THE METAPHOR PROBE: A DISCUSSION STIMULUS

by

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We accept this project as conforming
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Table of Contents

CHAPTER ONE

INTRODUCTION

This study was designed to develop and explore the instructional merits of a Metaphor Probe composed of student-generated metaphors. The question posed is whether this technique will promote expressive language and heighten student comprehension of topics with which it is used as well as generate insight into the students' feelings about the topics discussed. This study examined children's attitudes toward various topics which are of interest to them as well as topics which are encountered in the Social Studies Curriculum. The various types of cognitive processes generated from a discussion prompted by the students' metaphors have been compared to those generated from a discussion prompted by a number of typical comprehension questions found in the curriculum. This discussion comparison was examined under two conditions, first using topics of interest chosen by the students and secondly using topics from their Social Studies Curriculum.

The Metaphor Probe is a discussion stimulus composed of a list of student-generated metaphors about a particular topic. The metaphors are arranged by the researcher in order that the students can choose a metaphor which would best describe how he or she felt about a topic. It is when the student explains why he or she chose the metaphor, that a discussion evolves which encourages the students to comment on the explanations or offer alternatives. The Metaphor Probe is similar to

The Metaphor Interview which has provided students with opportunities to explore their own thoughts and feelings as well as the thoughts and feelings of others (Beck, 1981; Snively, 1983, 1986, 1987; Lucas, 1989c). The Metaphor Probe however, carries the process one step further and takes a technique designed as a one-on-one, student/teacher research interview and puts the discussion process into the students' hands. During the discussions using the Metaphor Probe, the students are responsible for choosing both discussion topics and generating the metaphors to be used in the study and also selecting particular metaphors to express how they feel about the topics. This modification may make this probe more useful to teachers than the Metaphor Interview because all students will be able to participate in the process simultaneously, without teacher intervention. Because most students often relate more easily to their peers than to adults, it is hoped that this probe may provide students with opportunities to be more open and honest about their ideas and attitudes. The point of this study was to determine whether the use of the Metaphor Probe would:

- deepen the students' understanding about issues discussed,
- encourage them to value their own opinions and those of others,
- provide teachers with more opportunities for students to talk while implementing students' ideas and choices.

Rationale

Discussions were led by grade six students who used their own metaphors as probes. The discussion process was examined to see if the metaphors would promote the use of more expressive language which would both exhibit deeper comprehension of student-chosen and subject-oriented topics and also generate insight into the students' feelings about the topics discussed. The question posed was whether the Metaphor Probe would do this more effectively than a discussion stimulated by typical comprehension questions made up by the teacher in the same student-chosen and subject-oriented areas. The questions used as probes are similar to questions found in the students' Social Studies text, with some emphasis placed on literal questions which have been found to be the types of questions commonly asked by teachers in classrooms (Sanders, 1966).

Dixon (1975) stated that, "Learning to read and write leaves a child alone with language in a way which differs from his previous experiences. The new activities should be preceded, accompanied, and followed with talk" (p.43). During pre-school years, children have plenty of opportunities to talk, but when they enter school these opportunities diminish as the children progress through the grades (Heath, 1983; Tizard & Hughes, 1984; Barnes, 1975; Halliday, 1977). It has been found that elementary children spend more than 50% of their time listening in class while this time increases to 70% for college students (Willbrand & Rieke, 1983; Goodlad, 1984). Students need

opportunities to engage in various ways of talking on a daily basis. Students especially need to participate in discussions that encourage them to use language in complex ways, such as when students increase their powers of organization and make logical connections between ideas or when they present complex arguments in order to highlight particular pros and cons of an issue (Brown, 1985; Wilkinson, 1980). The Metaphor Probe discussion could provide students with:

- a way of expressing their attitudes about a variety of issues.
- a way to use language which is familiar to them because they chose the metaphors .
- a way to make logical connections between ideas as they examine the similarities and differences between the topic and vehicle in the metaphors.
- a way to make choices and control their own learning environment.
- a way to talk with little teacher-intervention.

The intent of this study is to see if this potential is realized.

Overview

This study involved an analysis of video-taped discussions between three pairs of grade six students from Uplands Elementary School (1990 - 1991) in the Victoria School District # 61. Each pair was made up of

one low and one middle-achieving student; the achievement ratings were determined by their classroom teacher.

The students were asked to vote on two types of topics which they would consider as interesting topics for discussion purposes. They chose Commercials as their favorite topic and Chinese Railway Workers as an appropriate Social Studies topic. Each pair of students was videotaped discussing Commercials for 15 minutes and then Chinese Workers for 15 minutes. The questions that the students used to focus their discussion on the Chinese Workers were taken directly from their grade five Social Studies text. Similar types of questions were made up by the researcher for the Commercials topic. All of the students were then given a 60 minute lesson on metaphors. During this time they were taught the meaning of metaphors, they were given many examples of metaphors, and then they were asked to generate their own metaphors for both topics, Commercials and Chinese Workers. The researcher used the students' metaphors to make a Metaphor Probe which the students used in the second phase of videotaping discussions. Finally, the pairs of students were individually videotaped discussing the same two topics for 15 minutes each. At these final two tapings however, they used as a guide a Metaphor Probe made up of their own metaphors. The students' verbal and body language in the videotapes were analyzed in order to examine and compare both types of discussions using a Question Probe and then using a Metaphor Probe. In both types of discussions, a comparison was made between both the cognitive processes employed by the students as well as the expressions dealing with their feeelings.

Research Questions

The design of the Metaphor Probe as an effective discussion stimulus prompted a number of research questions. The following questions directed the analysis of the discussions in this study.

1. Does the Question Probe or the Metaphor Probe result in richer discussions and stimulate the students to use a greater variety of cognitive processes during those discussions?

2. How does grouping children according to achievement levels, as in this study which groups a middle and a low achiever, affect a group discussion?

3. Is the Metaphor Probe, developed during this study, a workable and useful tool for classroom teachers?

Definition of Terms

Metaphors

The metaphor is the "application of name or descriptive term or phrase to an object or action which is not literally applicable (e.g. a glaring error, food for thought, leave no stone unturned") (Oxford Dictionary, 1976, p. 686).

In the metaphor, **Jean is a feather,** Ortony (1975) would refer to 'Jean' as the topic and 'feather' as the vehicle. Ortony suggests that as children process the metaphor, they would compare all that they know about the topic and compare that information to all that is known about the vehicle. He theorizes that people understand metaphors when they are able to integrate prior experiences related with the vehicle with those related with the topic. This integration allows for the formulation and recognition of new relationships and is a powerful tool for relating new knowledge to old.

Haynes (1975) stated that employing metaphors involves a "eureka" process which results in bringing together unconnected items to gain an insight which is related to neither topic or vehicle. Black (1962) and Richards (1936) also maintained that although metaphors can involve comparisons when they are substitutes for literal statements, the interaction between topic and vehicle in good metaphors can result in a new meaning that transcends both.

Affect

Affect is a feeling, emotion, or desire.

"Affective development is seen in terms of changes in the individual's view of self, of others, and of external reality" (Wilkinson et al, 1980, p.64).

A. View of Self

Things students say can reveal how they feel about issues. Wilkinson (1980) argues that, in general, children under eight years of age, do not explicitly state their feelings about issues. By 10 years of age, Wilkinson suggested that about half the students in his study began to consistently state their feelings and began to be aware of other people in terms of what others had to say, do, or feel. Wilkinson (1980) also found that affect emerged in argumentative tasks but scarcely at all in explanatory pieces. He implied that the two factors affecting the child's use of affect are the child's age as well as the type of task he or she is asked to perform.

B. View of Others

Wilkinson added that by age 13, children develop an empathy for others and are generally fully aware of other people's feelings.

C. Confidence

Affect, in this author's study, is also referred to in terms of confidence. For example, the students may say, "In my opinion..." or "If you could... then we could..." or "I understand what you are saying, but I believe...".

D. Enjoyment

Affect also refers to the enjoyment expressed by the students.

Listener-oriented Speech

The main intention of the listener-oriented speaker is that he or she maintains a good social relationship with the listener (Brown, 1985). Typically, the speakers change the topics often while they smile and nod happily to each other. Brown (1985) suggested that "The rate of delivery is slow, broken into small chunks, with a good deal of pausing" (p.78). The chunks are often structured so that one thing is said about a particular referent at one time, for example, "The dog really ran fast." The speaker often repeats what he already has said and fails to produce an extended argument, justification, or explanation.

Message-oriented Speech

The main intention of the message-oriented speaker is that he or she expresses the message in order to bring about a change in the listener's knowledge. His or her utterance is goal-directed so it is of great concern to the speaker that the listener understands the message correctly. This language tends to be highly structured. Within one chunk, the speaker elaborates about each referent and uses logical connectors such as 'because' and 'so'. For example, the simple phrase, "the dog ran fast", might become, "My excited spaniel darted out of the house when he noticed the door open because my sister, who generally lets him out Saturday mornings, slept in for three hours." The speaker often uses more specific vocabulary such as 'Dad's accountant' rather than 'our helper'. The topic, which is the point of

the utterance, changes less frequently in message-oriented speech than in listener-oriented speech. In message-oriented speech, there is a tendency to use extended argument, explanation, and justification.

Although both types of speech are useful and necessary, Brown (1985) suggested that students need opportunities to learn how to produce a clear description or a complicated argument highlighting the particular pros and cons of an issue.

Vocabulary

Effective vocabulary in this study is measured by descriptive and image-provoking words used to make the speaker's message more clear. These words would especially include the use of the students' own metaphors.

Body Language

Body language can indicate to the teacher whether a student is bored (i.e. when he is constantly playing with something instead of working at something that he or she is capable of doing), or whether he or she is tired (i.e. when he is rubbing eyes or yawning). Things that students physically do while they are interacting with their peers can help a teacher understand how a student feels about his or her partner, him or herself, and the work he or she is doing.

Assumptions Underlying This Study

The following assumptions underlie the approach taken in this study.

1. Students work well in an environment where teachers are:

   a) not overly directive or authoritarian.

   b) willing to encourage students to make decisions such as setting criteria, choosing their own topics, asking questions, giving opinions, and taking control of their own learning while conducting their own discussions.

   c) open to the excitement and knowledge other cultures have to offer.

   d) open to the idea that all children, regardless of their parents' social standing or the children's academic standing, are able to express themselves in their own way. This way should be accepted and respected by teachers and other students.

2. Students need to be accepted where they are, in linguistic, social and cognitive terms (Labov, 1969). A teacher is in a position to set a very powerful example to the students and parents about the respect and rights that people of all races, nationalities, and social classes deserve. One of these rights is that all students need to feel good about themselves and another is that they all need to be able to communicate effectively and think both critically and creatively.

Labov (1969) and Heath (1982) suggested all children need more opportunities for using language for complex purposes, such as in making comparisons - a skill which is necessary for implementing metaphorical speech.

The Metaphor Probe described in this study recognizes the importance of using students' prior knowledge to formulate metaphors which are relevant to each student. When a student understands a metaphor, he or she utilizes his or her prior knowledge to connect the topic and vehicle and make new meaning as a result of the connection. If the teacher accepts and respects all reasonable answers and integrates students' ideas into the curriculum, the teacher is indicating in a very direct and meaningful way that students' opinions and ideas play a very integral part of planning the school day.

3. Students feel both affirmed and excited about learning in situations where they feel encouraged to risk stating their opinions and sharing their feelings. Teachers need to organize situations where students play a part in deciding what questions will be asked. Students also need to know that their answers will be listened to. Students need opportunities to speak in different ways. They need to learn: to grapple with important topics, to think critically, to argue, to clarify their ideas, to express their opinions, to hear others' opinions, and to make comparisons.

CHAPTER TWO

LITERATURE REVIEW

This chapter presents a review of literature which outlines various explanations of metaphor, the process involved in employing metaphors, how researchers have applied that knowledge in research situations, and the implications this research has for teaching.

METAPHOR EXPLAINED

Williams (1983) suggested that:

> Metaphorical or analogical thinking is the process of recognizing a connection between two seemingly unrelated things. ... A car engine and a human body are very different, yet in some ways the car's fuel pump functions like a heart. An understanding of the similarities and differences between the fuel pump and the heart can contribute to the understanding of both mechanisms. (p.33)

Metaphorical speech clarifies language and thought in a most unique way. Beardsley (cited in Ricoeur, 1976) stated that "metaphor is a poem in miniature" (p.46). When speakers use metaphors effectively, they employ a great linguistic economy and, as in poetry, the speakers or writers really mean much more than their words literally state. To illustrate this, suppose that a child read a certain poem and commented, "that poem seems to have silked out". If the child were

provided with an opportunity to elaborate why he or she had chosen that specific metaphor, an in depth discussion could unfold around these two imagery-laden words (Leacock, cited in Cazden, 1972). For example, the child might refer to his or her experience with silk and how it flows or feels slippery when you touch it. Then the child might explain how the poem is like silk by the way it 'moves along' or by the way it makes him or her feel. Ortony (1975) added that although a metaphor could theoretically be called a comparison, this explanation understates its pedagogic value. Words must be flexible enough to cover a wide range of possible implications. Metaphors fill a deficiency between language and logic by adding a richness of detail - a vivid imagery. In other words, metaphors are language bridges which link, as in the previous example, a child's logical way of understanding a poem with a word which is part of his or her background. The child uses the words "silks out" to zero in on a specific feeling from which he or she can elaborate or use as a frame of reference, a whole body of experience which is meaningful to him or her.

Ortony (1975) referred to a metaphor as consisting of a 'topic' and a 'vehicle'. For example, in the metaphor, "In the classroom I'm a student woven into place", Ortony would refer to the student as the topic and woven into place as the vehicle which would carry the topic to new meaning. This author would prefer to think that a more accurate description of what happens between the topic and vehicle is that the 'action' is free to move in either direction - either toward the topic

or the vehicle, or perhaps in another direction altogether. For example, in the same illustration, the final imagery that could evolve is really not a 'student' nor a 'weaving', but, perhaps an image of a particular incident where one felt powerless, such as during the instant before a vehicle accident. In this instance, a person could feel the confinement of being woven into an inescapable situation. True, before one would arrive at that instant, one would have to 'search' for similarities and differences between both topic and vehicle but that process only serves as a stimulus for arriving at a new meaning common to one's own experiences. In other words, because people search for similarities and differences through their own experiences, their final meaning will be unique. For example, using the same metaphor, **student woven into place**, consider the listener being a weaver who weaves for pleasure - one who experiences great peace while weaving. He or she might conjure up in his or her mind the image of a student who feels harmoniously and happily blended into a classroom of colorful and helpful students. This perception is in contrast to the feeling of being helpless or bound by a situation beyond one's control. These contrasts in the ways people perceive metaphors are what makes talking about how one arrives at a metaphorical meaning such a potentially rich process. These discussions would provide students with opportunities to explore and to share their past experiences and to make connections and comparisons among those thoughts.

The process of connecting information between the topic and vehicle also allows students to think about old experiences in a new way. The students would only be considering information about the vehicle which is related to the tenor. This integration of information would encourage the students to arrive at a new meaning involving information from both topic and vehicle or any other thoughts that this union would evoke. If students are allowed to share these thoughts, the discussion could add new dimensions to the students' ways of thinking about the same thing. The process can be fun, exciting, revealing, and challenging because it pushes students to think beyond one experience and beyond their own experiences. They must compare, contrast, connect, clarify, accept or delete, and then orally represent the process and findings.

When students choose a metaphor, they illuminate one aspect of their thoughts rather than other aspects by focusing on one idea of comparison while ignoring other ideas. For example, if a student sees him or herself as a harmoniously happy student woven into place, then that is the aspect of the metaphor on which he or she concentrates. Other aspects such as feelings of confinement are blocked out of the range of possibilities. Therefore, although a student may be able to more fully elaborate about his or her experiences through the one metaphor, that one idea could be somewhat confining because the student generally would not consider other metaphors at that particular time. However, the problem of this confinement can be resolved by having students discuss their metaphors in a group. With this experience,

students would be exposed to many different metaphors and ideas which would expand their own understanding of a concept or idea.

Searle (cited in Winner, 1988) suggested that in metaphorical speech, what the speaker literally says and what he or she means are two different things. The listener must infer certain things in order to understand the meaning intended. For example, the statement, "I managed to finish the project", suggests I had completed a task and I had difficulty in doing so. The statement means quite literally what it says. In the metaphoric sentence, **"The crazed murderer is a butcher"**, (Winner, 1988, p.5), the speaker probably had no intention of meaning that the murderer was a butcher by profession. The intention of the speaker is to convey the metaphoric meaning which, in this case, could be that the murderer carved up his or her victim with little respect for, or with precise knowledge of, the human anatomy.

Children, at a very early age, classify their world using words which are overextensions based on similarities. For example, they might say **cornflakes** for 'freckles' or **ball** for 'all round objects' (Winner, 1988). Preschoolers take delight in playful metaphoric renamings, whereas older children take an interest in trying to understand extended analogies. The incidence of this spontaneous use of metaphorical language appears to decline in elementary school children. While Gardner, Kircher, Winner, and Perkins 1975) reported school children stop using metaphors and lose interest in them, Pollio and Pickens (1980) stated that similar results were not found in their studies. Rather, Pollio and Pickens found that "a preference for both

trite and novel comparisons increased with age" (p.105). If students actually do use fewer metaphors as they grow older, is the reason for this due to lack of interest on their part or lack of encouragement by their teachers? In other words, do teachers provide opportunities and reasons for students to use metaphors?

TEACHING METAPHORS

Silverman, Winner, Rosenstiel, and Gardner (1975) found that ten-year-olds could be taught to produce novel metaphoric comparisons. Students at this age produced analogies most effectively with the assistance of a domain probe such as one which is comparable to the Metaphor Probe used in this particular study. In using a domain probe, a child could be asked to explain how, for example, 'learning is like building a fieldstone wall' as opposed to asking 'what is learning like?'. The fieldstone wall would act as a domain of comparison.

