

**PRINCIPALS' PERCEPTIONS OF THE INTUITIVE TEACHER**

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## DEDICATION

This thesis is dedicated with love to my husband, Jeremy Mayne, who has given me love and strength for the past twenty-five years.

Jeremy, your support for my passionate approach to everything I do has kept me alive. You believe in me as a person, as a teacher and as a writer. You insisted that I do a thesis, even though you knew it meant more time for the computer and less for the family. Your encouragement, spoken and unspoken, has allowed me to realize my dreams. As an artist, teacher, parent and friend you inspire me. Thank you for reviewing this work with such care, and for helping me to persist whenever I became discouraged. Your faith in me makes anything possible.

## ABSTRACT

Administrators often refer to “intuitiveness” in teacher evaluations. What is meant by intuitiveness? What is an “intuitive” teacher? Are the principals’ perceptions consistent among themselves and with the literature? Can they identify an intuitive teacher? This study undertook to define intuition and an intuitive teacher based on the literature, then to determine whether administrators could describe and select an intuitive teacher. The measure used was the Knowledge Accessing Modes Inventory (1988). The results call in to question the use of the word “intuitive” to describe teachers. Behaviour and personal characteristics are confused with intuition as a thinking style. Therefore, “intuitiveness” should not be used in teacher evaluations. The study also challenges tests that include personality traits and observable behaviours as indicators of thinking style.

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## Purpose of the Study

Teachers and school administrators are required to make hundreds of decisions each day. When one asks a teacher or school administrator to explain why they made a particular decision, the answer, especially if the outcome was successful, will often be, "I just followed my intuition." Administrators may even include a mention of intuitive ability in teacher evaluations. Jim Dean, former superintendent of the curriculum department of the Calgary Board of Education, insists that teaching is a gift, an art, a talent: "In my thirty-five years as an educator, with over twenty as an administrator, my observations and evaluations have confirmed my belief that the best teachers are intuitive. They are not made. They are born. They have a special quality that others don't, which is difficult to describe, but when it's present, it is obvious" (personal communication, January 19, 1998). Gervais Sirois (1997) expresses it this way:

The act of teaching is global and intuitive and resembles the artist's gestures . . . It calls upon all of the resources of the person, his attitudes, personal cognitive style, background experiences, skills, knowledge and techniques. Teachers only rarely formulate their pedagogical thinking: they act . . . the style of the teacher, similar to the style of the artist, is anchored in a powerful inner structure. Because the structure is not defined does not mean it does not exist. (p. 16, translation mine)

As a recruitment consultant for the Calgary Board of Education, I have read hundreds of evaluations and reference letters for teachers. References to "natural ability," "with-it-ness" and "intuitive ability" are common:

- "\_\_\_\_\_ has the intangible quality of being a natural teacher . . . she instinctively knows when to adjust a lesson or change an activity to suit the classroom environment;"

- “\_\_\_\_\_ had an intuitive knowledge of individual needs and was able to make each child feel part of the class;”
- “\_\_\_\_\_’s intuition guides her as she presents books to young children. She knows when to present a new skill to a student and when to allow that student practice time with familiar material;”
- “\_\_\_\_\_’s fine sense of intuitive ability combined with her vision of working hard to attain a goal. . . make her the strong individual that she has become;”
- “has a natural, built-in ability to be a teacher. She was an intern with true ‘with-it-ness’.”
- “She is what I would call a ‘natural’ . . . If I had to describe \_\_\_\_\_ in six words. I would say she is respected, dependable, positive, creative, intuitive and dedicated.”

While these references are to be interpreted as positive, do they represent the skills of these teachers fairly? Glowing references to intuitive teaching ability seem imprecise, making it difficult for others to understand the processes at work in teaching and teacher evaluation. Yet when embedded in the text of a teacher evaluation, the words “intuitive teacher” can have a powerful impact. Recruitment consultant Gordon Fairhead, a principal for twenty years and recruiter for five years, states that, all other criteria such as marks and positive ratings on scaled evaluations being equal, he would be very motivated to consider an applicant for an interview if their assessments indicated that they were intuitive, “natural” teachers (personal communication, October, 1998). To him, it means “they have what it takes, especially in the realm of relationship building, which is of great importance.”



