understand how personal learning styles affected our presentations. Now it is easier to understand with the chart. It would have been better though if we had more time for research. (polite response indicating I spoke too much)
- I think the 4MAT method is really helpful in the organization but our group didn't. . . . I think Mrs. Craven went into quite a lot of detail but it was worth it . it makes everything clearer
- I do like the procedure like this, but I think that you are too detailed and that, that much detail is not needed. Our group came up with lots of ideas to do.
- With the format (4MAT) wheel I liked the way of using it. It really helps us organize the report. . . today we got in our groups and talked about our spots in the research. We then helped each other in filling in the wheel
- I think the 4MAT method is a good way of learning because it helps you organize your data

4MAT is not useful, but confusing

- I didn't enjoy the format (4MAT) system very much because I think it didn't help much and it was a bit boring. (With regards to amount of information given)
- I don't like the 4MAT method because it makes things a lot harder than it needs to be. With our topic the 4MAT method doesn't seem to work. Yesterday we received a sheet on learning styles. That was interesting but confusing because I couldn't figure out which one I am. Today we received a sheet on how to organize our presentation but that didn't go over well with my group. We barely figure out what to do. My group and I want to do a skit for our hook but I don't agree with the content but they won't change it. We have problem. This 4MAT method is causing a lot of unneeded stress.***

L3. Entry November 18: Student Reaction to: 1) the 4MAT System after using to plan

N = 24 Positive response to 4MAT = 21 (87.5%)
          Negative Response to 4MAT = 3 (12.5%)
              No input = 4

4MAT is useful as an organizational tool

- ***we accomplished a lot today. We finished or outline & our script for our skit. Tonight, though I have to type up our overheads. The 4MAT wheel does kind of help organize our information [note the change from "causes a lot of unneeded stress" to "kind of helps"]
- ***today we completed our test, oral report and most of the other thongs on the 4MAT wheel. I think that the 4MAT wheel really helped us alot [note the change from "I didn't really like the guidelines but it did help us to get organized" to "really helped us alot"]
- the format (4MAT) wheel helped lots. It's the whole storyboard. It's in order and neat.
- The format wheel helps alot because you can write on it and remember what you are doing, it is very organized
- the 4MAT wheel does help a lot! I think it definitely will make our presentations more interesting

- the 4MAT system helps to guide us in what we're doing when and gives us a chance to try something new
- the 4MAT wheel helps because it helps organize our data
- we made our hook better first of all. Then we assigned all the sections of the 4MAT system. Then we all suggested ideas upon the model. We are almost done the questions for the extend part of the wheel . People will have to listen to get the answers. (Evidence the 4MAT system in use)
- the 4MAT wheel helped quite a bit in the organization.
- A little helps with organizing the data
- we think in our group that the 4MAT wheel helps
- the format wheel helps alot because if we didn't use it we would still be trying to find out what order thing should go into. It was way easier and neater.
- The 4MAT wheel just makes the presentations funner, I'm not sure if it helped us learn any more.
- It(4MAT) helped because it organized our activities and time in which we are going to present our ghost presentation.
- The 4MAT really helped in the planning of our project
- . . . the 4MAT wheel helped us to get organized faster and we feel it really works
- I don't like the format wheel because its confusing, but it works
- the 4MAT wheel does help. It helps make sure we have done everything. It makes us think how we could make the presentation fun for the class. The wheel helps us get organized
- the 4MAT method does help but its a bit difficult
- the 4MAT wheel really helps and keeps things organized. It was really cool and we did lots
- the 4MAT system helps, but can be confusing at times

4MAT is not useful
- no the wheel doesn't help me
- no I do not think that the format wheel helped at all
- I think the 4MAT wheel does not help much because it gets us confused. I particularly do not like this assignment

L4. Final Entry December 16: Evidence of personal growth, academic and/or social

N = 24 Positive response to 4MAT = 23 (96%)
   Negative Response to 4MAT = 1(4%)
    No input = 4

1. I learnt that I like doing research and making models. I also learned that I like people to be on task
2. the project I thought was very good at teaching me how I handle things or react to things. I have learned how I can change the things I don't like about myself. I realized that I am a good summarizer and leader. I also was very good at keeping my group o track
3. during the project I learn(ed) quite a bit about myself. I learned that in small groups, it is really easy for me to open-up to my group members, and share openly with them. Also I

learned that I am a bit of every quadrant. Also will we be doing some more presentations using the format wheel? Please tell me!