Sanders and Sanders (1984) argued that classroom teaching generally focuses on learning which concentrates on the left hemisphere of the brain. They suggested that,

> Left brain information-processing involves logically classifying data and analyzing the data for details. Right brain information-processing involves taking in "data holistically - as in a picture - and using life experiences (images and metaphors) to create conceptual (or common-sense) understanding of the data.
>
> (p.17)

In schools, students are encouraged to apply analytical and classificatory ways of thinking (Heath, 1983). How can teachers encourage students to examine ideas and concepts in a more holistic way, that is, to examine a concept in its 'wholeness' rather than its parts, and then find meaningful life experiences which may relate to that concept? To illustrate this, suppose that a grade six class who was reading the book, Island of the Blue Dolphin, experienced problems understanding how the main character dealt with surviving the ordeals of a deserted island. The teacher might lead a discussion involving the students' past experiences with loneliness, a concept most children have experienced to some degree. The discussion would set the stage for a guided imagery lesson which would lead the students from perhaps a familiar lonely situation to a deserted island which would require that the students use newly acquired skills with which to survive. The guided imagery experience encourages them to take an imaginary journey. This process encourages the students to relax, focus on a particular idea, and experience different places and things. For example, the teacher could read a story about sailing in the Pacific and becoming stranded on an island. By discussing a somewhat familiar concept (dealing with loneliness), and comparing it to an unknown concept (having to develop survival skills), a new understanding of the unfamiliar concept could evolve.

After the students experienced the guided imagery lesson and established a mind set for this comparison of known and unknown concepts, they could be taught to understand the process involved in

understanding metaphors which involves a comparison between the topic and vehicle. A direct method of teaching metaphors could be used in which the strategy of teaching the metaphor emphasizes the processes of comparison because students need to hear the processes explained in detail (Thompson, 1986). The teacher might begin by saying,

> Suppose you had to explain the term 'deserted island' to a classmate who just had his or her friend move away. You would probably list all of the similarities and differences between being on an a deserted island and losing a friend. Comparing and contrasting of things is common when we communicate with one another. However, sometimes when things are compared, they look completely different at first glance. For example, suppose that someone said that a being on a deserted island is an **ugly duckling.** Can a deserted island be an ugly duckling?

To illustrate both the similarities and differences between the topic and vehicle as well as to demonstrate the cognitive processes involved in doing so, the teacher could use a chart. In one column, the students could list all that they know about the Ugly Duckling from the familiar fairy tale. In the right column, the students might list the following words and phrases: alone, lonely, abandoned, poorly fed, sad, made to fend for itself, dark in color, and picked on. The teacher could then say, "Now, how can a deserted island be an ugly duckling?" The students would be asked to make a column entitled Deserted Island in the left column, opposite to that of the Ugly Duckling. In the new column, the students would be asked to examine the associations listed in the opposite column and see if they were associated with the deserted island as well. If there was a

similarity, the teacher would mark a checkmark in the new column, if there was a strong similarity, the teacher marked two checkmarks, if no similarity existed, the teacher drew a line. See Figure 1 for a hypothetical example of a comparison chart.

Deserted Island	The Ugly Duckling
**	alone
**	lonely
**	abandoned
*	poorly fed
*	sad
**	made to fend for oneself
__	dark in color
__	picked on

* indicates similarity, ** much similarity, -- no similarity

Figure 1. An example of a comparison chart for teaching the topic and vehicle in metaphors.

The students would discuss the similarities and dissimilarities, explain why they had chosen them, and then add more of their own. Then small groups could be formed to repeat the process using a new topic and vehicle. Teachers need to develop creative learning situations

which involve analytical, holistic and creative ways of thinking. In this example, metaphors were used to bridge the gap between a known and an unknown concept. Students made themselves a part of a deserted island through guided imagery and connected their familiar thoughts about loneliness to thoughts which might be experienced on a deserted island. Then the students were asked to consider the cognitive processes involved in comparing the term deserted island with another familiar word which has a number of similar characteristics.

Williams (1983) defined "Metaphorical Teaching" as using metaphors which are familiar to students for the purpose of teaching new concepts. He stated that Metaphorical Teaching should:

- be holistic in that it "focuses on processes of recognizing and understanding patterns and general principles which give meaning to specific facts." (p.59).
- "recognize that new information doesn't need to be taught from scratch" (p.58).
- make use of what students already know.
- make explicit the process by which learning occurs, thus, students can knowingly learn a strategy through which they may make connections between the new and old.
- give learning a sense of integration rather than have students memorize information and then have them keep it separate from their lives.

THE METAPHOR INTERVIEW:

METAPHOR INTERVIEW AS EMPLOYED BY SNIVELY (1983, 1986, 1987)

Beck (1981) developed the Metaphor Interview as a means of exploring cultural thinking habits, in particular, to identify cultural frameworks. For example, she found Northwest Coast Indians used salmon as a metaphor for life experiences. Snively, (1983, 1986, 1987) further developed the Metaphor Interview into an educational research tool and employed it both as a way to define students' preferred orientations towards science concepts and as an instructional technique focusing on the metaphorical content of children's speech. She observed grade six students from both native and non-native backgrounds in a coastal fishing village. Children's beliefs and values were considered in a pre-instructional setting to determine how each student perceived various seashore concepts.

Snively (1987) suggested that little attention had been given to the importance of how children's beliefs and values influence their perceptions of the world. Snively examined the interplay between students' cognitive and affective domains by looking at their orientations towards seashore relationships. She suggested that orientations comprised of students' beliefs and values are more easily examined by listening carefully to their metaphorical speech than by examining students' responses to tests or conventional interviews. Snively adapted Beck's (1978, 1981) Metaphor Interview as a means to illuminate children's beliefs and values about seashore relationships

so that their preferred orientations could be extended to include both a knowledge of beach ecology and an awareness of a variety of orientations. It was found that their preferences included one or more of the following orientations: scientific, utilitarian, aesthetic, spiritual, recreational, or no particular preferred orientation.

Snively also recorded students' responses as they observed various forms of marine life. For example, students metaphorically described barnacles which were feeding on plankton as being similar to a **"rake"**, **"tongue"**, **"feather fan"**, and a **"fisherman"** (Snively, 1987, p.185). The students' own metaphors were then incorporated into an instructional strategy designed to teach scientific concepts about the seashore. For example, "A barnacle is a fisherman" (Snively, 1986, p.190) was chosen as a utilitarian metaphor designed to teach predator-prey relationships. In this example, the barnacle, with its feathery appendages which are used for sweeping in its food resembles a fisherman throwing out a net to catch fish. Because the metaphor would appeal to a utilitarian student living in a coastal fishing community, the lesson would be appropriate and meaningful to the student.

In order to both direct the students' attention to another orientation, such as one with an aesthetic nature, and also to focus on an ecological item such as a tidal cycle, Snively (1986) used an aesthetic metaphor such as, **"the seashore is a musical production"** (p192). Students discussed various ways the seashore could resemble musical instruments, some of which were **"birds as singers"**, **"waves as drums"**, and **"seagulls as violins"** (p.192). The process involved in

thinking through the metaphor, **seashore as a musical production** allowed the students to move between orientations. The process of comparing a **fisherman** to a **barnacle** encouraged students to link their abstract thoughts to concrete items. The results provided teachers with many more "entry points" into the students' ways of 'making meaning' (p.192).

The most significant part of the teaching strategy was when the students were asked <u>why</u> they had chosen to use a particular metaphor to express how they had perceived a certain form of marine life (Snively, 1986). At this point, students had to indicate their reasons for making their particular choice. For example, if the students described a **barnacle** as a **house**, they were asked to explain what would be its roof, doors, walls, and basement. Then students were asked to explain <u>why?</u>. Next they were asked to explain when they thought the doors would be opened and when they would be closed and then, once again they were asked to say <u>why?</u>. It was when the students explained why they had made that particular choice that their explanations became portals or entry points into the students' minds. The students were forced to recall and express everything in their prior knowledge that would relate to a house, compare that to their knowledge of barnacle, and then visualize a barnacle in that new context - as a seashore type of house.

THE METAPHOR PROBE AS EMPLOYED BY LUCAS (1989c)

This was the author's pilot study to the Metaphor Probe. In this research, (Lucas, 1989c) the Metaphor Interview was employed as a means of providing students with an opportunity to expand both their knowledge of seashore relationships and functions of language use. This study, similar to that of Sniveley's (1987), consisted of using children's metaphors to examine and expand their understanding of seashore relationships. The study also examined children's metaphors as a means of reflecting their reading attitudes. The metaphor interview proceeded as follows:

1. After a brief discussion about metaphors, each student was asked, "How do you see the seashore?". Then the student was asked to explain why. This was an opportunity for the student to generate his or her own metaphors.

2. Each student was presented with a set of cards with written responses similar to that of Snively's (1987) five orientations previously mentioned (scientific, utilitarian, aesthetic, spiritual, and recreational). Although the students' own metaphors would have been more appropriate, time allowed only for the use of a set of metaphors which were adapted to represent the five orientations just listed. Two examples of the orientations were 'community' to represent a scientific orientation and 'cannery' to represent a utilitarian orientation.

The students were asked to choose one or more metaphors from the list provided and explain <u>why</u> they had chosen it (them) to represent the seashore. They were then asked to compare the remaining unchosen metaphors with the way they saw the seashore and explain <u>why</u> they could represent the seashore.

3. In order that students could be exposed to orientations other than the one for which they had shown preference, they were presented with large seashore pictures, each focusing on different marine concepts. Each marine concept was discussed with the use of metaphors with which students should have been familiar. For example, 'community' was illustrated in a 'human and fish' scene and 'cannery' was illustrated in a scene with 'fishing boats'.

4. To see if the metaphor instruction had an effect in changing the students' original perception of the seashore, students were presented with a different set of metaphors which were again similar in meaning to those used in the first set. For example, 'town' replaced 'community' and 'factory' replaced 'cannery'. Once more, students chose metaphors and explained <u>why</u>. It was observed that the students consistently chose another orientation which differed from that of their original preference which suggested that the metaphor interview affected their interpretation of seashore. For example, two grade four students had chosen recreational orientations as their preferences before the metaphor instruction. After the instruction, both students added scientific and utilitarian orientations to their preferences. They made comments such as "The seashore is a factory and town because

everything happens like food, life cycles that happen. Because it's community, birth, families" (Lucas, 1989c, p.24).

5. In the second phase of the study, a similar procedure was used. However, the focus was shifted to reading attitudes rather than orientations towards the seashore. The objective was to present students with various metaphors which represent how students felt about reading. The orientations were modified in order for them to be more appropriate for reading. For example, 'scrubbing floors', 'watching a cozy fire', and 'reading as a list of words' were included as metaphor choices for students. A second similar set of metaphors served as a means of double-checking students' feelings. Once again, students chose between two metaphors and explained WHY?

The results suggested that the Metaphor Interview is a useful tool through which students can express their feelings and orientations toward certain topics such as reading. When a low-achieving grade seven student commented, "reading is an art show because there are so many paintings behind each story and so many stories behind each painting", he was employing very poetic and insightful speech to express his attitudes toward reading.

Two important modifications have been made to the procedure of the present study (The Metaphor Probe, 1991). One change is that the metaphors have been elicited from the students. If students are to relate closely to metaphors, the metaphors must be a part of their world and experience. Snively (1987) found that children's metaphors reflected where they lived. For example, children who lived in larger

cities had a tendency to choose "warfare" types of metaphors to describe marine life while students who lived in a small coastal fishing village chose metaphors related to items found in nature. As different children will relate to different metaphors, it is important that they work with metaphors that are meaningful to them.

The second modification that has been made to the present study (The Metaphor Probe, 1991) is that the students were presented with metaphors in a variety of ways. For example, instead of simply choosing from two or four metaphors, they were presented with questions such as:

1. I am to the seashore as ...

   a. a story teller is to a story

   b. a listener is to a story

   c. an animal is to a story

Then they were asked to explain, WHY? (Snively, 1987)

PROCESSING METAPHORS DURING A METAPHOR INTERVIEW

In the previous studies, (Snively, 1983, 1986, 1987 and Lucas, 1989c) students were encouraged to use their own metaphors to express their thoughts about the seashore. Through this process, students provided the researchers with 'entry points' into their ways of perceiving their world of seashore and reading. Metaphors can act as catalysts in that they expand children's thinking. For example, children could extend their idea of 'seagull' to include that of a

'robber' (Snively, 1987). By involving the students' beliefs, prior knowledge, and culturally familiar ideas, the students' own language can be used to form a bridge and construct a new meaning between old and new information. The students are left to take risks - they are encouraged to express how they feel because all reasonable answers are accepted. Students are encouraged to make choices in deciding what topics they wish to discuss and what metaphors would best express how they feel. Then they are asked to substantiate the reasons for choosing that particular metaphor.

In a setting where everyone's decisions are respected, students are more likely to take control of their learning. Metacognitive skills, which involve being aware and in control of one's cognitive processes, are developed when the ability to use self-regulatory mechanisms such as planning, revising and self-evaluating are recognized and implemented by students (Baker & Brown, 1980; Paris, 1990). Students need to be aware that they are using prior knowledge and their own reasoning to choose metaphors. They need to understand the cognitive processes involved in linking similarities between the tenor and the vehicle. They should understand the process that is involved in making the choices.

After students were taught to use metaphors (Lucas, 1989), their language changed from being listener-oriented and social to being more message-oriented and less social (Brown, 1985). The term 'social' in this context means that the speaker is talking only to be sociable and he or she is listening politely but not actively involved in

contributing to any real message. This type of speech can be useful. However, in a classroom situation, where the teacher is trying to stimulate a conversation about important issues, a more message-oriented conversation would be more appropriate. In the context of the study (Lucas, 1989c), this 'social language' indicated that the speakers did not get involved in the conversation but rather they participated only at a 'surface level', wherein the speakers responded to each other more out of politeness than out of interest.

In contrast, a message-oriented conversation would seem to have more of a purpose. The speaker is trying to convey a particular message and may need to rephrase statements while the listener may question, try to interpret the message or argue with the first speaker's point of view. In the study (Lucas, 1989c), the listener-oriented speech was marked by a slow delivery rate, much pausing, and short narratives related to the students' own experiences. The message-oriented speech was marked by a move away from partial information, egocentrism, and concrete details, toward an awareness of the other speaker. Message-oriented speakers tried to bring about a change in the listeners' point of view which would suggest a deeper involvement between the speakers. For example, Rhonda, a low-achieving grade four student, originally understood the seashore from a very egocentric perspective (Lucas, 1989c). Initially, she commented, "It's a beach, it's warm and nice." She refused to accept some metaphors because she didn't like them. For example, she said, "Yeah, I guess the seashore could be a cannery but no, I wouldn't say that because I

don't like seafood." (Lucas, 1989c, p.14). After instruction, Rhonda said, "There are a lot of fish in the water. A town is busy. Lots of people." She referred to the fish and people as partners in play which suggested the fish were a part of a community. Rhonda kept clarifying her thoughts through her speech until the researcher understood the message she had intended to convey. Her speech could be classified as message-oriented.

Rhonda's initial egocentric view of the seashore would follow Britton's (1970) idea that children's functional use of expressive language is to informally try out personal ideas. As children experience opportunities in which they develop cognitively and linguistically, their language becomes more transactional in that they use language to explain or generalize. Students need more opportunities to develop this type of language. Rhonda's language became more interactional in function when she was able to relate to other seashore elements such as the relationships between fishes and the dependency of people upon fish, when she said, "The seashore is a town. It has many fish around. They might do something to get other fish from other ones. They play with each other - people play in it, fish play in it . People kill fish to eat them." (Lucas, 1989c, p.16).

The metaphor interview encouraged most of the points Moffatt and Wagner (1973) considered important in an effective and collaborative setting. Such a setting requires a pooling of knowledge among students and teachers, that students serve as an audience for each other, and that risk-taking is encouraged.

If students both accept each other's ideas and feel free to explore their thoughts and those of other's, they may tend to be more honest about their feelings. During the interviews conducted for the study (Lucas, 1989c), the students combined a sense of freedom with a sense of choice, the process of which could make the metaphor interview an effective way to examine students' attitudes. For example, Robin, a low-achieving grade four student chose specific metaphors expressing how she felt about reading and then proceeded to explain <u>why</u> she made that choice. Her explanations raised many questions about her attitudes towards reading when she stated that "reading" was both a "dictionary" and "words" (Lucas, 1989c, p.17). Could that explanation suggest Robin understands reading as a compilation of a number of isolated words?

Snively (1986) and Lucas (1989c) presented students with a choice of metaphors and asked them to explain why they had chosen those particular metaphors. It was during the process of answering why that the students became more explicit about their feelings and then were able to make connections between the metaphor provided to them and the way they felt. For example, a low-achieving grade seven student expressed how he felt about reading when he said, "It's a **treasure** when it's enjoyment", then he added his own metaphors in comparison, "or like a **lottery ticket** finding a book I like. It's like a **totem pole** - books stacked up to read" (Lucas, 1989c, p.21). The student used metaphors to indicate the possibility of some frustrations he experienced reading texts and stories he didn't enjoy. Another

low-achieving grade seven student perceived reading quite differently when he said, "reading is an **art show** because there are so many books to read, so many **paintings** behind each story and so many stories behind each painting. Painting is a story behind it." (Lucas, 1989c, p.22).

As the students became more in touch with their feelings, they became more representational (Moffatt & Wagner, 1983) in their use of language and more distanced from the researcher as they mentally delved deeper into their thoughts. During the process, they expressed abstract thoughts through complex language. In this type of metaphor exercise, students are asked to make choices and then substantiate their reasons for making a particular choice. In this environment, the teacher's role changes from one of an authoritarian to one of a conversationalist, the shift of which can raise the self-concept and confidence of the student. The student would interpret his or her environment as one in which information is shared, one where the teacher does not know all the answers, and one where speaking, listening and thinking are perceived as being equally important. This environment offers teachers opportunities both to better understand each student and to glean pertinent information in order to teach more relevant lessons.