But what does it take? Educational professionals are frustrated as they attempt to articulate the knowledge they possess. They may justify their difficulties by stating that teaching is an art and thus exempt from rational dissection. However, the artist relies upon principles of technique and composition even in the most avant-garde work. The teacher does also. To credit intuition with the success of critical decisions in schools may undermine professional esteem, since in our society intuition is often neither understood nor valued. While in some circles and contexts it may be acceptable to admit relying upon intuition, in a professional sense such an admission may result in derision, disrespect, even a suspicion of mental instability.

Until recently, intuition in our culture has not been recognized as a valid reference point:

It may be hard to accept its importance, because intuition is usually looked upon by us thoughtful Western beings with contempt. It is often described as emotional, unreasonable or inexplicable . . . We much prefer logic, the grounded, explainable, unemotional thought process that ends in a supportable conclusion. In fact, Americans worship logic even when it's wrong, and deny intuition, even when it's right. (de Becker, 1997, p. 12)

Yet research is beginning to reveal that prominent artists, scientists, mathematicians and business people have relied upon intuition in important discoveries, creations and decisions, as the first step, setting the process in motion. Intuition is now extolled by modern "gurus" as an essential component of successful business operations. Entire sections of bookstores are devoted to self-help guides for becoming more intuitive. Obviously, at some level, it is recognized as an important factor in teaching. If it is a skill that can be learned, perhaps it can and should be consciously honed by educators to enhance their pedagogical decision-making skills. Then administrators would be justified

in assessing teachers' intuitive ability. First, however, there would have to be consensus by educators on the conceptual definition of intuition.

The purpose of this study is to examine the ways in which administrators perceive intuitive teachers. Would the evaluators cited above even agree on the definition of "intuitiveness" used in their evaluations? Can we justify judging a teacher as more or less "intuitive," when we don't have a common frame of reference to define it? Teachers must "know" that students are ready to learn, be able to capture their interest and help them progress. Their professional decisions are based on an understanding of each student as an individual, as well as on their knowledge the dynamic of the class, within the context of their environment. What is the source of such complex knowledge -- Intuition?

Expertise?-- Is there a difference?

Key questions addressed by this study are as follows:

- What *is* intuition?
- What characteristics do principals use to define intuitive teachers, and are these consistent among themselves as well as with the literature?
- Are principals able to identify intuitive teachers? If teachers are given a test to identify their thinking styles, will the results match the predictions of their administrators?
- Do thinking styles of administrators allow them to be either more or less able to identify intuitive teachers?

Through this research, I hoped to gain a better understanding of why so many evaluators include intuitive ability amongst the desirable characteristics of teachers and the basis upon which they make their assessments. Rather than relying upon a vague

notion of intuition, a review of the literature provided a "working" definition of the concept. If principals value intuition in teachers as highly as they seem to in reference letters, then it would be advantageous to all educators to possess a clearer understanding of intuition. The principals' perceptions of the intuitive thinking style and the traits that they associate with intuition were compared to the literature on intuition as a thinking skill in the field of education. This revealed what principals thought "intuitiveness" meant, and if they were accurate in their definition, according to literature. A scientifically validated assessment tool was then used to determine the "actual" thinking style of teachers compared to the predictions of their evaluators. to test their ability to identify intuitive teachers. The central question was this: Is it possible for administrators to recognize teachers who rely upon intuition in their thinking and decision-making?