4. I realized during the course of this project that I really enjoy trying to explain how things work. I also started trying to be the leader and when I wasn't I kind of became a pain. I also noticed that I probably should of explained our model which became a poster when it got misshapen.

5. What I learned about myself in this project was I really like to get details and research. I also need to make sure I practice speaking in front of an audience, because I get nervous very easily and to use better eye contact. I also thought it was good working with (names members of the group) but next time I don't think I will work with (name) again because we are good friends and sometimes it is hard to concentrate. I learned quite a lot about myself and I like trying to be a leader.

6. I learned that I have to stop joking around so much and start more on quadrant 2

7. I learned about myself that I'm good at getting information but not getting any extra detail. I also found out that I'm in quadrant 4 because I like being creative and I like making or drawing things

8. I didn't think I would be good orally talking to the class but I surprised myself. I did OK I wasn't so nervous since we were in a group.

9. During the project I learned I was more of a leader during the rehearsing part but I kinda backed off during the presentation. I also found I'm a good info finder and good at keeping other members on track

10. . . . one thing I learned about myself was that I am not really as shy as I and most people think

11. to me it didn't matter whether or not I was with my friends but my group couldn't get along. Me and another group member had just had a fight and we aren't fiends, but amazingly, we saw through our differences and had a great presentation. Even though we didn't get along, they still had great ideas. I learned that I'm more tolerant that I thought and how I get along with others.

12. During the project I learned that I get really frustrated when we aren't doing any work, I seemed to be all the time telling someone to stay on task. I seem to naturally lead the group and keep them on task.

13. From the project I learned that if I had been with only all of my fiends I wouldn't have done anything. I didn't really like doing my presentation because it is embarrassing. But, I loved to sit and watch and listen to other groups due to this project I found that I sound different from what I thought that I sounded on the videotape.

14. I learned quite a bit about myself. I learned that I am not as afraid of presenting in front of other people as I was last year. Also, I learned I like to involve the audience with the presentation and lots more.

15. Something that I learned about myself was that I was able to work better in a group than I thought I could. I also learned that I liked to be a group leader

16. during this project I learned that I am way different than a lot of people in my class. Plus, I realize that I talk too much and should let other people talk during our presentations. I realized that most of the time I have to do things myself or I will think it won't get done or will be done wrong.

17. I learnt that I like to lead and I like to follow too. I learnt that I had to let others do their job and had to cheer them on or else some would just sit there and do nothing. The thing I

learnt the most was to put up with whining and moaning and the negative things that was said in our group.

18. During this project I learned alot about myself. For instance, I never thought that I would have the courage to stand up in front of an audience for that long and not be embarrassed. I have done other presentations but they never had as much detain and information. Another thing I learned about myself is that I learned to take an idea and expand it. I really liked using the 4MAT wheel and think it will come in handy for other presentations.
19. During the project I learned that I was a natural team player and at times a leader. I also learned I am fast paced but I can be patient
20. I learned about the others in the group and I did things I didn't do before
21. in the project I learnt that having a fiend in our group can help you out
22. during this project I learned how to be nice to other people and not to be controlling. I also learned that even if you don't like someone, you can still have fun and get along
23. I didn't learn anything (from the presentation) because I didn't present my project. But I now know I can work hard on something

No insight gained
- I really didn't take notice to what I learned abut myself

Activity for Implementation

The 4MAT® System will be best understood when teachers actually begin working on their own instruction. Have participants list the kinds of activities they use most often when they teach. Put them on the 4MAT wheel and discuss with a partner which areas of the wheel they least utilize. Have the partners give each other help on possible strategies they might add to their teaching.