CHOOSING EFFECTIVE METAPHORS

How does one choose effective metaphors and how do metaphors affect a conversation? Metaphors should be active which means they should lend the energy of animated things to whatever is less energetic or more abstract. Take for example, the metaphor previously noted, created by a low-achieving grade seven student, "reading is an art show because there are so many books to read, so many paintings behind each story and so many stories behind each painting. Painting is a story behind it." (Lucas, 1989c, p.22). This student has chosen a very creative and energetic way to express how he feels about reading. With more probing, the teacher would likely have quite a clear picture of how this child feels about reading.

Metaphors need to be believable, coherent (not mixed with other metaphors), novel, and used sparingly (Booth, cited in Sacks, 1978). There needs to be a common understanding between speakers and listeners because the listeners must realize first that it is a metaphor, then they must figure out the point of the expression and finally, they must assume some things about the speakers, such as their beliefs. The process calls for a concentrated listening, a deep thinking and a connecting of events between topic, vehicle, and prior experience. This is followed by the listener's attempt to interpret the speakers' reasons for using those particular metaphors. For example, if the speaker calls the listener a 'Bolshevik', the listener should

understand what the teller knows and feels about Bolsheviks in order to "connect" with the intended connotation (Cohen, cited in Sacks, 1978).

Ricoeur (1975) suggested a pictorial dimension is involved in understanding metaphors, in that the listeners think and visualize likenesses between the topic and vehicle. This kind of thinking effects a 'reconstruction' of semantic fields. "Predictive assimilation involves a tension between semantic congruence and incongruence (sameness and differences)" (Sacks, 1978, p.86). Ricoeur (1975) added that metaphor use is a model for changing our way of looking at things; a way of using insight to move from sense (visualizing) to reference (verbal representation). The reader is doing something more than comparing God and love when he or she reads the phrase, "God is love" (Black, 1962, p.96). "What that something more is, remains tantalizingly elusive" (p.96).

Sanders and Sanders (1984), in a way similar to that of Ricoeur, tried to explain metaphorical thinking as a creative process that utilizes right-brain imagery. Sanders and Sanders insist that "creativity is a critical skill for conceptualizing new ideas, and it can be taught either with or apart from other academic skills. ... Creativity is synergistic; it makes the parts greater than the whole; it touches cognition, affect, and behavior and enriches them all" (p.23). The right hemisphere, they added, expands on moments of insight or imagery. The mind's 'eye' reviews the contents of its visual memory, but it also forms new or modified images. Michaelangelo

CHAPTER THREE

METHODOLOGY

INTRODUCTION

The three key questions which outline the purpose of this study are:

1. Does the Metaphor Probe or the Question Probe result in richer discussions and stimulate the students to use a greater variety of cognitive processes?

2. How does grouping children according to achievement levels, as in this study which groups a high and low achiever, affect a group discussion?

3. Is the Metaphor Probe, developed during this study, a workable and useful tool for classroom teachers?

The key questions were formulated as the basis from which to develop a workable classroom discussion stimulus utilizing children's elicited metaphors. The design of the research involves interpreting students' direct quotations from discussions in two different settings, using two different topics. The interpretation of the quotation is

made in relation to specific cognitive processes. The Cognitive Process Model was devised using Wilkinson's (1980) and Bloom's Taxonomy (1956) models as The differences between the types of discussions, one stimulated with a Question Probe and the other with a Metaphor Probe, were noted and discussed.

The educational assumptions underlying the properties for successful classroom discussions among students include a number of points which describe a particular type of classroom atmosphere. Students' discussions would be encouraged in environments where:

1. students are often 'in charge' rather than teachers (Tough, 1977). Students should be encouraged to set criteria, choose topics, ask questions, and give opinions.
2. teachers are open to the excitement and knowledge other cultures have to offer (Heath, 1983).
3. students are accepted where they are in linguistic, social, and cognitive terms (Heath, 1983). All students deserve the following rights: to feel good about themselves, to be able to communicate effectively, and to think both critically and creatively.
4. students feel they can risk stating their opinions and sharing their feelings. Students need to be able to speak in different ways such as in situations where they: grapple with topics important to them, argue, clarify, express opinions, and make comparisons (Royal Commission, 1988; Wilkinson, 1980).

5. students can think in abstract terms using familiar, concrete terms. Students need opportunities to be able to express their abstract ideas and to use language for complex purposes (Tizard & Hughes, 1984; Heath, 1982)

6. students can penetrate into their past experiences in order to find a variety of ways to express their understanding of concepts (Camac & Glucksberg, 1984). Students need opportunities to use metaphors and hear other students' reasons for using particular metaphors in order to create and understand new relations between different concepts.

The study's key questions, grounded in the assumptions noted above, are intended to determine whether constructing and employing a tool such as the Metaphor Probe would provide a discussion environment that would be rich in terms of the qualities mentioned above.

Subjects

The subjects for this study were chosen as follows:

All of the students from a grade six classroom in a middle-to-upper-class school were categorized into high, middle, and low-achievers by the teacher. The teacher reported using last year's report cards and recent classroom evaluative measures to determine the students' ranking. Because the teacher was approached by this author at the beginning of the school term, the teacher relied mostly on classroom observations as a means for recent evaluations. According to

their previous teachers, this class had posed a number of disciplinary problems and had not been as eager to participate in group discussions as have other classes before them. The study was carried out in the beginning of the school year, so that the students would have just recently completed grade five and the subject matter, such as the grade five Social Studies chapter on the Chinese Rail Workers used in this study, would still be fresh on their minds.

All of the boys names were placed into a hat according to their rankings. The author randomly chose four out of each of the low and middle-ranking groups of boys. Four similarly randomly chosen pairs of low and middle-achieving boys made up the total number of subjects for this study. After the initial meeting, however, two of the boys were transferred out of the school so the number of participants was changed from eight to six students, making a total of three pairs.

Low and middle-achieving male students were chosen because they, in comparison to high-achieving students, are the students generally considered unable to express themselves fully (Heath, 1987). Also, it was hypothesized that the middle-achievers might act as peer teachers, modeling discussion strategies for the low-achievers. The students were paired according to ability - a male, low-achiever and a male, middle-achiever.

As previously mentioned, grouping students with mixed levels of ability is important because the middle-achiever, who may be the more competent speaker of the pair, may encourage his partner, the less competent speaker, to express himself. Although the researcher labeled

the students as low and middle-achievers, it is her intention to do so only in order to differentiate between the students and also to underscore the possible differences in speech between the two ability groups. Considering students strengths and personalities is a highly recommended way of determining how to group students. An elaboration of grouping recommendations will follow in chapter four.

One reason why the students were chosen from the same gender was so that the variable 'sex' would not confound the results of the study. For example, if the groups with girls were to use more expressive language than the groups without girls, the question could be raised, 'are the results affected by the fact that one group had girls and the other group did not?'. Using subjects of the same sex will eliminate this possibility. The second reason why only one gender was used in this study was because girls and boys appear to handle discussions quite differently. Askew and Ross (1988) stated that boys' attitudes generally interfere with their ability to successfully collaborate or discuss issues where personal feelings are involved. Askew and Ross offer evidence which suggests that boys, especially at the intermediate grade levels, tend to think that talking is a waste of time, particularly if the conversation deals with topics other than those concerning mathematics or science. Because boys have this negative attitude toward discussions, they tend not to listen to each other, they become derisive, and they avoid expressing their true feelings about issues. However, Askew and Ross suggested that in classrooms where competition is not encouraged, and where written work is not

considered the only real work, all students, including those of the male gender, tend to get more involved in collaborative work. It should be kept in mind however, that this research (Askew and Ross, 1988) may be colored by the fact that the data was collected in separate girls' and boys' schools which would not compare entirely with our public school system here in Canada.

The grade five curriculum was chosen because of the author's familiarity with both the age of the students and the Social Studies Curriculum of that particular grade. Also, some of the ideas utilized in this research come from the Wilkinson, Barnsely, Hanna, and Swan (1980) study which analyzes language development among groups of children who would fall in the fourth, fifth, and sixth grade levels. The Wilkinson et al model provided reference points of language development preceding and following the grade five level.

Method

The study took place during five meetings from October, 1990 to January, 1991 at a middle to upper class area in Victoria, British Columbia. All of the students involved in the study were Caucasian. The five meetings were conducted as follows:

First Meeting: Speech Assessments and Elicitation of Discussion Topics

The students were given two Speech Self-assessment Surveys which would assess their attitudes toward speaking under different circumstances (see Appendix A for the two surveys). The teacher was asked to complete a Speech Assessment Survey for each student. The teacher's evaluation of each student was given in order to determine if the teacher's perceptions of the six informants speech matched that of each of the informants' (see Appendix B for the teacher's survey).

During a 40 minute meeting, the six informants were asked to suggest two topics which they could use in an interesting dialogue between two students. The question and instructions were framed in the following manner:

"If you could choose a topic which you could use in a discussion with another boy, what topic would it be? The criteria for your choice would be that you felt the topic would be important, interesting and appropriate to you for a discussion. A teacher will not take part in your discussion. Your four 15 minute discussions, however, will be videotaped and the results will be viewed only by the researcher. Your teacher will not see the video and your names will not be identified in the study. The results of the study will be used in a paper which will help the researcher complete a Master's Degree and help provide other teachers with effective classroom ideas. Please write down a first and second choice topic."

If the students were unable to provide a topic after about 10 to 15 minutes of time, they would have been provided with the following ideas from the researcher: 'cheating', 'friends', 'tests', 'the future of our environment', and 'how I appear to others'. It was not necessary to use any of these suggestions, however. After everyone had made their selections, they were asked to present their topics to the other students. Following a brief discussion about their topic choices, the students voted on and eliminated choices until one unanimous choice was made. If this would not have been possible, a 'majority rules' decision would have been enforced. The final choice made by the students was the topic, Commercials. Other topics suggested by the students were: Iraq, Future of Our Environment, T.V. Commercials, Environment, Economy, Movies, Nintendo, Music, Sports, Shoes, Oka, and T.V.

At the same meeting, the six informants also were asked to elicit suggestions for discussion topics from material which the class had covered in their Social Studies Curriculum. Using the same procedure as the one described above, the students individually chose two topics which would serve as discussion material for an interesting dialogue between two students. Once again, they voted until one unanimous or 'majority rules' choice was made. Four of the six students voted the Chinese Railway Workers as their choice Social Studies discussion topic.

This entire voting process was videotaped so that the students would become accustomed to having the video machine in the room. It

was hoped that these 'trial runs' would assist the students in speaking naturally in front of the camera.

Seven comprehension questions were devised by the researcher for both the Favorite and Social Studies Topics, using the types of questions commonly found in the Social Studies Curriculum as a guide. See Figures 3 and 4 for samples of these Question Probes.

1. What are your favorite T.V. commercials?
2. Can you describe them?
3. What do you like about them?
4. What channels produce your favorite commercials?
5. What commercials do you like least?
6. What don't you like about them?
7. How do these commercials make you feel?

Figure 3. Comprehension questions to be used as a probe for the Commercials topic.

T.V Commercials

Please use the following questions to help you discuss T.V. commercials:

1. What are your favorite T.V. commercials?
2. Can you describe them?
3. What do you like about them?
4. What channels produce your favorite commercials?
5. What commercials do you like least?
6. What don't you like about them?
7. How do these commercials make you feel?

Figure 2. Comprehension questions to be used as a probe for the Commercials topic.

Chinese Rail Workers

Please use these questions to help you discuss the Chinese Rail Workers.

1. How many workers came from China to work on the Canadian Pacific Railway in British Columbia?
2. Who was Dukesang Wong?
3. Why did he leave China to work on the Canadian Pacific Railway?
4. Why did he keep a journal?
5. Which province in China did most Chinese railway workers come from?
6. Why did thousands of Chinese workers help to build the C.P Railway in British Columbia?
7. Were Dukesang Wong's reasons for staying in B.C. the same reasons that brought him to work on the railway in the first place?

Figure 3. Comprehension questions to be used as a probe for The Chinese Railway Workers topic.

The questions were heavily weighted with literal or factual questions - the types of questions most commonly used in classrooms and most commonly found in textbooks. Although these are not the types of questions that teachers are encouraged to use, they are the types of questions typically used in texts (Sanders, 1966).

Seven comprehension questions for each of the two topics, Commercials and the Chinese Railway Workers, were compiled on two sheets of papers and presented to the students about 10 minutes before videotaping began.

Second Meeting: Discussions Using Question Probes

Each pair of low and middle-achieving informants were instructed that they would be given 15 minutes to discuss Commercials and 15 minutes to discuss Chinese Railway Workers. They were encouraged to use at least some of the questions that were provided for them on a Question Probe sheet. They were told that the researcher would intervene after the completion of each 15 minute discussion. Students were reminded to disregard the video camera and to try to concentrate on their topics.

The first pair of low and middle-achieving students completed a 15 minute discussion on Commercials. The researcher waited in the adjoining room and intervened only to inform the students that they had completed the 15 minute discussion. At this point, after the first interview, the students were given the Question Probe relating to the

second topic, Chinese Railway Workers, and were then asked to complete a 15 minute discussion pertaining to this topic. This same procedure was repeated with each of the other two groups.

Third Meeting: Teaching and Eliciting of Metaphors

The students and researcher met for a 60 minute lesson on metaphors. At the end of the lesson, each student provided several metaphors related to each of the topics, Commercials and Chinese Workers. These metaphors were later compiled into two probes for the students to use to stimulate discussions about the same topics. The metaphor lesson was taught in the following manner.

1. The Metaphor lesson began with the researcher saying;

> Suppose you had to explain to a friend what a condo was (Thompson, 1986). This friend lives in an apartment but he has never seen a condo and has no idea what it could be.
> Yes, that's right, you would point out what is the same about a condo and an apartment and what is different. Could you say that a condo is a neighbourhood? Let's brainstorm all of our ideas about neighbourhood.
> That's great! Now let's take out the important things about neighbourhood and test it out against the first term, condo. Can you say that a condo is a neighbourhood?
> When you compare two different things to mean something new and you do not use 'as' or 'like', you are creating metaphors. At first, you may not think that one thing (neighbourhood) has anything to do with the other (condo). But when you start comparing what the two have in common, there are similarities. What you end up with is a new idea of condo. You start seeing it with some properties of neighbourhood. Now, let's try making more metaphors.

See Figure 4 for the metaphors used in the lesson.

I am an eagle when it comes to finding things.

Jack was a lion when his car broke down.

When we went to the concert, Jean was a monkey.

Jim was a whirlwind when he cleaned the room.

When he danced, he was an elf.

She was a feather floating in the water.

The book was lead in my hands.

The exam was dynamite.

The shoe is a python.

The rap is an echo.

Learning is a fieldstone wall, failing is ... .

My new hightops are ... .

The ocean is a water forest. Which fish are mountain lions?

Which fish are deer?

Figure 4. Some metaphors provided by the researcher to teach the metaphor lesson .

Whenever someone chose a metaphor, he or she had to explain why that particular metaphor was chosen. This reasoning would help other students understand the cognitive processes involved in choosing metaphors. Students need to be aware of metacognitive processes (Paris, 1990; Baker & Brown, 1980) involved in using new strategies such as those involved in the Metaphor Probe. When students try to understand metaphors, they engage in a process of comparison of

similarities and differences between the topic and vehicle. Students must choose information from their prior knowledge, delete inappropriate information, and then find ways of expressing this metaphorical understanding.

2. After the students were provided with many metaphors by the researcher they were asked, as a group, to orally elicit their own. For example, they were asked to complete the following sentences; An ocean is a ___. Why? A fishing boat is a ____. Why? A fisherman is a ____. Why?

3. Then the researcher used Thompson's (1986) idea of comparing a hose to a cobra. The researcher began by reading a poem about a puppy playing with a garden hose. The poem was written, so that the reader sees the hose, as a puppy in a playful mood would see it. The poet in effect was saying the **hose is a cobra**. The students were asked to think about the similarities and dissimilarities between a hose and a cobra and the results were recorded on a chart. See Figure 5 for the results of the comparisons between the hose and the cobra.

Hose		Cobra
—		snake
+		long
++		makes a sound
++		fangs
++		hisses
—		India
++		sways to and fro
+		coiled
—		poisonous
—		kills elephant
++		alive
++		menacing

Idea implied in poem: "The hose is a cobra".

___ dissimilarity; + similarity; ++important similarity

Figure 5. Comparisons between a hose and a cobra (Thompson, 1986).

4. The students were shown enlarged photocopies of illustrations from their chapter on the Chinese Railway Workers in their Social Studies text. They were asked to individually generate on paper, three metaphors which would best describe how they felt about the workers. The same procedure was followed for the elicitation of metaphors for Commercials. See Figures 6 and 7 for a copy of each question sheet given to each student for the purpose of generating metaphors for each discussion topic. See Figure 8 for a copy of Darryl's metaphors.

As a group, they were then asked to brainstorm both topics for metaphors which would fall under the following three different categories: sensory metaphors, visual metaphors, and mechanical metaphors. For example, a student might say that the Chinese Workers were **eagle's screams** (a sensory metaphor which you can hear, touch, smell, or taste); or that the Workers were **stones along the road** (a visual metaphor which you can see); or that they were, in unison, **a pulley on the fanbelt** (a mechanical metaphor which you would find on a machine). See Figures 9 and 10 for a copy of Steve and Ivan's metaphors. As the students thought of metaphors, they were asked to write them down. See Figures 11 and 12 for a list of some of the metaphors the students chose for both topics.

Metaphors A Name.....

Metaphors are a way of comparing two different things to show how you feel about something.

For example, when you're grumpy, you can say I'm a bear.

If you're in a crowd of people, you can say I'm a grain of sand on the beach.

Think about commercials and list three metaphors that would describe how you feel about certain commercials as well as commercials in general.

1.

2.

3.

Now think about the Chinese railway workers and list three metaphors that would describe how you feel about them, the work they did, how they were treated, or how they lived as they built the C.P.R.

1.

2.

3.

Figure 6. Sample of the students' first question sheet given to generate metaphors.

Metaphor B Name.....

Now think of specific kinds of metaphors, like ones that make you think of your senses, ones that make you think of things you can see, and ones that make you think of machines.