## CHAPTER TWO

### Review of the Literature: What is Intuition?

#### *Childe Roland to the Dark Tower Came* (excerpts)

*My first thought was, he lied in every word,  
That hoary cripple, with malicious eye  
Askance to watch the working of his lie  
On mine, and mouth scarce able to afford  
Suppression of the glee, that pursed and scored  
Its edge, at one more victim gained thereby.*

*. . . I guessed what skull-like laugh  
Would break, what crutch 'gin write my epitaph  
For pastime in the dusty thoroughfare.*

*If at his counsel I should turn aside  
Into that ominous tract which, all agree,  
Hides the Dark Tower. Yet acquiescingly  
I did turn as he pointed: neither pride  
Nor hope rekindling at the end descried.  
So much as gladness that some end might be.*

*For, what with my whole world-wide wandering,  
What with my search drawn out through years, my hope  
Dwindled into a ghost not fit to cope  
With that obstreperous joy success would bring,  
I hardly tried now to rebuke the spring  
My heart made, finding failure in its scope.*

*. . . So, quiet as despair, I turned from him,  
That hateful cripple, out of his highway  
Into the path he pointed . . .*

*For mark! no sooner was I fairly found  
Pledged to the plain, after a pace or two,  
Than, pausing to throw backward a last view  
O'er the safe road, 'twas gone; gray plain all round:  
Nothing but plain to the horizon's bound.  
I might go on; naught else remained to do.*

*So, on I went . . .  
. . . And just as far as ever from the end!*

*Naught in the distance but the evening, naught  
To point my footstep further! At the thought,  
A great black bird, Appollyon's bosom friend,  
Sailed past, . . . perchance the guide I sought.*

*For, looking up, aware I somehow grew,  
'Spite of the dusk, the plain had given place  
All round to mountains . . .*

*. . . Here ended, then,  
Progress this way. When, in the very nick  
Of giving up, one time more, came a click  
As when a trap shuts—you're inside the den!*

*Burningly it came on me all at once,  
This was the place! . . . Duncce,  
Dotard, a-dozing at the very nonce,  
After a life spent training for the sight!*

*. . . Not see? because of night perhaps?—why, day  
Came back again for that! before it left,  
The dying sunset kindled through a cleft:*

*. . . Not hear? when noise was everywhere! it tolled  
Increasing like a bell. Names in my ears  
Of all the lost adventurers my peers . . .*

*. . . in a sheet of flame  
I saw them and I knew them all. And yet  
Dauntless the slug-horn to my lips I set,  
And blew: "Childe Roland to the Dark Tower came."*

Robert Browning, 1852

### The Mystery of Intuition

The experience of intuition is as tormenting and exhilarating as Browning's description of Childe Roland's quest in search of the Dark Tower; a quest to discover the meaning of the strong feelings that come upon one at unexpected moments, to know whether or not to follow the guidance of inner proddings, to move this way or that. Reason can be insistent, powerful: thought supplants feeling. Childe Rolande has spent years following his better judgment, and has not succeeded. At last, when he is sick with weariness and despair he is ready to take another path, and finally proceed to a place where rationally no man would go. It is only then that he begins to see, to hear. A guide in the form of a bird from Revelations leads him further into the wilderness. He has left the safe road. The "click" in his head signifies that a new consciousness has been opened. He is on the path to his desire, though he does not recognize it at first. When he arrives at his goal he is justified in his exultation. The journey has been a long one, replete with pain and suffering. The cost of his journey is high: Childe Roland will not return home again:

*... There they stood, ranged along the hillsides, met to view the last of me . . .*

Need it be so? In the process of our inculturation, particularly through the school system, we are trained to ignore "gut feelings" and "vague sensations," in favour of an analytical, logical, concrete-sequential approach to every aspect of decision-making, from work-related to personal dilemmas. Intuitive insights, if recognized as having contributed to success, are credited as good luck. "Women's intuition" is often smiled upon with indulgence, an "old wives' tale." Conversely, the word is used lightly, as though it was universally understood and accessible to all. Intuition is a synonym for "common sense."

When so described, the concept of intuition remains obscure and therefore unusable as a construct.