Sensory metaphors ie. My baby sister's cries were eagle's screams.

Now name three sensory metaphors for Commercials:

1. 2. 3.

Name three sensory metaphors for the Chinese Workers:

1. 2. 3.

Visual Metaphors ie. When we got our pictures taken, I had a creased shirt on so I was a crumpled sheet in the stack of newsprint.

Name 3 visual metaphors for the Commercials:

1. 2. 3.

Name 3 for the Chinese Workers:

1. 2. 3.

Mechanical Metaphors ie. Each one of us had a special role to play in our group. I was a pulley on the fan belt because I started the discussion.

Name 3 for the Commercials:

1. 2. 3.

Name 3 for the Chinese workers:

1. 2. 3.

Figure 7. Sample of the students' second question sheet given to generate metaphors.

Metaphors

Name.....(Darryl)..

Metaphors are a way of comparing two different things to show how you feel about something.
For example, when you're grumpy, you can say I'm a bear.
If you're in a crowd of people, you can say I'm a grain of sand on the beach.

Think about commercials and list three metaphors that would describe how you feel about certain commercials as well as commercials in general.

1. New bids on the block is a seaslug
2. Pill adds are like a headace
3. Dick tracy is a poor sence of justace

Now think about the Chinese railway workers and list three metaphors that would describe how you feel about them, the work they did, how they were treated, or how they lived as they built the C.P.R.

1. The Chinese Railway workers were the walls of the dungon.
2. The Chinese were the blade of the sowrd
3. Chinese railway workers were the axal on the cart

Figure 8. Darryl's (low-achiever) metaphors.

Metaphor 11

Name.....Steve

Now think of specific kinds of metaphors, like ones that make you think of your senses, ones that make you think of things you can see, and ones that make you think of machines.

Sensory metaphors

ie. My baby sister's cries were <u>eagle's screams</u>.

Now name three sensory metaphors for commercials:

1. Some commercials remind me of a seals squeak.
2. Babys cry's.
3. Some remind me of someone scraping a chalkboard

Name three sensory metaphors for the Chinese workers:

1. screaming child
2. a dog getting dirty
3. clay shooting

Visual Metaphors

ie. When we got our pictures taken, I had a creased shirt on so <u>I was a crumpled sheet in the stack of newsprint</u>.

Name 3 visual metaphors for the commercials:

1. a apple getting moldy
2. a burning house in a city
3. a falling piece of wood in a pile of wood

Name 3 for the Chinese Workers:

1. a rock in an avelanch
2. a dying flower in a meadow
3. a woodchip in a lumber factory

Mechanical Metaphors

ie. Each one of us had a special role to play in our group. <u>I was a pulley on the fan belt</u> because I started the discussion.

Name 3 for the commercials:

1. the ignition on a car
2. the exaust pipe
3. the turbines

Name 3 for the Chinese workers:

1. the tubes from the fuel tank
2. the muffler
3. the gas getting thrown around in the engine.

Figure 9. Steve's (middle-achiever) metaphors.

Metaphor 11

Name Ivan

Now think of specific kinds of metaphors, like ones that make you think of your senses, ones that make you think of things you can see, and ones that make you think of machines.

Sensory metaphors

ie. My baby sister's cries were eagle's screams.

Now name three sensory metaphors for commercials:

1. woodpeckers pecking
2. human excitements
3. happy shouts.

Name three sensory metaphors for the Chinese workers:

1. eagles screams
2. axes chops
3. cats claws

Visual Metaphors

ie. When we got our pictures taken, I had a creased shirt on so I was a crumpled sheet in the stack of newsprint.

Name 3 visual metaphors for the commercials:

1. eye straining
2. day dreamers
3. eye stealers.

Name 3 for the Chinese Workers:

1. rocks
2. waves
3. sand

Mechanical Metaphors

ie. Each one of us had a special role to play in our group. I was a pulley on the fan belt because I started the discussion.

Name 3 for the commercials:

1. buttons on a machine
2. sparkly cleansers
3. wonderful mechanics.

Name 3 for the Chinese workers:

1. a wave in the sea.
2. a drop in the puddle
3. a drop in the bucket

Figure 10. Ivan's (middle-achiever) metaphors.

time wasters	addictions
rainbows	poison
sun	sewer
a breaking bone	clowns
woodpecker's pecks	human excitement
eyestrains	day dreamers
buttons on machines	sparkly cleaners
meters	eye stealers
echoes	birds
mushrooms	gas pedals
parades	holograms
scraping chalkboards	burning house in city
falling wood in wood pile	ignition on a car
fly buzzing in face	dirty shirt in laundry
uninvited guests	photocopier
seal's squeal	turtles
chocolate bar	screams in your ear

Figure 11. Examples of the students' metaphors for Commercials.

carpenters	builders	eagle's screams
visions	dynamite	flash to the eye
blink	orphans	wave in the sea
insects	prisoners	aborted babies
lightbulbs	rap	cracks in cement
orchestra	waterfalls	gas to the engine
cymbals	factory robots	drop in the bucket
excavator	cranes	stones dropped
car engine	fish	window wipers
baby cries	work horses	babies learning to walk
clay pigeons	axes chops	blade of a sword
steam	Indy car tires	wall of a dungeon
a pimple	muffler	woodchips in a lumberpile
ants	cat's claws	dying flower in meadow
fall leaves	carton of eggs	a meal with no food
cart axle	strings	discarded wastepaper

Figure 12. Examples of students' metaphors for Chinese Railway Workers.

Many of the metaphors listed above were compiled by the researcher into a probe sheet for each of the two topics, Commercials and Chinese Railway Workers. These probes were designed to act as stimuli for the students during their discussions about the same topics. After the students chose a metaphor to describe how they felt about the topic,

they were asked to explain why they had made that choice. See Figures 13 and 14 for copies of the researcher's probes made up of the students' metaphors. The probes were designed to include opportunities for students:

1) to provide their own metaphors.

2) to make choices between two metaphors, ie. "I would choose X because...".

3) to explain why one metaphor would be chosen over another, ie. " I would choose X over Y because X is more like..., while Y is more like..." .

4) to discuss these choices and reasons without intervention from a teacher.

Metaphors

Remember that Metaphors compare two things to make a new meaning. Whenever necessary, please use the following metaphors in your discussions and always tell why you chose the one you did.

1.Choose your own metaphor: Commercials are _____. Why?

2.Commercials are:

Addictions or poisons. Why?
Rainbows or sewers. Why?
Daydreamers or computers. Why?
Wonderful mechanical brainstorms or trash. Why?
Eye stealers or acorns on a rock. Why?
Halograms or mushrooms. Why?

3.Commercials are:

A scraping blackboard
a burning house in the city
an apple going moldy or
a headache.

4.Commercials are:

Ignition in a car
a fly buzzing in your face
a photocopier machine or
an uninvited guest.

5.Commercials are:

An accident
a parade
the sky or
human excitement.

6.New kids commercials are:

Rotten eggs
moray eels
sea slugs or
chocolate bars.

7.Pepsi commercials are:

Killer whales
exhaust pipes
photocopier machines or
the ignition on the car.

Coke commercials are:

the sea
a rap
poison or
an electric zap.

Figure 13. Metaphor Probe used as a stimulus for the Commercials discussion.

Metaphors

Remember that Metaphors compare two things to make a new meaning. Whenever necessary, please use the following metaphors in your discussions and <u>always tell why</u> you chose the one you did.

1.Choose your own metaphor: Chinese workers were _____. Why?
2.The Chinese Railway workers were:

rocks in an avalanche or
window wipers on a rainy day. Why?

3.The Chinese workers were:

an orchestra or a rap. Why?
factory robots or stones dropped along the railroad Why?
lightbulbs or aborted babies. Why?
wheels of a car or the exhaust. Why?
cracks in the cement or orphans. Why?

5.The Chinese workers were:

walls of a dungeon
blades of a sword
axles on a cart or
waves in a sea. Why?

6.The Chinese workers were:

backhoes
screaming children
dying flowers in a meadow or
woodchips in a lumber yard. Why?

7.The Chinese workers were : You do not need to agree with the first choice but explain why you chose the one you did.

Eagle's screams rather than excavator's because _____.
What spider's are to webs rather than what water is to waterfalls because _____.
What carpenter's are to buidings rather than what moles are to mole hills because _____.
What the blacks were to the South rather than what eggs are to a carton because _____.

8.The Chinese workers were:

used paper dicarded in the wastebasket or
a vision. Why?
babies learning to walk or
clay shooting pigeons. Why?

<u>Figure 14.</u> Metaphor Probe used as a stimulus for the Chinese Railway Workers discussion.

Fourth Meeting: Videotaping of Discussions Using Metaphor Probes

Each pair of low and middle-achieving informants were instructed that they would be given 15 minutes to discuss each of the Commercial and Chinese Railway Workers topics. They were encouraged to use at least some of the metaphors that were provided for them on the Metaphor Probe sheets. They were told that the researcher would intervene only after the completion of each 15 minute discussion. Students were reminded to disregard the video camera and to try to concentrate on their topics.

The first pair of low and middle-achieving students completed a 15 minute discussion on Commercials. The researcher waited in the adjoining room and intervened only to inform the students that they had completed the 15 minute discussion. At this point, after the first interview, the students were given the Metaphor Probe relating to the second topic, Chinese Railway Workers, and were then asked to complete a 15 minute discussion regarding this topic. This same procedure was repeated with each of the other two groups.

After the two discussions, each of the pairs of students were asked how they felt the discussions went and which discussion they preferred - the discussion with the Question Probe or the discussion with the Metaphor Probe.

Fifth Meeting: Wind-up Pizza Party

At the final meeting, the informants and their teacher were treated to a pizza party as a way of saying thank-you and as a way of providing the students with feedback about the research. After the teacher left, the students were asked to relate to the researcher any feelings they had about the types of discussions they participated in. The responses were recorded on a tape-recorder, with permission from the students. The researcher also informed the students about some of the results found in analyzing the videotapings of their discussions. The data analysis and the results are discussed in detail in Chapter Four of this study.

Long after the research was completed, the researcher had an opportunity to meet briefly and casually with two of the students previously involved in the research. When questioned about metaphors, the students both shared a vivid recollection of what metaphors were.

Limitations

All studies have limitations. The following points illustrate some of the limitations of this study:

- the videotaping and tape-recording may interfere with a "natural" dialogue.
- if time permitted, a larger number of subjects would make the results more generalizable.
- a metaphor should be understood as highlighting some aspects of a concept while hiding others. In other words, one metaphor presents a limited view of a concept. For example, in the metaphor, **a seashore is an orchestra,** the speaker is invited to think of the seashore only in terms of an orchestra. However, when the speaker understands the seashore in these terms, he or she may be blocking out or ignoring the ability to see it in other ways, for example, as a community or cannery.
- only boys were used in this study, so it is not known whether the results would generalize to female students.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

Introduction

The purpose of this study was to develop and implement the Metaphor Probe using students' metaphors to encourage the students to use a rich variety of cognitive processes in a discussion activity. The students' uses of various cognitive processes were examined during two different types of discussions. In one discussion, the students were provided with questions as a prompt, in the second discussion, they were provided with their own metaphors as a prompt. The types of cognitive processes used by the students in both discussion situations, were examined and compared.

METHOD AND DATA COLLECTION

The analysis of the students' interactions during each of the three pair's four fifteen minute discussions provided this author with data rich in research value. The data represents four hours of discussions, as well as the results of conversations that were made: during the Metaphor Teaching Lesson, during the time directly following the taped discussions, and during the research group's pizza party which brought

the research meetings to a close. The conversations and written assignment which followed the Metaphor Lesson provided the researcher with the students' metaphors used to develop the Metaphor Probe used in the second phase of the interviews. The conversations made both following the tapings and during the Thank-you Pizza Party provided the researcher with feed-back about the type of discussions the students preferred - discussions with Question Probes or discussions with Metaphor Probes.

DATA AND DATA ANALYSIS

THE COGNITIVE PROCESS MODEL

The results of the data analysis are reported according to the cognitive processes demonstrated during the discussions. In the four discussions for the three pairs of students, the cognitive processes were examined under six categories which are listed and explained below.

The cognitive model upon which the analysis undertaken for this study is based and which is described on the following pages, partially resembles Wilkinson's (1980) model which reflects a movement from concrete to abstract stages and from simple listing to hypothetico-deductive thinking. This model shares much in common with the thinking skills listed in Bloom's Taxonomy (Bloom's, 1956). These

processes, compiled by the author, provide the analytical framework for evaluating and discussing the students' discussions.

There appears to be some controversy about interpreting and accepting Bloom's Taxonomy as a system of listing thinking skills from lower to higher abilities or levels. In this study however, both Bloom's and Wilkinson's models are combined and then used for a purpose other than listing skills according to levels. The present study is designed to show the various kinds of thinking skills or cognitive processes that were used in the discussions rather than the **levels** of thinking skills. The more successful discussions would be the ones that include a richer variety of the cognitive processes listed here.

Bloom's Taxonomy was used as part of this model because teachers are familiar with the terms Bloom uses, although the author has elected to use the term cognitive processes rather than thinking skills. "Process" appears to be a more accurate term to describe the complexity of the mental activities involved in evaluating and synthesizing. The following model will serve as a tool to evaluate the types of cognitive thinking that appeared in each of the two discussions.

1. Describing

Describing is a process which requires that the student must be able to label, name, give partial information, random listing (simple), and related listing (linking statements) (Wilkinson, 1980). For example, in simple listing, a child might say, " I brought my hat, mitts, and scarf." If the same child were to link the statements, he

or she might say, "I want to be warm so I brought my hat to keep the wind out of my ears, mitts to keep my hands dry, and a scarf to keep my chin warm."

2. Interpreting

Interpreting is a process which requires that the student must be able to explain, infer, and deduce. It also requires that the student must be able to organize previously learned material so that he or she can rephrase it in his or her own words, and use it for comparisons. This process could involve describing, comparing, contrasting, and/or explaining (Wilkinson, 1980).

3. Applying

Applying is a process which involves the ability to use previously learned information to solve a problem. The student may need to classify information, choose the appropriate information, select specific points, and employ these points toward the solution of a problem (Bloom, 1956). For example, suppose a student had just learned how small machines work. If he or she were to go home and construct a pulley in order to hoist a dog up into a treehouse, he or she would be employing the application process.

4. Analyzing

Analyzing is a process which involves the ability to apply the following thinking skills: "1) to identify reasons, causes, and motives; 2) to consider available evidence in order to reach a conclusion, inference, or generalization; and 3) to analyze a conclusion, inference, or generalization to find supporting evidence" (Cooper, 1986, p.161). To extend the previous example, suppose that when this child hoisted the dog into the treehouse, he realized that the dog appeared hyperactive and wouldn't stop running around inside the treehouse. First, the child might determine the cause of the dog's hyperactivity as resulting from being enclosed in a dark space. The child might infer that the dog is accustomed to being out in open and light spaces. Then the child might conclude that the treehouse should have a long, narrow window so that the dog would be able to have light and see where it is in relation to other familiar objects. The child would be considering the <u>why</u> in order to analyze a situation.

5. Synthesizing

Synthesizing is a process which involves the ability to apply the following skills: "1) to produce original communications (something which has not been discussed); 2) to make predictions; and 3) to solve problems where more than one answer could be correct" (Cooper, 1986, p.161). The student may be required to pull together a combination of ideas in order to develop one or a number of solutions to a problem. For example, suppose that the children in the aforementioned treehouse

are all boys and one of the boys has requested that girls should be allowed to share the treehouse and join the boys' club. The boys might discuss how they feel about girls in general, predict the contributions that the girls could make to the club, and then decide if the advantages of accepting girls would out-weigh the disadvantages in such a decision. Other decisions the boys would have to discuss, should the decision be to accept the girls might be: how many girls?; which girls?; and so on.

Synthesizing includes the process of classificatory thinking which involves the ability to classify or to group thinking into specific categories (Wilkinson, 1980). This involves a complex organization of information which may be identified by the statements if...., then... or no, it's when....

6. Evaluating

Evaluating is a process which involves the ability to "judge the merit of an idea, a solution to a problem, or an aesthetic work" (Cooper, 1986, p.162). An example of this high-level thinking process would be, using the previous example, that the boys would be able to appraise or evaluate through discussion and substantiated arguments whether the addition of the girls to the club was really a good decision. The boys might ask questions such as, "what is your opinion?", "do you agree?", or "which is better?".

THE QUESTIONS

Three key questions outline the purpose of the study. The questions are used as a focus for examining and categorizing the comparisons made in the two types of discussion groups. The results of the data analysis are presented as they relate to each question.

1. DOES THE METAPHOR PROBE OR THE QUESTION PROBE STIMULATE A RICHER DISCUSSION WITH A GREATER VARIETY OF COGNITIVE PROCESSES?

Discussion Groups

The six students were grouped in pairs consisting of one middle-achiever and one low-achiever. Their names have been changed in order to conceal their identity. The Discussion Groups and students will be referred to as follows:

Group One:

Ivan (middle-achiever) and Darryl (low-achiever)

Group Two:

Allan (middle-achiever) and Ron (low-achiever)

Group Three:

Steve (middle-achiever) and Ryan (low-achiever)

The students were given a Question Probe sheet (see Figure 2 for a copy of the Question Probe) with seven questions relating to Commercials. They were asked to spend the next 15 minutes engaged in discussing the topics and using the sheet as an aid to their discussion, if necessary. No instruction was given on how to use the sheet or who was to ask the questions. They were reminded to ignore the video camera and to remember that the researcher would come and tell them when the 15 minutes were up. The same procedure was followed for the second part of the discussion on the topic, the Chinese Railway Workers. Only two 15 minute discussions were completed at one sitting for each group. The following explanations and excerpts from the students' conversations highlight the types of cognitive processes that were found in the discussions using the Question Probe.

Describing (Without Metaphors)

All of the students labeled items, gave partial information about the questions that were given to them as a probe, and listed commercials that they liked and disliked.