Intuition seems mysterious, like a divine gift impossible to understand yet difficult to ignore. Browning was uncharacteristically disinclined to discuss *Childe Roland*, the poem that was his personal favourite. He recounted how it came to him in a "kind of dream," completed in just one day. Perhaps superstitiously, Browning was reluctant to articulate the meaning of the poem. Since its publication, the poem has inspired and intrigued readers, motivating the editors of Norton's Anthology (1974) to state: "Such a poem thus poses a further large question of whether or not total comprehension of a work is always essential for appreciation of literature" (p. 1157). Hilla Rebay (1982) would argue that in art this is so:

Beauty of appearance takes its way to the heart through the medium of intuitive intelligence called spirit. Intellect prevents spontaneous reaction to this most elevating joy which sound or vision can give . . . Non-objective art need not be understood or judged. . . It follows the intuitive order of creation . . .(p. 145)

Rebay, consistent with most writers, never defines this "intuitive order of creation." It remains an enigma. How then can it be used as a construct in education, to contribute to our understanding of teaching and learning?

Almost 15 years ago, Nel Noddings and Paul Shore undertook an academic study of intuition, and produced their seminal work validating teaching for intuition in schools, *Awakening the Inner Eye: Intuition in Education* (1984). This book served as the foundation of this research, since it is still the most comprehensive, rigorous source available on the subject of intuition as it directly applies to education. They too were frustrated by the fact that while much is written on intuition, a definition is not easy to

find. Noddings and Shore explain that, although the word *intuition* is of Latin origin in the verb *intueri*, meaning "to look upon," its meaning has changed over the years and become increasingly obscured by philosophers, educators and laypersons. Flew's

Dictionary of Philosophy (1979) defines intuition as:

A form of uninferred or immediate knowledge. Two principal philosophical uses of the term may be distinguished: first, uninferred knowledge of the truth of a proposition; second, immediate knowledge of a nonpropositional object. In the latter sense, four kinds of nonpropositional object have been claimed as intuitable: (a) universals; (b) concepts, as in the case of correctly applying a concept without being able to state its rules of application; (c) sensible objects, as in Kant's account of our immediate, nonconceptual relation to sensible objects; and (d) ineffable objects, as in Bergson's account of the inexpressible awareness of duration, or in certain religious accounts of our awareness of God. (p. 177-178)

While this definition describes intuitive understanding, it does not explain how it manifests itself in perception or action. Philip Goldberg (1983) wrote a book on intuition in the early 1980s, The Intuitive Edge, which is still a fundamental reference on the subject. He extends the definition by emphasizing that the fundamental quality of intuition is the "spontaneity and immediacy of knowing . . . not mediated by a conscious or deliberate rational process," while maintaining that intuition is integral to rational thinking: "Because we usually have insufficient information and too little time to gather it when we reason, we skip many of the intermediary steps required by strict logic and leap to conclusions that are not strictly defensible" (1983, pp. 32-33). For Noddings and Shore, however, it is intuition which makes sense of reason. They support Arthur Schopenhauer's belief that the quest for understanding, determined by dynamic forces summarily known as Will, must provide the basis for the entire process. Intuition produces the well-known "Aha!" or "I see!" effect.



Psychologists Holyoak and Thagard (1995) conceive of this type of leap as an ability to quickly and deeply perceive analogies, in other words, the ability to determine abstract patterns in situations that may, on the surface, appear to be very distinct. The recognition of patterns is what produces the delighted "Aha!:" "There is something inherently pleasurable about finding a mesh between two superficially unrelated situations. Some basic human joy is triggered by the discovery of unexpected connections" (p. 9). Many of the examples used in their book to illustrate analogous thinking are the same as those cited by others to support the existence of intuition.

"I Wouldn't Call It *Intuition*..."

While Holyoak and Thagard recognize the power of analogous processing, they warn of the "threat" of analogical thinking: "...despite its intuitive appeal, the inferences generated by an analogy can turn out to be wrong or seriously incomplete . . . inferences generated by analogy must be evaluated, adapted to the unique requirements of the target, and possibly abandoned" (p. 131). The results of experiments designed by Holyoak and his colleagues in this and other works lend support to the premise that analogical thinking is distinctly human, dependent upon experience and developmental stages. They did find occasionally that some children were able to see far "below the surface." They maintain that these children should be considered precocious (not intuitive). However, their descriptions of analogical thinking resemble definitions of intuition found elsewhere. They distinguish analogical thinking from "magical thinking," whereby erroneous causal links are made between source and target. Such thinking, prevalent in nonliterate cultures and still to be found in the West in such forms as homeopathy, "developed as a precursor to scientific reasoning, in an attempt by humans to gain some understanding and control

of their complex environment" (p. 234). It is evident by the tone that the authors believe scientific reasoning to be superior, and their own "controlled" experiments in the field of analogous thinking to be scientifically valid.