Group One

Both boys finished their discussion about commercials in two and one half minutes. First Ivan (middle-achiever) read the questions to Darryl (low-achiever) and then Ivan mostly listened to Darryl's answers. For example, when Ivan asked, "What is your favorite commercial?", Darryl answered, "Pepsi.". Ivan glanced at the sheet and then asked, "Can you describe it?". When Darryl couldn't think of an answer, Ivan helped the struggling Darryl by saying, "It's dumb.". The discussion continued in this manner for a further two and one half minutes and then the boys wanted to begin the next discussion. The researcher intervened, from the next room, by saying that they still had about 10 minutes to discuss the topic. Following this reminder, both students attempted to answer question number three ("Why did he leave China to work on the Canadian Pacific Railway?"). Darryl ended the discussion by making up three questions for Ivan such as, "What means of transportation do you think they used to get here?". The questions failed to stimulate further discussion. They yawned and paused for long spells while they looked under the table and out the doorway.

Group Two

Allan (middle-achiever) listed approximately 20 commercials and described the events in the commercials. Later, he recited verbatim all the words that made up several of the commercials. Robin (low-achiever) asked the questions from the sheet and received Allan's animated versions of the commercials as if he were quite amused. In eight minutes, they showed signs of restlessness and boredom when they began playing with their hair and looking around the room.

Group Three

This group followed the question sheets closely as they gave partial information about several liked and disliked commercials. For about two minutes, the boys fidgeted and smiled at each other, then Steve (middle-achiever) began reading the questions on the Question Probe to Ryan (low-achiever):

> Steve: "What are your favorite commercials?".
> Ryan: After much hesitation, Ryan answered, "The bathroom cleaner one where the brushes go .... [making circular motions with his hands].
> Steve: "Can you describe them?"
> Ryan: "The brushes go round like this .... [making circular motions].
> Steve: "What do you like about them?"
> Ryan: "The brushes that go round like this ... [making circular motions].

Steve took the initiative to begin the discussion by reading questions from the Question Probe. The questions failed to encourage Ryan to extend his description or explanation about his favorite

commercial. Steve did not rephrase the questions nor did he offer any answers of his own. Their discussion was completed in less than two minutes from the time they began talking and then they began exhibiting signs of restlessness. For example, Ryan began dropping his pencil, looking out the window on several occasions, and fidgeting in his chair. Both boys stared at the ceiling, laughed for no apparent reason, and remained silent for a good portion of the remaining time.

Interpreting (Without Metaphors)

Group One

During the Chinese Workers discussion, Ivan (middle-achiever) used interpreting skills, by inferring why the workers may have come to Canada. His inference resulted from reading question six on the probe sheet ("Why did thousands of Chinese Workers help to build the C.P. Railway in British Columbia?"). Both boys commented that they couldn't remember the facts from their Social Studies text. Darryl (low-achiever) inaccurately suggested that the Chinese Rail Workers must be directly related to the Gold Rush in the Caribou.

The idea that they could not remember their textbook facts seemed to influence dramatically their ability to begin discussing the issue. It should be noted that prior to the discussions, all of the students took part in a review of the chapter and then they were asked to take the text home and reread the chapter. It should also be noted that

these same students did not experience the same inability to discuss the same issue while using the Metaphor Probe.

Group Two

This was the only group that talked about how they personally felt about an issue, in this case, the Chinese Rail Workers. Ron (low-achiever) said, " I feel sorry for the way they (Chinese) were treated." Allan (middle-achiever) agreed when he said, " Yeh, they were taken advantage of by the white". They employed interpretive skills when they began comparing and contrasting the Canadians' treatment of the Chinese to Hitler's desire for a superior race. In their discussion, they were beginning to investigate how others might feel about this racial issue by suggesting that it is unfortunate that having yellow or black skin could be a real disadvantage.

Group Three

Steve (middle-achiever) and Ryan (low-achiever) began to express feelings about the Chinese workers when Steve read question number six about why the Chinese helped to build the C.P.R.:

> Steve: (Reading) Why did thousands of Chinese Workers help to build the C.P. Railway in British Columbia?
> Ryan: To get a life.
> Steve: Yeh, get a life. Then he [worker] got killed [according to the book, this did not happen]. We were dumb. White men were dumb then."

Groups One and Three appeared to be more comfortable talking about facts from the Social Studies textbook rather than talking about personal opinions such as why Dukesang Wong, a railway worker might keep a journal ("Why did he keep a journal?"). Also, all students ignored the final commercial question which asked how these commercials make you feel. Perhaps students are not accustomed to expressing their feelings and opinions about issues. This attitude among boys was prevalent in the research carried out by Askew and Ross (1988).

In contrast to the first discussion on commercials, Ryan had something to say about the Chinese workers. In one of the few conversations that did not originate directly from the question sheet, Ryan tried to explain life in a Chinese Rail Camp. Neither Ryan's brief explanation of life in camp nor Steve's two original questions was successful in sparking a discussion between the two boys. The last five minutes of the interview time was spent fidgeting and looking at the ceiling.

Application (Without Metaphors)

Group One

If Darryl (low-achiever) used application thinking skills, it was to apply what he learned about typical types of comprehension questions which he had found on the probe sheet (taken from the Social Studies text) and ask his partner as many questions as it would take to use up

the remainder of the discussion time. His questions were: "What means of transportation would the Chinese take to get here?"; "Did they come for the Gold Rush?"; and "If they came on a boat, would it sink if they took back the gold to China?". Darryl's questions did not entice Ivan into a discussion.

Group Two

Both boys demonstrated application thinking skills on one occasion when Allan (middle-achiever) said, in relation to the Chinese Worker's wages, "Thank goodness for minimum wages." Ron (low-achiever) added that both he and Allan were fortunate to have paper routes and to be making money.

Group Three

None found

Analyzing (Without Metaphors)

Group One

None found.

Group Two

When Allan (middle-achiever) and Ron (low-achiever) compared Hitler's treatment of the Jews to the Canadian Pacific people's treatment of the Chinese, they began analyzing. They started to

identify reasons why people might get involved with racist propaganda when Allan said, "Hitler wanted a superior race - people with blond hair and blue eyes.". These boys did not keep strictly to the question sheet, they used it as a guide as they were requested to by the writer. As a result, their discussion flowed more naturally from one thought to the next. Their analysis was incomplete however, because although they began to identify reasons for this poor treatment of the Chinese, they did not consider enough evidence to reach a reasonable conclusion to the problems confronting the Chinese.

Group Three

None found.

Synthesizing (Without Metaphors)

Group One

None found

Group Two

This group employed classificatory skills when they discussed racism. They combined two other events involving racism and compared them to the treatment of the Chinese. Ron (low-achiever) introduced the idea that Hitler's desire was to eliminate a population to make a superior race. Allan added to Ron's information about Hitler and then

suggested that many white Americans think that black skin is inferior. He warned Ron, "You could go to California and get a dark tan and come back and they wouldn't like you - bang! - 50 lashes for having dark skin!"

The boys were classifying other periods in history when certain races or cultures were being mistreated. Although they began to group their thinking into specific categories, they failed to make predictions or to try to solve the problems relating to racism or the Chinese Workers.

Group Three

None found

Evaluating (Without Metaphors)

Group One

None found

Group Two

None found

Group Three

None found

Summary

All of the students described and interpreted in the discussions without metaphors. In the Commercial discussions, all students listed favorite and less favorite commercials, described them, but gave only partial information about the commercials. That is, they appeared to describe only as much of the commercial as was necessary for the listener to recognize the correct commercial. The one exception was Allan who seemed to delight in reciting the commercials verbatim.

Describing and interpreting processes were used by Groups One, Two, and Three. Application was used by Groups One and Two. Analyzing and synthesizing were employed minimally by Group Two. Evaluating was not employed in any of the discussions. In quantitative terms, Group One used two processes, Group Two used five processes, and Group Three used three out of the possible six cognitive processes examined in this study.

After each interview, the groups were asked to evaluate their discussions. Group One very quietly answered, "O.K.", after the Commercial discussion and said, with a little more enthusiasm, "The beginning was O.K..", after the Chinese Workers discussion. As indicated before, the latter discussion was the one where the boys were recalling facts from their Social Studies text, so the students may have felt that recalling facts constituted a better discussion.

All four boys in Groups Two and Three agreed, without a doubt, that they had a better discussion and more fun with the Commercial topic.

However, all three groups employed more cognitive processes and shared more ideas during the Chinese Workers discussions.

COGNITIVE PROCESSES OF THE METAPHOR DISCUSSION GROUP

The students were given a discussion probe sheet (see Figure 3 for a copy of the Metaphor Probe) with seven sets of the students' own metaphors related to the Chinese Rail Workers. They were asked to spend the next 15 minutes discussing the topics and using the sheet as an aid for their discussion. They were reminded to ignore the video camera and to discuss the issue until notified that the 15 minutes were up. The same procedure was followed for the second part of the discussion on Commercials. Only two 15 minute discussions were completed at one sitting for each group. The following explanations and excerpts from the students' conversations highlight the types of cognitive processes that were found in the discussions using the Metaphor Probe.

Describing

All of the students described items, however, they described them in order to discuss events or issues more fully. The students appeared to want to make a point with their partner rather than to just list and describe things as they had during the Question Discussion. Students

were determined to clarify their opinions and share their ideas. The following examples illustrate how the students used descriptive terms to link the topic and the vehicle in order to both make their points and get their feelings across to their partner.

The words in squared parenthesis refer to the topic being discussed, while the words in bold refer to the metaphors which are either supplied by the probe (which is a compilation of all of the students' own metaphors) or they are elicited by the student during the discussion. The reference at the end of the quotation indicates the name of the group. The following examples are describing skills used by the three groups.

> Darryl: [Commercials] Like a **moldy apple** (shaping an apple with his hands). It's out there - the product looks good out there (points) and you leave it and leave it and it gets moldy- everyone gets tired of it. The product is fine but the way the advertiser uses it, it just gives you a headache.
> Ivan: Which one?
>
> Group. 1 Darryl (low-achiever) and Ivan (middle-achiever)

Darryl describes the life of a moldy apple. He appropriately compares a moldy apple to a commercial which begins as an interesting and fresh item. However, after overstaying its welcome, like a moldy apple, the commercial becomes an unwelcome and boring sight. Darryl adds that commercials can even give you a headache, an explanation of which goes beyond the description of a moldy apple. He has made the comparison between the topic and vehicle, and then extended the description to give the vehicle, commercial, a new meaning of its own.

Allan: [Commercials] Parades can be long and boring. There'll be something good at the beginning and end but the middle is soooooo long and boring. Like diet ...nutri-sweet... sugar-free (drones). (His partner drones as well).

Group.2 Allan (middle-achiever)

Allan uses, as a metaphor, the concept of the all too familiar long, boring parade which always captures the spectator's excitement in the beginning but seems to lose its momentum and our interest in the middle. As usual, Allan adds animation to his accounts of commercials. Robin, who has been enjoying these animations, is beginning to join in on the fun of adding animation to his discussion.

Allan's subtle description of a parade which divides a parade into three main components, a beginning, a middle, and an end, underscores the point that Allan wants to make - there are good and bad parts to a parade. After he makes his point about parades, he likens these isolated similarities to commercials by listing ingredients found in boring commercials which, interestingly enough, are all related by a common bond - they contain diet components. Allan happens to be allergic to sugar which might be the reason these commercials stand out in his mind.

Ryan: [Commercial] New Kids are rotten eggs because they're disgusting. Yeh, and they're sea slugs too because they're slimy and they smell.

Group. 3 Ryan (low-achiever)

Anything that is disgusting to a small child is sure to be slimy and smelly, so sea slugs and rotten eggs are good candidates for disgusting things. Ryan, who had difficulty in participating in the first Question Discussion, experienced little problem in finding metaphors to illustrate the way he felt. In this example, he instantly chose two metaphors with similar characteristics to illustrate how he felt about the New Kids, a pre-adolescent pop singing group.

Summary

The students worked noticeably harder giving complete rather than partial information in the Metaphor Discussion than the students in the Question Discussion Group. Rather than simply listing commercials as in the Question Discussions, the students would choose a metaphor and then say why they had chosen it. As the discussions continued, the elaborations became noticeably longer. The speakers appeared to become more interested in the messages they were trying to put across rather than in just answering the questions from the sheet. Sometimes both students would agree on the same metaphor but often they would choose different metaphors which would make both students substantiate their choices and ask questions such as "So what do you think?" and "Why did you choose that one?". This choosing of different metaphors required the students to compare and contrast their choices with those of their partners.

Rather than looking ahead to the next question as they had done in the previous Question Probe interviews, the listeners appeared to focus

more on the words and thoughts of the speakers. This was evident in the way that the listeners argued with or supported the speakers' ideas, and asked the speakers questions. The discussants displayed no evidence of restlessness such as dropping pencils on the floor, playing with hair, or staring at the ceiling.

Interpreting

In the first discussion using a Question Probe, most of the discussants focused on employing interpreting processes when they listed and described their favorite commercials or when they listed facts about the Chinese rail workers. In most cases, their listener-oriented conversations were broken into small chunks of information where only one thing was said about a referent at one time. Discussants often repeated what they already said and in most cases, failed to produce an extended argument or justification. Their speech appeared to have the attributes necessary to maintain a good social relationship between the speakers, rather than those which would indicate the discussants wanted to make a particular point (Brown, 1985).

In contrast, all of the students in the Metaphor Discussions applied, in various degrees, the interpreting processes of explaining, inferring, deducing, comparing, and contrasting in order to get a message across to their partner. In the Metaphor Discussions, the

students generally employed message-oriented speech which exhibited the following characteristics: the students elaborated about many referents, they used extended arguments and justifications, and they made the topic the point of the utterance. Most students argued, for example, about how commercials affect other people and about how the Canadians took advantage of the Chinese workers.

The following examples illustrate how students used interpreting skills to get their points across and to express how they and other people feel about certain issues:

> Darryl: [Chinese workers] Oh yeh! They're a **hologram!**
> Ivan: Hologram? What's that?
> Darryl: Holograms? That's, let's say, uh... I'm missing missing both of my arms... then you look back and see my arms, you see my arms right here. Right, that's a hologram! It makes it ... it's a deceiving picture that makes things look it's uh... let's say it's not real.... like a hologram! Suppose first you see something there and then there's that! The Chinese were there and then ... poof... they're not. Get it?
>
> Group. 1 Ivan (middle-achiever) and Darryl (low-achiever)

Darryl's enthusiasm made a dramatic leap in the metaphor interviews. He no longer sat back and waited for Ivan's questions but rather, he took delight in rephrasing, and making a point. Darryl refused to stop clarifying his messages until Ivan indicated his understanding. He reintroduced the hologram term on three different occasions until he felt Ivan finally had had enough clarification. Ivan was able to divert Darryl's attention from the hologram by interrupting Darryl's speech and introducing a new metaphor.

Allan: [Commercials] An **uninvited guest** like if you're having a fight with someone and he shows up at a surprise birthday party. Commercials can spoil it.

Group. 2 Allan (middle-achiever)

Perhaps the reason for Allan's success in both communicating and keeping his partner's interest is his knack for employing metaphors so effectively. As Allan is thinking through his metaphors out loud, he discusses prior knowledge which always appeals to other children. In this example, he uses an analogy that most children could relate to - having to be nice to someone whom you would rather ignore. Choosing an appropriate metaphor is a complicated procedure. It involves conjuring up a lot of prior knowledge in your mind, selecting the most appropriate information, and then presenting it in a meaningful way to a particular audience.

Allan's links between topic and vehicle were always clear, informative, funny, and usually brief. Ron appeared to be aware of the skills Allan used in order to employ figurative language, and because Allan was supportive and encouraging, Ron took charge in the metaphor interviews. Perhaps after having experienced more successful discussions, Ron would learn to feel on equal status with his partner and learn to give his partner more talking opportunities. During the Metaphor Discussion, however, Ron was very noticeably excited at both having so much to say as well as being able to take charge in the discussions.

Steve: [Chinese workers] Why would it be **eagle's screams** rather than an exavator **(excavator)**?
Ryan: Exavator? What's an exavator?
Steve: It's a person who digs, I think. Yeh, it's a person who digs. Let's see, an eagle's scream is high-pitched.
Ryan: EEEEEEEEE!
Steve: And an exavator would be low... urrrrrrr (resembling an eerie fog horn-like noise). But what's your say on it? What do you think, Ryan?
Ryan: Ummmmmm...
Steve: Sure you must have one say on it or would you rather say it was an exavator and not a eagle's scream? Exavator is usually human but it COULD be a eagle's scream.

Group. 3 Steve (middle-achiever) and Ryan (low-achiever)

The dismissal bell rang as this interview was in progress and although the boys in Group 3 had agreed beforehand to stay and complete their interview, it appeared that Ryan's attention was beginning to wane. Steve was determined to keep talking and as a result, he used a number of tactics such the one above to keep Ryan involved in the discussion. Steve has his own opinion about whether commercials are like eagle's screams or excavators but he explains the meaning of excavator, encourages his partner to contribute to the discussion, and makes it clear that Ryan is free to choose his own metaphor. Steve even thinks out loud and uses animation in his interpretations in order to engage Ryan.

Steve was so excited about metaphors that even after the interview was technically over on a Friday afternoon and the dismissal bell had rung, Steve pleaded with Ryan to stay and just make up one more metaphor. He rolled his head back and forth across the desk and said, "Let's see, let me think ... ummmmm .... ummmm..., come on Ryan!"

Applying

All of the students employed application skills such as classifying and selecting items from previously learned information in order to solve a problem. In the process of using metaphors, students find it necessary to use previously learned information in order to make connections between the topic and the vehicle. For example, if a student said commercials are addictions, he would have to recall all previously learned information about addictions, compare that information to commercials, and select similarities between the addictions and commercials. The nature of the exercise of choosing and applying metaphors, requires that students continually share previously learned information in order to substantiate their choices. Some examples of application skills employed in the students' discussions are as follows:

> Ivan and Darryl:[Chinese workers] **Aborted babies!**
> Darryl: Yeh, they just discard them (makes throw-away motion). And **clay pigeons!** You know with clay pigeons, they pull the thing make it go ..., use it, kill it and let it lie there.
> Ivan: Yeh, who cares (shrugs)? I wonder why they left their homes to come and work here? It couldn't have been that bad at home. It's too bad. They worked for so little.
> Darryl: Yeh, it's too bad. I get more allowance for a week than they do working all day. Yeh, I wonder why they came?
> Ivan: To make money for their loved ones, I guess.
>
> Group.1 Ivan (middle-achiever) and Darryl (low-achiever)

The students aren't only recalling and applying information about prior knowledge toward one metaphor such as **aborted babies**, but they

are going through the same process simultaneously with another metaphor such as **clay pigeons** which caught their attention further down the sheet. They both very quickly agreed on the same message - the building of the C.P.R resulted in a waste of Chinese Workers' lives. After coming to this conclusion, the boys tried to make sense of why the workers even came to work in Canada when the Chinese did not even make as much as the boys did for their weekly allowance. During this discussion, the boys applied their prior knowledge to try to solve yet another problem.

> Ron:[Chinese workers] **Window-wipers** - they were clearing the way for white people.
> Allan: Wipers do the hard job to make it easier for people driving. Like blasting is dangerous - Chinese did it to make it easier for the white.
> Ron: Chinese are even less powerful than **screaming children** because screaming children can do something about things. Chinese cannot.
> Allan: How can that help get you candy?
> Ron: Get a job!
> Allan: Screaming doesn't help me.
> Ron: But we both have jobs...
> Allan: Ummmmmm... Your turn.

Group. 2 Allan (middle-achiever) and Ron (low-achiever)

Once more, Ron takes a very active role in the discussion by choosing the first metaphor and then clarifying his choice with previously learned information until he senses that Allan understands his point. Allan adds more information to the discussion as well as questions that require Ron to further clarify his point. In Allan's final response, did he want to mull this idea over or did he wish to avoid or perhaps extend Ron's further clarification?

Steve: Let's make a metaphor for New Kids! **Pizzas with aspirin on top!**
Ryan: **Cherry medicine... yeeeeech... double cherry medicine!**
Steve: No, a **moldy sandwich with rotten anchovies.** Or a **worm crawling through an apple** (makes wriggling motion with hands). (Both make a shivering motion.)

Group. 3 Steve (middle-achiever) and Ryan (low-achiever)

Both boys chose items from their past which would best describe how much they disliked New Kids. Ryan could not find a worse metaphor than cherry medicine so the only way he could worsen cherry medicine was to double the dose.

All of the students selected a metaphor which they thought best described how they felt about the issues at hand. Then in almost all cases, each student substantiated his choice with a reason why he had chosen that particular metaphor. Darryl did this by explaining how in his experience, the objects of clay pigeons, for example, are like the Chinese workers.

Analyzing

During the Metaphor Discussions, the students were asked to choose a metaphor and then explain why they had chosen it. This exercise requires that the student identify specific reasons for making choices which is part of the analyzing process. This process encourages the students to analyze their choices so that they are able to substantiate their reasons for making a particular choice of metaphor. For example, if a student were to make the choice that commercials were **holograms**

over the choice that commercials were **mushrooms**, he would have to analyze and express everything in his prior knowledge of **holograms** that could be similar to commercials in order to entice his listener into looking at commercials in a new way - as **holograms**.

The constant rephrasing, extending, and clarifying by the students indicate that making their messages understood is of utmost importance to them. This message-oriented type of speech was used consistently during the Metaphor Discussion but not during the first Question Discussion.

In almost every case, the students gave a reason for choosing a particular metaphor. The students always elaborated their reasons as was the case in the following examples:

> Ivan: [Commercials] They're **daydreamers**. They're fake. Sure - buy one Big Mac and get one free. You go in all happy and then they say, 'Oh yeh, but you have to buy 500 more and one glass of pop.'! Yeh, special half price but first you have to buy one!
> Darryl: Yeh.
>
> Group. 1 Ivan (middle-achiever)

Ivan's reason for choosing daydreamers to describe commercials was because, to him, some aspects of daydreaming are not real. Day dreaming really consists of images of the real thing. In Allan's analysis of commercials, he used this similarity of fakeness between commercials and daydreaming to make the point that commercials are fake. He supported this conclusion with a few examples of just how

deceptive they are. He also gave evidence of the unhappiness he experiences when he comes into McDonald's and gets fooled by the ad.

Analyzing is a complex process. As Ivan analyzed what he could remember about daydreaming, he made mental connections between daydreaming and commercials and 'sifted' out everything about daydreaming that was related to fakeness which was the message he wanted to get across - commercials are fake. In this manner, Ivan was literally pulling information from two sources to make a new meaning - commercials are daydreamers. This declaration invited Darryl to see commercials in a new way, in a way that encompasses much of Ivan's prior knowledge of both the topic and vehicle. This process may not occur in a discussion that does not encourage the use of metaphors.

Ron: Chinese are **babies learning to walk.**
Allan: Why?
Ron: Well, when babies learn to walk, they fall down and no one...
Allan: I see what you mean. You mean when they walk, they don't have much... they fall...
Ron: Yeh, they don't have much option.
Allan: They're sorta helpless...
Ron: They're hopeless, they don't have much options.
Allan: They're not hopeless, they can get through.
Ron: But they don't have much options like the Chinese don't have much options. They have no options - without a job on the C.P.R., they'd starve and die.

Group. 2 Allan (middle-achiever) and Ron (low-achiever)

Allan was listening very intently to Ron and tried to deduce a conclusion from Ron's clarifications. Perhaps Allan did not completely understand Ron's message, however, he came close with the word,

'helpless'. He probably did not guess the word 'hopeless' because he did not share Ron's feelings about the topic. Allan did not see the situation as being as desperate as 'hopeless', but Ron kept clarifying until his point was made and hopefully understood.

Ron's use of the present tense in discussing the Chinese underscored the significance of his feelings about their helplessness. Allan attempted to argue against the intensity of the word 'hopeless' over that of 'helpless' but, sensing Ryan's insistence, he accepted a completion of the discussion, and moved on. Ryan appeared confident that he had found supporting evidence to prove that the Chinese had only one option and that was to work on the C.P.R. or die.

> Ryan: Commercials are **uninvited guests**. Because they come into your house.
> Steve: That's a good one, that's really a good one.
> Ryan: They come into your house and that's cheating.

Group. 3 Steve (middle-achiever) and Ryan (low-achiever)

Robert did not elaborate extensively on his reason for choosing **uninvited guest**, perhaps he sensed in Steve's approval that Steve understood why he chose that metaphor. Sometimes elaboration between speakers is not necessary if the message is assumed to be understood. Robert did however, substantiate his choice with some evidence.

Synthesizing

During the Metaphor Discussion, all groups exhibited at least a few examples of complex synthesizing skills such as producing original communication (ideas which are new to this particular conversation), classificatory thinking, and problem-solving where more than one answer could be correct. Some of these examples are:

> Darryl: [Chinese workers] They're **woodchips in a lumber mill** - they played a big part - and without chips, no wood! If you have no wood chips, you haven't cut up anything.
> Ian: (arguing) Woodchips are minute things, without woodchips, you can still have big trees.
> Darryl: There's always woodchips and sawdust coming off a cut log, right? WELL, that's EVIDENCE that there was something there. Look at plywood - woodchips and plastic melted together.
>
> Group. 1 Ian (middle-achiever) and Darryl (low-achiever)

Darryl used a complex concrete situation - the life of a majestic tree, from forest to sawmill, to illustrate the abstract concept of building the C.P. Railway. Darryl adamantly restated this argument on two more occasions because he felt so strongly about what he was saying and acted as though he didn't think Ivan really understood the point he was trying to make. Ivan did not appear particularly moved by what Darryl had said; perhaps he really did not understand. Darryl seemed to want to clarify in various ways that the Chinese were small parts of a very big whole and that every single Chinese worker was part of a very important process. They were the people that would meld together and make a dream a reality - the dream of the Canadian Pacific Railway.

It appears that Ivan missed the point that made clarification so exciting and important to Darryl. Darryl only gave up when Ivan diverted his partner's attention by saying, " I think they're dying flowers in the meadow."

> Ron: [Chinese workers] They're **cracks in the cement** because, uh... people don't like them (cracks) but they'll do. People didn't like the Chinese but they did the job.
> Allan: Yeh, like cement holds water so cracks get rid of water so as long as they get rid of water, fine.
> Ron: Right. After that, who cares? If they're useful, keep them. If you need more, get more cement.

Group. 2 Allan (middle-achiever) and Ron (low-achiever)

The boys both shared quite a cynical but perhaps accurate idea about how the Chinese were used and abused by the Canadians for the sole purpose of building a railway. Both students grouped together the same types of ideas about the usefulness of something as inanimate as cement and compared it to the treatment of the Chinese. Although some complicated thinking occurred here, not much clarification was necessary because the message was understood by both students. The point was made and understood and they moved on.

This discussion, if compared to the previous group's discussion, is much more clearly stated. Perhaps the reason for this is that both boys shared the same opinion, so both discussants clarified the same point. Although Group One was not as successful at linguistically presenting the information as Group Two, both groups engaged in very complex cognitive processes. The Low-achiever in Group One was forced

to rephrase and reclarify his thoughts in many different ways. With practice in similar discussions, Darryl the Low-achiever in Group One, could become more proficient in expressing his thoughts and emotions. There was no evidence of Darryl's determination to clarify complex abstract concepts in the Question Discussion.

> Steve: [Chinese workers] It's **woodchips in the lumber yard** because there were so many of them but... AHA ... it's also **dying flowers in the meadow,** that's another good one.
> Ryan: They didn't all die, some survived.
> Steve: Most of them died. They were rotting - getting no health and going urrrrrr.... (holding throat). So you see, they were dying. I say it should be dying flowers in the meadow. No health, all getting horrible - the meadow has lots of flowers, see there are lots of them so it's like woodchips in the lumberyard AND dying flowers in the meadow put together!!! Do you agree with me?
> Ryan: ummmmm!
>
> Group. 3 Steve (middle-achiever) and Ryan (low-achiever)

Perhaps Ryan needed more time to classify and order the information which Steve quickly connected between the two metaphors and then applied to the Chinese workers. Steve still wanted some response from Ryan and tried to pull Ryan into the discussion with a question at the end.

Evaluating

All of the students evaluated ideas and solutions quite consistently throughout the Metaphor Discussions. All of the questions

required that students evaluate the metaphors presented to them, choose the best one, and then substantiate their choices. Although the students were asked "Why?" on the probe sheet after each metaphor was chosen, they were voluntarily asking each other questions throughout the discussions. As the discussions progressed, they appeared to be asking why out of their own interest because these questions were asked irregularly but often. Also, in many cases, the student who chose the metaphor elaborated so thoroughly his reason for making his choice that the student responding did not need to ask why. The following excerpts illustrate the evaluative skills employed by the discussants:

> Darryl: [Commercials] You know why New Kids are rotten eggs? They haven't got good music, their only fans are girls, they don't have many songs, the members are jerks. It cost so much money for last year's tour and McDonald's hosted that tour. And this drove up McDonald's prices because they hosted the tour. So it costs us more for them to sell their music and it doesn't sound good anyway.
>
> Group. 1 Darryl (low-achiever)

> Ryan:[Commercials] I think they're ignitions. They start something. They start the shows, they start the sales in the stores and get people buying things.
> Allan: Well, I think they're uninvited guests - you're enjoying something and they come on and you say they're spoiling everything. I worked it out to 17 minutes of commercials to a half hour show. An Awards Show - 18 minutes of commercials for 30 minutes of show. That makes 80 % of the time!
>
> Group. 2 Ryan (low-achiever) and Allan (middle-achiever)

Steve: [Chinese Workers] Let's see, would Chinese workers be water in a waterfall or a spider to a web? Well, you absolutely need a spider to make a spider web but you don't need water to make falls - just need a fluid of some kind. So yeh, it's a spider. Spiders need to go crrrrrr (crawling with fingers) and find a bug and suck all the blood ooooorr wait for something to catch it.. uh huh...

Group. 3 Steve (middle-achiever)

(Steve might have been referring to the people in charge of the Chinese Workers as being the spiders.)

Something that is outstanding in the previous quotations is the ability of the students to argue (sometimes to themselves), clarify, and evaluate out loud. Not only is the listener often able to follow the speaker's thoughts but he is exposed to the cognitive processes employed by the speaker. The reasons for constant clarification and adjustment appear to be two-fold. First, the speaker wants to think through different alternatives until he identifies appropriate motives or reasons and conclusions. For example, in group three, at one time Steve predicted the outcome of choosing one solution - Chinese Workers are water to waterfalls - thinks it through, applies it to the metaphor in question, declares it as inappropriate, literally discards it, and moves on to an alternative solution - Chinese Workers are spiders to a spider web.

During this comparing and contrasting of solutions, Steve uses animation - noises and crawling movements with his hands. This animation may be employed in order to complete the second reason for

this constant use of clarification and that is to make his partner 'get the message'. Even when the student is successful in sorting out his thoughts and coming to an acceptable conclusion in his own mind, he doesn't appear to be content until his partner responds in a way that says "yes, I understand".

Summary

When students choose a metaphor, often they appear to think through a certain process out loud. Step by step, they make the connections between the metaphor and what they know about it and then they explain how that information is similar to either the Chinese Workers or Commercials. They appear to spontaneously go through this process outloud as if saying the connections make the exercise easier or clearer or perhaps more fun. The term "spontaneously" is used because they are not often asked by their partners to clarify their explanations; rather, they appear to want to go through this process to get all of the connections and information clear in their own minds. Further clarification then is made by the speaker if the listener does not indicate that he understands the speaker's intended message.

If a student's idea or choice of metaphor does not match up with his partner's, the student always seems adamant about letting his partner know of the discrepancy. The student with the opposing opinion may feel that his information is relevant enough to change his partner's mind. An example of students thinking through the process

involved with choosing a metaphor is evident in the following discussion.

> Allan: [reading] " What spiders are to webs rather than what water is to waterfalls..... It's water to waterfalls."
> Ron: NO, no. Spiders make webs to trap things, like the Chinese were.
> Allan: [changing his mind] It's more like Chinese were spiders because they do all the work and like spiders get no credit for what they do - for making a complicated web."

Ron, the low-achiever, expressed few opinions and assumed the role as listener in the Question Discussion. Now, in the Metaphor Discussion, Ron valued what he had to offer to the discussion. Ron demonstrated, with the help of Allan's example, patience and encouragement, and felt confident enough to make choices and express them. He effectively applied his prior knowledge, analyzed and evaluated his partner's solutions, and then argued with his own opposing opinions and solutions. The Metaphor Discussion situation provided Ron and all of the participants with the opportunity to develop and express these various cognitive processes.

All of the groups in the Metaphor Discussion employed all six of the cognitive processes focused upon in this particular study (see Figures 15 and 16 for a comparison of the number of cognitive processes used in both the Question Discussion and the Metaphor Discussion). The Metaphor Probe stimulated more types of cognitive processes in a group discussion than did the question probe. The Metaphor Probe which was made up of the students' own metaphors, stimulated the students to use

a variety of cognitive processes, especially those usually designated as "complex". The following Figures 15 and 16 offer a comparison of the Cognitive Skills used in contrasting discussion situations.

	Group One	Group Two	Group Three
Describing	*	*	*
Interpreting	*	*	*
Applying	*	*	
Analyzing		*	
Synthesizing		*	
Evaluating		*	

Figure 15. The range of Cognitive Processes used by each group with Question Probe.

	Group One	Group Two	Group Three
Describing	*	*	*
Interpreting	*	*	*
Applying	*	*	*
Analyzing	*	*	*
Synthesizing	*	*	*
Evaluating	*	*	*

(* indicates process was used)

Figure 16. The range of Cognitive Processes used with Metaphor Probe.

2. HOW DOES GROUPING CHILDREN ACCORDING TO ACHIEVEMENT LEVELS, AS IN THIS STUDY WHICH GROUPS A MIDDLE AND LOW ACHIEVER, AFFECT A GROUP DISCUSSION?

During the first phase of the discussions with the Question Probe, both discussants in Group Three as well as the low-achievers in Groups One and Two appeared to be quite disinterested in the discussions. Perhaps a more logical reason for this apparent disinterest may have been due to their not being metacognitively aware of what constitutes a good discussion (metacognitive awareness is marked by the students' understanding of the strategies needed to perform a certain task). The author's observation that the students lacked a metacognitive awareness of discussion strategies was substantiated by the comments made by the boys at the end of the first two discussions using the Question Probe. When they were asked which discussion was better, all of the boys adamantly agreed that they did a better job with Commercials, while the evidence shows that far more cognitive processes and ideas were exhibited during the Chinese Workers discussions. It should be noted, however, that most of the ideas that were shared during the Chinese Workers discussions were based on text-related facts. The ideas shared during the Commercial discussions were descriptions of the commercials. These discussions on Commercials ended in only a few moments. Perhaps the students confused the better discussion with the one they enjoyed most. Although they were adamant in their decisions, when the students

were asked why they thought one discussion was better than another, they were unable to answer why.

In order to be metacognitively aware or in control of their thinking activities during discussions, the students should be aware of strategies they could use to make their messages understood. This awareness is developed by having other people model these strategies (Baker & Brown, 1980). The strategy in the first discussions without the metaphors, was understood by the students to be "ask the question and use the facts from the text to answer the question". This strategy was modeled by the middle-achieving students and then mimicked by the low-achieving students. The students appeared to assume a teacher-student relationship.

In contrast, all of the students using the Metaphor Probe in this study consistently thought out loud during the Metaphor Probe. They appeared to verbalize their thoughts as they chose metaphors, isolated similar items from the topic and the vehicle, and connected these items from their prior knowledge to make a new meaning which became the topic of their discussion. The low-achievers immediately began using the strategies of thinking outloud while they chose their metaphors. No one student found modeling necessary, in fact the low-achieving students were the first to respond to the Metaphor Probe sheet. The students appeared to be on equal status throughout this discussion. The middle-achievers were able to define some terms unknown to the low-achievers and the middle-achievers also added some factual information to the discussions.