The reluctance to give too much credit to "illogical" processes is common in the scientific field. This attitude can be traced to Calvinist Protestantism, Puritanism and Behavioural Scientism, based on Newtonian mechanism, that has held sway in the Western world for the past three hundred years (Hampen-Turner, 1981). Brain Power: Unlock the Power of Your Mind (1989) explains that it was once assumed that formal logic was not only descriptive of the best form of reasoning, but an actual **picture** of how people reason. Hundreds of experiments have shown that people make logical errors on all but the simplest problems, and strong beliefs prejudice our judgment of logical arguments. One widely accepted view of how people reason is that they construct mental models based on the premises of the problem. This accounts for mistakes, due to the difficulty of keeping track of all the possible solutions to a complex problem. Another strategy cited in the text is generalizing from experience, which suffers from personal bias:

The point is that most inferences--even those which appear to be explicit and deliberate--are actually "intuitive," that is, made with little awareness of the thought processes behind them. We have, therefore, no direct way of knowing when such processes are irrational and subject to bias, and are likely to feel a misplaced confidence in our own rationality. This means that it is always going to be risky to rely on our intuitions and, where possible, we should try to check our reasoning by some formal or objective method. Developments in information technology are making this increasingly possible in many fields. Weather forecasters, for example, now enjoy the benefits of powerful computer models which reduce much of the guesswork. (Beaumont, 1989, p. 139)

The prejudice against unquantifiable, non-rational thinking processes runs very deep. Code (cited in Webb, 1995) asserted that the ideals of the mainstream of Western thought are objectivity and universality, although knowledge, even objectivism, is socially constructed. In Changing Methods: Feminists Transforming Practice (1995), Code explains that "from a positivistic conception of scientific knowledge comes the dominant ideal of objectivity, together with the tradition of seeing physical science as objective knowing at its best, and its practitioners as knowers par excellence" (p. 17). Berman (cited in Webb, 1995) went so far as to state that personal or "body" knowledge is viewed with such suspicion in the Western world that it is equivalent to heresy. The negative tone is pervasive in scientific literature. Even Margaret Mead (1966) added to the perception that intuitive thinking is less advanced than rational processes, for, while she affirmed as vital the "... kind of thinking that is characteristic of dreams, in which associations are based on emotion and on types of analogy that are not subject to digital thinking . . .," she also reduced this type of thinking to the instinctive:

We do not know to what extent the humanity of human beings is dependent on the cultural restructuring of impulse structures that were appropriate to "man" at a precultural stage, when his characteristic modes of behavior were closer to animal behavior than to human behavior, as we now define it.  
(p. 153)

The association with "animalistic" behaviours would automatically lower the status of intuitive responses in the eyes of Western readers.

As a result of this disdain for the "natural" or that which cannot be measured or "proven" we find that, for the most part, the term "intuition" is missing from scientific literature. Even when describing processes that would conform to Flew's (1979) definition, the term is avoided or changed. This adds to the difficulty of researching the

concept in search of a definition. Edward de Bono (1993), a well-known psychologist who first introduced the concept "lateral thinking" to enhance problem solving and creative processes, has invented a new coinage -- "water logic." Water logic, in contrast to steadfast and unyielding "rock logic," explores, flows, emphasizes the importance of context, does not have to be either/or, is additive, shows how inputs add up to a whole, and so forth. Howard Gardner, like de Bono, is another renowned psychologist who has worked successfully to break down the narrow description of intelligent thinking as solely logical/mathematical. Yet in Frames of Mind (1983), wherein he first outlined his theory of multiple intelligences, the word "intuition" is not used, even though the "inter-personal" and "intra-personal" forms of intelligence are described in the same terms as descriptions of intuitive sensibilities in other sources. Bob Samples (1993), an equally well-known psychologist, believes, as do Holyoak and Thagard (1995), that the power of the mind lies in its ability to conceive of metaphors. Samples' detailed descriptions of the functioning of the "metaphoric mind" are synonymous with other conceptualizations of intuitive thinking. It becomes very difficult to develop a definition when the term itself seems to be almost a "dirty" word in the scientific community.