Few cognitive processes were employed during the discussions using the Question Probe, while all of the cognitive processes were employed during the Metaphor Probe discussion (see Figures 15 and 16). The evidence shows that all of the students were engaged in thinking out loud and using a variety of cognitive processes. Students used similar strategies in order to use higher levels of thinking such as analyzing, synthesizing, and evaluating (Brown, 1980; Paris, 1990). They did this by sifting through prior knowledge, choosing applicable information, discarding other irrelevant information, connecting events, and so on. Some of these strategies may be occasionally exhibited by students who are confident enough to employ these strategies during question and answer periods in classroom situations (Tizard & Hughes, 1984; Heath, 1982). In many classrooms, the high and middle-achievers, particularly the male students, are asked questions which encourage higher levels of thinking. Because less confident students tend to be less talkative than confident students in threatening environments, the former often do not get the opportunity to use a variety of cognitive processes (Tizard & Hughes, 1984; Heath, 1982). At times, less confident students are perceived as being academically weak students because they are not as experienced at using discussion strategies so they might not be as quick to answer questions as those who are experienced at doing so. Therefore, in order for all students to become successful at employing various cognitive processes, students from all achievement levels must be given opportunities to use these strategies. Students

from different achievement levels should be grouped together so that they could encourage each other to develop particular strengths.

Participant Roles in the Two Discussion Conditions

The following paragraphs illustrate the roles assumed by each of the middle and low-achievers during the discussion without metaphors. The middle-achievers appeared to have taken charge in the first discussions. In groups one and two, the middle-achievers, Ivan and Steve began reading the questions to the low-achievers, David and Robert, in each of their respective groups.

In Group Two, Allan the middle-achiever, began reciting commercials quite confidently without using the question probes. His partner, Ron, participated by reading an occasional probe from the sheet whenever their was a lull in the conversation. Of all three groups, Group Two appeared to be most involved in their discussions. They talked the longest, used the most cognitive processes, and used the probe most appropriately - as an aid to their discussion. Ron appeared to be the low-achiever who made the most gains in the second phase of the interviews. It would be difficult to assess whether the reason for Ron's gains could be attributed to the effective modeling Allan provided for him however, it is possible to say that it was probably a motivating factor. Ron showed evidence of almost mimicking portions of Allan's strategies as the Question discussion progressed. During the

Metaphor discussions however, Ron began choosing metaphors before Allan (who was absent during the metaphor lesson).

All of the middle-achievers appeared to have assumed the role of giving directions to the low-achievers in the Question Discussion. These leaders also displayed more patience than the low-achievers as if to encourage their partners to participate. This understanding and acceptance of different roles among the students gives the observer the distinct impression that the students did not view themselves as equals. Is this a learned classroom behavior?

The middle-achievers' leadership roles could be likened to a conventional classroom teacher's role wherein the teacher asks the questions and the student gives the answer. Towards the end of the first interview, Darryl the low-achiever in Group One, appeared to have isolated the criteria necessary for taking charge when he creatively began formulating his own questions for his partner. As it turned out, his partner proved to be more efficient at asking the questions rather than at answering new questions which required synthesizing skills in order to consider information which was not provided in their Social Studies text book. Ivan, the middle-achiever, did not appear able to or perhaps interested in venturing a prediction or possible inference towards solving the problems proposed by Darryl. Ivan, the middle-achiever, seemed to be more comfortable and efficient at reading the questions rather than answering questions to which answers could not be found in the text book. Perhaps Ivan has not had many opportunities to develop this skill.

During the Metaphor Interview, the low-achiever and the middle-achiever appeared to have exchanged roles. For example, in the first Discussions Without Metaphors, Ron in Group Two, read the questions and took a backseat to Allan in the discussions. In the Metaphor Discussions, the roles completely reversed. Ron took the lead, he became very confident in what he had to say and displayed this confidence in the way he consistently extended his answers in order clarify his thoughts and make his message understood. He took an active part in the discussion by arguing against or supporting his partner's ideas, and also added several of his own metaphors to add interest and information to the discussion. It appeared that Allan also assumed a different role. He listened to Ron more and punctuated the discussion with 'morsels' of new information that either added to Ron's ideas or begged that Ron clarify his statements. Some of Ron's new confidence in risk-taking is evident in the following passage.

> Allan: Chinese Workers are what water is to waterfalls, not what spiders are to webs...
> Ron: NO, no. Spiders make webs to trap things, like the Chinese were.
> Allan: [changing his mind] It's more like Chinese were spiders because they do all the work and like spiders get no credit for what they do - for making a complicated web."

Ron the low-achiever who, in the Question Discussion, had few opinions and who assumed the role as listener, now valued what he had to offer to the discussion. Ron was encouraged, with the help of Allan's example, patience and encouragement, to feel confident enough

to make choices and to express them. He began to effectively apply his prior knowledge, analyze and evaluate his partner's solutions, and then argue with his own opposing opinions and solutions. The Metaphor Discussion situation provided Ron and all of the participants with the opportunity to develop and express these various levels of cognitive processes.

Darryl, the low-achiever in Group Two, exhibited the same change in risk-taking that Ron did. In Group Three, Ryan's confidence in risk-taking also grew but not to the same extent as that of his middle-achieving partner's. After consulting with their teacher, it was discovered that Steve and Ryan could probably both be considered middle-achievers rather than a low and middle-achiever. Therefore, neither student assumed the dominant modeling role that was evident in the other two middle-achievers. However, Steve's obvious excitement in employing metaphors and his determination to argue his points and develop more metaphors of his own may be an indication that Steve was discovering strategies that helped him to use a variety of cognitive processes. Ryan was beginning to show the same excitement until he appeared to become somewhat distracted by the fact that it was three o'clock on a Friday afternoon.

Grouping middle and low achievers together in a discussion activity such as in this study appears to have several positive advantages. When the middle-achiever appears to be patient and respectful of turn-taking, the low-achiever is encouraged to take time to try some of the newly learned strategies. Often the low-achiever encourages the

middle-achiever to clarify his thoughts and ideas so the middle-achiever is encouraged to speak clearly. By pairing students with different abilities, both students have the opportunity to develop confidence, to refine discussion strategies, and to engage in discussions involving a variety of cognitive processes. That is not to say that other combinations of achievement levels should be eliminated. Students should experience discussions with peers of all abilities in order to determine which pairs or groups of students are more successfully matched.

This study provides strong evidence that low and middle-achievers are a successful combination for group discussions using students' metaphors. This study also provides evidence that students should not be assigned to a particular "ability or achievement level" because when students are provided with non-threatening environments within which to learn and discuss, it becomes quite difficult to distinguish one "level of ability" from another.

Affective Behaviour in the Two Discussion Conditions

During the Discussion Group interviews, only Group Two showed evidence of positive affective engagement and that occurred when the students discussed the issues in terms of themselves, of others, and of an external reality (Wilkinson, 1980). For the most part, in the discussions without metaphors, the students failed to make personal connections with the issues at hand.

Wilkinson (1980) stated that about half of the 10 year old students in his study showed evidence of affective engagement in the discussions but only in situations that required argumentative rather than explanatory tasks. He added that by 13 years of age, children usually learned to display an empathy for others.

The Metaphor Probe discussion situation provided many opportunities for the students to substantiate and argue their choices. In order to argue their points, the students were forced to place themselves in other people's situations and to experience how other people would feel under certain circumstances. All of the students, who in this study were 12 years of age, were able to consistently provide discussions that displayed positive affective engagements which were, according to Wilkinson's assessment, at or above their given age levels.

The students appeared to have taken delight in using metaphors when they repeatedly emphasized how much fun it was to express their feelings and encourage others to express theirs as they engaged in using metaphors (see the following paragraph for examples of the students' excitement).

3. IS THE METAPHOR PROBE DEVELOPED DURING THIS STUDY A WORKABLE AND USEFUL TOOL FOR CLASSROOM TEACHERS?

When the students were asked, "Which do you prefer the Metaphor Discussions or the discussions with a Question Probe?", the answers were a unanimous, "The metaphors - OH YEH!!" When they were asked to explain why, some of their responses included, "Because we use our own words in the metaphors and we know what they mean!"; "Because it's fun to tell what you want and ask what the other guy wants."; "Because you go back and forth and figure out things together."; "I don't know, it's somehow better..."; and "It's a lot more fun - it went so fast!"

These comments made by the students should be reason enough for teachers to encourage a discussion probe which is so excitedly acclaimed by students from different ability levels. Further, as the analysis has demonstrated, the Metaphor Probe prompted discussions in which evaluation and analysis skills, critical thinking, problem-solving strategies, organizing and reference skills, synthesis, application of ideas, creativity, decision-making and communication skills were evident, all of which teachers are encouraged by the most recent Curriculum Guide for Language Arts (1990) to emphasize.

While many opportunities for talking and listening exist in the lower, primary levels, these opportunities appear to diminish as students enter the higher grades (Willbrand & Rieke, 1983). Through the decades we have developed an educational bias toward reading and writing. Students at all levels should have a variety of opportunities

to participate in cooperative learning situations where they are encouraged to talk about their feelings and ideas. "Ideas frequently do not emerge full-blown, but more like buds which need to develop" (Hunsberger, 1983, p.11). Cooperative learning encourages students to "discuss the assigned learning material in ways that ensure elaborative rehearsals and the use of higher level learning activities" (Johnson & Johnson cited in Slavin, 1985, p.19). The Metaphor Probe, in this study has provided a cooperative learning situation which encourages students to discuss issues and to develop higher levels of learning activities recommended by the Curriculum Guide and listed in the quotation above.

The Metaphor Probe, used in a cooperative learning situation also encourages the following behaviours which are listed in the Curriculum Guide (1990) as desirable. The Metaphor Probe encourages students:

- to develop a greater conceptual learning which requires a greater efficacy of cooperation.
- to address controversy among group members.
- to keep each other on task.
- to provide each other with feedback.
- to support each other's efforts to communicate well.
- to all be involved in the learning process.
- to work with students from various achievement levels.

The Royal Commission (1989) suggested that the development of language should begin with the students speaking about their own experiences. When students engage in the use of metaphors, they must

recall prior knowledge in order to compare what they know about about the topic to what they know about the vehicle. The Commission also stated that students should be involved in critical reflection of what they are studying. They added that students should discuss and question past and current events so that they can both predict future events and also relate what they're studying to their personal worlds. When students participate in a discussion using a Metaphor Probe, they are encouraged to grapple with issues in a way that is unique. The students choose the issue that is most important to them and then reflect on and choose the metaphors which become "the portals to their minds" - an avenue through which students can connect thoughts and formulate new understandings aloud. Through their own metaphors, students are able to express how they feel about issues and why they feel that way. They make a point and then listen to their partner's opinion which gives students an opportunity to reflect on how others feel about past and current events.

Figurative language is best learned in a small-group situation where students can listen and learn from their peers (Manning & Ray, 1990). Using the method described in this study, the students became familiar with metaphors in one hour. Within this hour, the students also discussed two topics, "Commercials" and "The Chinese Railway Workers", and then generated many metaphors relating to both of these topics. In a regular classroom, teachers could use a similar method to teach and elicit the metaphors. The researcher would recommend however, that the teacher double the metaphor teaching time in order to

make the lesson less rushed. Perhaps after the lesson was taught, students could be encouraged to think of their own metaphors, write them down, and then form small groups in order to stimulate further thought regarding metaphors. The collaborative skills that are encouraged in discussions such as those found in this study, help students to develop social skills which encourage students to risk-take, to take turns, and to listen to each other.

An understanding of figurative language can also be extended to other Language Arts activities that could include identifying and appreciating metaphors found in poetry and literature as well as irony found in editorials.

Teaching students to understand and employ metaphors takes little classroom time; however, the benefits of organizing such a program are extensive. More of these benefits will be discussed in the final chapter under the heading, Implications For Education.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

Educators need to examine the merits of creating student-directed learning environments in which students use their own metaphors to stimulate discussions about issues that are important to them. The purpose of this study was to examine two probes that could be used as stimuli for encouraging students to use a variety of cognitive processes while discussing topics of their choice. While there are many ways in which students could be involved in discussion situations, some factors should be considered when setting up such activities. Educators need to consider group discussion elements listed under the following educational assumptions:

1. Do the students play a part of the decision-making process?

Students need a say in the types of topics they will be discussing because it is their prior knowledge that will be directly involved in the conversation. If they had a choice in the decision-making process, students would be encouraged to feel in charge of and assume ownership in the whole process involved in the discussion activity. They should be encouraged to set the criteria for the activity and make choices. In the discussions using the Metaphor Probe as a stimulus, the students

chose both the topics for discussion and the metaphors used in the probe. The method of using the probes is also left to the student.

2. Does the discussion invite the students to think both critically and creatively?

In the discussion with the Question Probe as a stimulus, the students generally used cognitive processes which exhibited describing, interpreting, and applying processes. They exhibited a limited use of processes such as analyzing, synthesizing, and evaluating which encourage students both to probe and to think critically. During the discussions involving the Metaphor Probe, the students used a complex system of pulling together information in order to make predictions, solve problems, and make connections between ideas. By using metaphors such as the **"Chinese Workers are dying flowers in the meadow"**, they used very creative ways to express how they felt about the topic.

3. Does the discussion involve language which is familiar to children?

When Darryl (low-achiever) was asked why he preferred the discussions using the metaphors, he replied, "Because we use our own words and we know what they mean". He immediately recognized that familiarity with the language somehow made the process less difficult and perhaps more inviting. Even when students chose very different avenues from which to express themselves, they still listened to and tried to comprehend their partners' responses. For example, Ryan said, "I think they're ignitions [commercials]. They start something. They

start the sales in the stores and get people buying things." Judging by his response, Allan probably understood Ryan's reasoning but he chose a reasoning of his own when he said, "Well, I think they're uninvited guests ..." Both responses were stated in terms that these children could understand. This might not have been the case if the author had elicited the metaphors.

4. Does the environment invite students to risk stating their opinions and sharing their feelings?

The discussions with the Metaphor Probe exhibit many examples of students engaged in arguing, rephrasing, clarifying, and persuading. Students will tend to consistently engage in these discussion tactics when they feel confident that using these tactics to express their feelings is encouraged by both the teacher and their partner. In most classrooms, the teacher sets the tone for acceptable behaviour. If the teacher accepts all reasonable answers and encourages individuals to state and substantiate their opinions, then students will follow suit.

5. Does the the discussion encourage students to use language for complex purposes?

Metaphors are used to create new relations between concepts (Camac & Glucksberg, 1984). This complex process requires that students use their prior knowledge to examine two items (topic and vehicle), and then draw out pertinent information that would create an original or unique way of interpreting something. In order to interpret metaphors,

students first need to understand that the metaphor is not meant to be taken literally. When they hear the metaphor, they derive a literal meaning first, then if that does not work, they make inferences until a non-literal meaning works (Gildea & Glucksberg, 1986). This is a complex process.

6. Are the personalities and abilities of both discussants considered so that these qualities in each of the students compliment each other?

In the study, the students more relaxed with participating in discussions appeared to subconsciously model these methods for their partners. These strategy-conscious students also appeared to be patient while their partners applied the same techniques. Although it is difficult to prove that these strategies were learned during the activities, it was observed that the low-achievers were given time to think and then express their opinions. There was a marked change in the numbers and types of responses given by the students in the Question discussions to the responses given later in the Metaphor discussion. The evidence given in the study suggests that the manner in which the students were grouped was a contributing factor to the success of the second type of discussion using the Metaphor Probe.

7. Does the discussion consider students of all cultures?

One would think that metaphors are culture-based because the student would create a metaphor from prior knowledge which would be unique to that particular student. Therefore, because all of the topic

ideas and all of the metaphors originate with the students, every discussant would have the opportunity to use language and concepts which are familiar to his or her culture.

THE KEY FINDINGS

The ensuing discussion will highlight the key findings discussed in the research questions.

1.DOES THE QUESTION PROBE OR THE METAPHOR PROBE RESULT IN RICHER DISCUSSIONS AND STIMULATE THE STUDENTS TO USE A GREATER VARIETY OF COGNITIVE PROCESSES IN A GROUP DISCUSSION?

A. The Question Probe

When the students engaged in discussions with the Question Probe as their guide, their conversations resembled a classroom question and answer period, even though they were asked to use the question sheet only as a guide for their discussions. The middle-achieving students in each group assumed the leadership roles and read the questions from the sheet while the low-achieving students attempted to answer the questions. The middle-achievers made no attempts to rephrase the questions and only one middle-achiever tried to answer the questions. During the Chinese Workers discussions, all of the students applied describing and interpreting cognitive processes in which the students

generally recalled and presented partial information about facts that they could remember from their Social Studies texts. During the Commercials discussions, similar types of cognitive processes were used in order to list and partially describe commercials.

The groups completed their discussions in a very short time. Group One completed theirs in two and a half minutes, Group Two in eight minutes, and Group Three fidgeted uncomfortably for two minutes and then completed their discussion in two minutes. All six discussants exhibited signs of restlessness by dropping their pencils, playing with their hair, yawning, pausing for long spells, staring out the window, and laughing for no apparent reasons.

B. Metaphor Probe

In contrast, in the discussions with the Metaphor Probe as a guide, it was nearly impossible to differentiate the achievement levels of the students. In the first discussions, the middle-achievers assumed the questioner's or leader's role. In the second discussions, the low-achievers appeared to be even more enthusiastic about the discussions than their partners. All the low-achievers, with the exception of Ryan in Group Three [who was re-categorized by his teacher as being more of a middle than a low-achiever] became the dominant speakers in their groups. All of the students in all of the groups used all of the cognitive processes described in this study.

The students began their discussions immediately upon receiving and quickly scanning their Metaphor Probe sheets. They continued their

discussions with great interest and enthusiasm until they were asked to terminate the interview. The students, especially the low-achievers were excited, motivated, and expressive. They did not require modeling or coaxing in order to express how they felt about the topics. They were familiar with the language and they had something exciting to say.

2.HOW DOES GROUPING CHILDREN ACCORDING TO ACHIEVEMENT LEVELS AFFECT A GROUP DISCUSSION?

It does not appear evident that it was necessary for the middle-achievers to model the strategies necessary for using a variety of cognitive processes. It has been observed however, that the middle-achievers initially followed directions better in reminding the low-achievers to answer why they had chosen a particular metaphor. They also were able to define some terms that the low-achiever did not understand and they added some interesting factual points to the discussion. It could be said that hearing the cognitive processes spoken out loud was a motivational factor for the less proficient students.

In the first discussions, without metaphors, the students did not use a variety of cognitive processes such as analyzing, synthesizing, and evaluating. When the students were provided with their own metaphors, they used all of the cognitive processes in order to substantiate their reasons for choosing that particular metaphor. So it would appear that the process of using the metaphors and then having

to explain why, was a very strong motivating factor for using all of the cognitive processes.

By pairing students with different abilities, students are exposed to hearing different ways of using cognitive processes as well as being exposed to opportunities to try them out. This study indicates that the most effective way to encourage the use of a variety of thinking processes is for the students to be involved with peers in a discussion in which various strategies are being used. Peer teachers who are instructed to be patient and encouraging towards their peer students could be a very important component of classroom learning. Peer teachers could also be instructed to be aware of and to use the thinking out loud strategies that the students need to hear.

Did the low-achievers need the middle-achievers to model risk-taking? After examining both types of discussions, it was observed that during the first discussions without metaphors, the middle-achievers appeared to have the confidence to take charge of the activity by asking the questions provided on the sheet. The low-achievers seemed to have assumed that their role was to answer the questions. In contrast, when the low-achievers were exposed to the Metaphor Probe, they appeared motivated and confident enough to assume the leadership role previously taken by the middle-achievers. The author would guess, based on the evidence in this study, that the low-achieving students did not need to see risk-taking modeled because they would have had many opportunities to witness this process in class. What the low-achievers would need however, was the motivation

and the opportunity to practice risk-taking. The Metaphor Probe provided the motivation and the encouraging and patient middle-achieving students in a cooperative discussion activity provided the opportunity.

It was observed that in the first discussions, the middle-achieving students assumed a leadership role, the authority of which, diminished during the discussions with the Metaphor Probe. During these discussions, the low-achieving students became motivated to give their opinions and share their ideas. This renewed participation was encouraged by the middle-achievers. When the students became equal partners in discussion, many affective qualities were observed. The key points which outline the affective engagement exhibited by the students in the discussions are highlighted in the following paragraphs.

During the discussions with the Question Probes, only two students made a statement which would indicate that they felt personally related to the issues in the Chinese Workers topic. Likewise, during the Commercial discussions, students stated that they liked or disliked specific commercials but they did not give personal reasons why. All of the students omitted the final question which requested that they express how the commercials make you feel. The students demonstrated little enthusiasm for engaging in the discussions, in fact, they appeared very bored and anxious to terminate the conversations. When they were asked how they felt they had performed in the discussions

with the Question Probes, they all agreed that they did not do particularly well.

In contrast, during the discussions with the Metaphor Probes, the students' affective engagement was observed under the following topics:

- They related personally to both topics. Students made the following comments to the effect that boring, repetitive commercials can give you a headache; that New Kids [a teenage singing group] are slimy and and smelly because they cannot sing or act; that the Chinese Workers are aborted babies and that it's too bad they worked for so little; and that they're [Chinese Workers] babies learning to walk because they're hopeless and have no options. Sometimes the students did not make direct reference to how they felt about the topic but their choice and explanation of the metaphors left little doubt about how they felt.

- They shared their feelings. All of the students used the metaphors to express how they felt about the topics. They appeared to be interested in making those feelings understood because they always explained why they chose a particular metaphor, and they never gave flippant answers such as, "Just because" or "You know why.". They continually made great efforts to make their feelings understood.

- They showed excitement in sharing ideas, making a point, and using metaphors. Students continually repeated phrases, argued, and rephrased statements in order to make their points. They used most of the metaphors on the sheet as a way of expressing how they felt about the topics. At times, they would skip down the page to other metaphors

and use that particular metaphor to either express how they felt or to argue a point. When the Metaphor Interview was over, some of the students said, "What? It's over?". These same students struggled to remain engaged in conversation for even two minutes in the first discussion without metaphors.

- The students continually exhibited their enthusiasm for using metaphors. One example of this display was observed on a Friday afternoon, after the dismissal bell rang to signal the end of Group Three's discussion, Steve pleaded with Ryan to generate just one more metaphor (they were not requested to do so). Another example was when all of the students were asked which type of discussion they enjoyed more, they unanimously agreed on the Metaphor Probe saying, "Oh yeh! The Metaphors!" Darryl appeared to take delight in rephrasing, on three different occasions, how the Chinese Workers were holograms. He was determined to make Ivan as excited about this idea as he was. And finally, at the pizza party, after the research meetings were over, the students eagerly explained how metaphors worked to some interested bystanders.

- They acted as peer teachers. Students modeled turn-taking and patience while waiting for their partner to respond to questions. The students encouraged each other to: choose metaphors, explain the reasons for their choices, clarify certain responses, and listen. When Ivan (middle-achiever) used the word "dumb" to describe how he felt about something, Darryl (low-achiever) quickly retorted, "A metaphor, Ivan, use a metaphor!".

- They became confident communicators. In the first discussions, the students appeared to be disinterested in engaging in conversations. With the Metaphor Probe, the students were excited about having something to say. They used the metaphors as a way of expressing how they felt and to make their point, they argued, clarified, and repeated important points. At times, they argued with themselves as they made decisions and then re-evaluated their own conclusions. They did not just exchange information, they communicated feelings, problems, and solutions.

- They promoted cooperative learning. While the students discussed why they chose particular metaphors, they made encouraging remarks to one another such as: "Get it? What do you think?"; "That's a good one, that's a real good one!" and "Let's think of one, let's do one [think of their own metaphor] Come on Ryan.". The students endorsed the use of the metaphors and accepted their roles as equal owners in a partnership. Each student wanted to make his point but he also appreciated what his partner had to say as well. For example, when Steve decided commercials were like **eagles' screams**, he made it clear to Ryan, whose interest was waning, that he did not have to agree when he said, "Sure you must have one say on it or would you rather say it was an **exavator** and not an **eagle's scream** ... it COULD be an **eagle's scream.**". Steve tried a number of resources to draw his partner into the discussion.

It was evident in the study that the low-achievers did become confident risk-takers during the discussions with the Metaphor Probe.

They used all of the cognitive processes listed in this study to argue, clarify, and make a point. All of the students gave overwhelming support that they preferred using the Metaphor Probe over that of the Question Probe. Therefore, one could conclude that, because they enjoyed using the metaphors and displayed confident risk-taking behaviour in the process of discussing them, the metaphors were a strong motivational factor in the success of the metaphor discussions.

When the students were given a Speech Assessment Survey at the onset of the discussions, they responded to the question, "What kind of a speaker do you think you are?" in the following ways:

Darryl: (low-achiever) Horrible.
Ivan: (middle-achiever) A loud speaker.
Steve: (middle-achiever) A weird speaker.
Ryan: (low-achiever) Not that good.
Allan: (middle-achiever) Good.
Robin: (low-achiever) A bad speaker.

Was Ryan wanting more opportunities to speak when he said, "Make people shut up," when he was asked what he could do to improve? All of the boys answered, "It's embarassing making a mistake," when they were asked what they liked least about speaking in class. David, who could not stop expressing his feelings through metaphors, was asked, "What do you like most about speaking in front of the class?". He responded, "When it's over.". Allan was the only discussant who appeared to have a healthy and confident attitude towards speaking, at the time the students answered the survey. During the Metaphor Probe discussion

however, all of the discussants appeared to be confident and excited about what they had to say.

3.IS THE METAPHOR PROBE DEVELOPED DURING THIS STUDY A WORKABLE AND USEFUL TOOL FOR CLASSROOM TEACHERS?

The Metaphor Probe is definitely a workable tool for classroom teachers. The following points outline reasons why.

- it takes approximately one and one half hours to familiarize students with metaphors.
- it requires little, if any, teacher intervention.
- it allows the students to become facilitators and independent learners.
- once the process is learned, it could be applied to a variety of situations or content areas.
- the activity allows the teacher freedom to rotate from one group to another while evaluating or intervening.
- students of all abilities can work with this probe independently.
- because students are motivated by the probe, they will be encouraged to work diligently and enthusiastically.
- it is the type of activity recommended for use by the Royal Commission on Education (1989).

The points listed above are ways the Metaphor Probe facilitates effective classroom learning. The issues discussed on the following

two pages are long-term reasons for learning discussion strategies which enhance students' abilities to discuss their feelings.

WHY SHOULD TEACHERS USE THE METAPHOR PROBE?

We are living at a time of foreseeable changes in our society and in our school systems. Unemployment statistics are high, health rates and medical costs continue to climb, our senior population is growing at an alarming rate. All of these events place a heavy burden on the present and future generations which will be responsible for supporting our growing number of very costly programs. Although the onus is on our high school students to become well-educated and trained in their fields, the competition to get acceptance into Universities, Colleges, and training centers is fierce. Because educational facilities are becoming overcrowded, the tuitions and standards for acceptance into these centers are being raised. The school programs generally reflect the needs of our society because we, as educators, endeavor to prepare our students for their adult roles in society. How can we, as educators, prepare our students to become happy and successful members of our society?

Students will continue to need to develop both computational skills and content mastery which have been the focus in our traditional school programs. However as our businesses, for example, move toward decentralization, individuals in our society will have more say in what happens. Already, individuals have an impact on politics and

environmental issues linked to businesses. The emphasis in schools is now placed on an integrated approach to learning. Students need to develop both the cognitive and the affective domains. They will need to know the facts, but just as importantly, they will need to be able to express their thoughts and feelings about those facts in connection with other aspects of the world. Students who understand and can communicate the parts in relation to the whole may be more successful in the decentralized world.

Being involved in cooperative activities such as in the Metaphor Probe discussion, will provide students with opportunities to encourage stimulation in both the cognitive and affective domains. Students will be encouraged to express their feelings about both curriculum content topics as well as other issues which are important to them. When other students and teachers listen to their feelings and opinions, children will become confident that what they think is important. This understanding could encourage students to try to make a difference in their world by connecting facts, logic, and feelings and communicating this knowledge in their everyday lives.

Practical Applications and Recommendations For Further Study

This study has outlined the results of using a tool, the Metaphor Probe, as a stimulus for students to explore their thoughts and feelings about topics and about other people. It is an activity which encourages children to examine, reflect on, and react cognitively and

affectively. This particular study only examined grade six boys from "two levels" of achievement discussing a favorite and a Social Studies topic. The following shifts in focus could enhance our understanding of using the Metaphor Probe in other settings.

The Metaphor Probe could be used with children from other cultures. Students could be grouped according to specific cultures for discussions and then they could share with the remaining students, metaphors that are specific to their culture. Then groups could be culturally mixed and exposed to other ways of thinking and interpreting metaphors.

The Metaphor Probe could be used in a group consisting of both genders. First girls and boys could be grouped separately and then the students could be combined in groups consisting of mixed genders. The topics that were discussed in the groups with the same gender could be discussed the second time in the mixed-gender groups. That way, if students were more comfortable expressing their feelings with their own gender, they would have an opportunity to rehearse their discussions before they were asked to share their feelings with the opposite sex. If boys really do find it difficult to express their feelings (Askew & Ross, 1988) they would be exposed to listening to the strategies girls use to do the same. In the same manner, the girls could learn to encourage boys to feel comfortable about expressing their feelings.

Because the selection of the partners appears to be influenced by something more than "cognitive abilities", educators are encouraged to

experiment with and consider factors such as personalities and interests when grouping students.

Contributions to Education

The following points illustrate some of the contributions this study has made to education:

- students chose their own topics and made their own decisions about which topics would be used. Although each individual topic could not be used, students democratically had a say through voting. The final choice was a student's topic.
- the metaphors were developed by students, therefore the metaphors were stated in terms other students could understand.
- because relating the topic and vehicle in metaphors requires using one's prior knowledge, each student, in effect, must decide how the metaphor will be utilized.
- because the students chose the topics and the metaphors which formed a very important part of the study, they were encouraged to think that their ideas were important.
- students are encouraged to be in charge of their learning when they become metacognitively aware of the strategies they are using with a technique such as the Metaphor Probe. They can come to recognize the probe both as another a way of explaining things and as a tool which

can be used to initiate conversations in an elaborative and interesting way.

- students and teachers act as co-learners. The language which is familiar to the child acts for the teacher as an 'entry way' into the child's way of thinking and of perceiving his environment. Students and teachers discover and learn things together. No one person has the correct answer.
- teachers need not intervene. The teacher facilitates in compiling the students' topics and metaphors so that the students are free to converse without teacher intervention.
- students may learn to think that listening, thinking, and speaking are equally important.
- the variety of metaphors allow the students a number of ways of interpreting the metaphors.
- by answering the question 'why', students are encouraged to elaborate their thoughts by substantiating their reasons for making that particular choice.
- when students substantiate their reasons for making choices, they make an added commitment to the discussion, the process of which may encourage them to deepen their thinking and reasoning. Students are invited to probe deeply into their thoughts in order to make meaningful connections between their choices and their reasons for making those choices.

- students are encouraged to use language for many purposes. During this activity, they used language for complex purposes such as for comparing, contrasting, evaluating, and problem-solving.

- students are encouraged to risk stating their opinions and expressing their feelings in an environment where all reasonable responses are accepted and respected.

The Metaphor Probe has allowed students to take ownership and responsibility for their learning. The process involved has encouraged the students to generate their own ideas in a setting that was exciting and motivating. The students implemented a process of using metaphors which is natural to very young children - a process that was once very familiar to them (Tinney, 1991). When students use metaphors, they can experience a validation or affirmation of an exciting and familiar process which may have been used very naturally and effectively as a young child.

The following haiku poem was composed using the students' metaphors about commercials;

Commercials

Photocopiers

Like some uninvited guests.

Steal your eyes and time.

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Appendix A

Speech Self-assessment Survey

Think about yourself as a **speaker**. Answer the following questions as accurately as you can. Your names will be kept confidential.

1.What do you like most about speaking in front of the class? _____

_____

With your friends?_____

2.What do you like least about speaking in class?_____

_____

With friends?_____

3.What kind of speaker do you think you are?_____

How do you know? _____

4.Do you have problems speaking in class or with friends? If yes, why?_____

_____

5.Why do you think you have these problems? _____

_____

6.What do you think you have to do in order to improve? _____

_____

7.What do you do best when you speak? _____

8.Tell me about the speaker you would like to become? _____

Figure 1. Students' speech self-assessment.

Appendix B

Source: [illegible] Oral Communication in the Intermediate Grades. Ministry of Education, B.C. 1988 9:21

SAMPLE RATING SCALE: BEHAVIOUR IN GROUP SETTING

Recording '✓+' or '1' Needs improvement
'✓ ' or '2' Average
'✓-' or '3' Above average

	Student name				
1. Speaks clearly and audibly					
2. Listens attentively and follows along					
3. Initiates ideas					
4. Adds voluntarily to others' ideas					
5. Stays on topic (task)					
6. Accepts criticism well					
7. Disagrees tactfully					
8. Summarizes group's activity upon request					

Intermediate Grades. Ministry of Education, B.C. 1988

SAMPLE RATING SCALE/PROFILE FOR GROUP SETTINGS

Criteria for Rating: Interpersonal Strategies

5 Works cooperatively, shares ideas and feelings freely, and demonstrates interest in and sensitivity toward other students' contributions. Attempts to facilitate the group processes through conciliating, building consensus, and assuming leadership as appropriate.

4 Attempts to work cooperatively, shares ideas and listens attentively, but may become somewhat reticent in the face of opposition, or occasionally attempt to coerce or "railroad" others.

3 Attempts to work cooperatively, but is occasionally insensitive - may sometimes be inattentive when others are speaking or fail to respond to their ideas. May display rather autocratic leadership.

2 Weak interpersonal strategies for cooperative work--tends to be egocentric, ignoring or failing to respond to others.

1 No attempt to work cooperatively. Behaviour is generally insensitive and inappropriate.

Criteria for Rating: Individual Contributions

5 Addresses task. Fluent and flexible - offers a number of ideas or alternatives, and extends or elaborates what others say. Shares willingly in tasks.

4 Addresses task and attempts to contribute to best of ability. May not be particularly fluent, but supports and extends others' ideas. Shares willingly in tasks.

3 Attempts to contribute but may occasionally become frustrated, uninterested, or wander off topic. Accepts, but may not seek, responsibility for individual tasks.

2 Relatively low contribution - offers ideas only when prompted and these may be irrelevant or repetitious. Accepts tasks, but deals with these in a rather cursory manner.

1 Fails to contribute. Resists or fails to complete his or her share of the tasks.

.../2

SAMPLE RATING SCALE/PROFILE FOR GROUP SETTINGS (cont'd) 2.

Name: Date:

A. INTERPERSONAL STRATEGIES	Weak	Developing	Strong
• Communicates feelings	☐	☐	☐
• Shares ideas	☐	☐	☐
• Volunteers support and encouragement to others	☐	☐	☐
• Listens attentively, courteously	☐	☐	☐
• Willing to take turns	☐	☐	☐

B. INDIVIDUAL CONTRIBUTIONS	Weak	Developing	Strong
• Generates ideas	☐	☐	☐
• Formulates questions to clarify or elaborate	☐	☐	☐
• Offers information clearly and concisely	☐	☐	☐
• Stays on task	☐	☐	☐
• Predicts outcomes or consequences	☐	☐	☐
• Makes generalizations	☐	☐	☐
• Works toward a solution	☐	☐	☐
• Takes responsibility for tasks	☐	☐	☐

OVERALL RATINGS (see Criteria on previous page)

INTERPERSONAL STRATEGIES	1	2	3	4	5
INDIVIDUAL CONTRIBUTION	1	2	3	4	5