"Aha, now I get it!"

Even when acknowledged by scientists, intuition is often considered to be a form of reasoning, which occurs so quickly that we cannot be conscious of the processes, involved. However, based on their research, Noddings and Shore (1984) and Goldberg (1983) agree that intuition is not simply rapid reasoning, due to the emotional component that characterizes intuitive experiences ("surprise, clarity and beauty of perception"), and the difficulty individuals often have in expressing their understandings (Noddings &

Shore, 1984, p. 48). Such feelings are associated with a quest for knowledge. "Intuition seems to have the special function of allowing us, after we have decided in a reflective conscious mode, to submit ourselves to the world and to be, nonreflectively or directly, spoken to, grasped, and moved by it" (p. 54). Educational theorist Frank Smith (1995), like Holyoak and Thagard (1995) contends that the strong feelings accompanying intuitive insights are produced by our delight in pattern recognition. He maintains that intuition occurs through two types of imaginative thought: "(1) the generation of alternative possibilities, of potential specifications and explanations . . . and (2) the selection of the alternatives that best fit our particular purposes and the situation in which we are currently involved" (pp. 11-12). Smith believes that pattern recognition is one of the greatest powers of the human mind. He also maintains that the capacity to take risks, successfully generate multiple possibilities and choose the most favourable outcome depends upon experience.

Robert Weisberg, author of Creativity: Beyond the Myth of Genius (1993), agrees with this view. He suggests that many of the most oft-cited attributions of unconscious processes of creation or problem solving are misrepresentations, even forgeries. So-called "accidental" discoveries only became important because the individual working in the field possessed enough experience to subject the findings to further scrutiny. He contends therefore that accidents do not happen in the process of creativity. Spontaneous thoughts are the result of rapid associations that occur under circumstances that interfere with analysis, especially the positive emotions associated with the product of the thinking. "These processes--continuity based on reasoning and sensitivity to external events--are

components of ordinary thinking. Therefore, the conclusions here support the claim that creative works--even the most radical--are the result of ordinary thinking processes" (p. 255). To Weisberg, individual suitability to a field of study and personal motivation are the critical elements in creative output. The work of Ericsson, Krampe and Heizmann (1993), referenced in Gardner's study of extraordinary individuals (1997), supports the notion that intuitive discoveries or creations actually rely upon deep, long-time engagement with a subject. They found that the amount of time of intensive study is critical to achievement. Expertise is developed after an average of 10,000 hours (about ten years) of deliberate practice, usually under the tutelage of a master teacher. They also investigated claims of magical abilities in outstanding performers and found that the individuals did indeed devote the necessary time, were highly motivated and were given the support necessary to develop high ability. Thus Gardner and others see intuition as a thought process that can be explained logically.

#### Intuition and Logic

Noddings and Shore (1984) also refer to receptivity and Will (capitalized) as essential to intuition, but they don't necessarily see it as "logical" or dependent upon experience. They point out that familiarity with a subject is not enough to produce intuitive insights. It may enhance intuitive activity ". . .(but) intuitive activity may also develop familiarity" (p. 65). They and others insist that experience may in fact inhibit the individual's ability to "see." Webb (1995) refers to Nobel prize-winning geneticist Barbara McLintock's criticism of her peers for their obsession with numerical analysis and its resultant negative effect on their insight. Keller, her biographer, explained that McLintock's work was unrecognized or denigrated as outlandish for years, since she was

unable to explain her challenges to accepted theories in language which her colleagues could understand. McLintock advised scientists to "get a feeling for the organism" and stressed the importance of relationships (in Webb, p. 216). In The Metaphoric Mind (1993) Samples uses the example of how astronomers spent centuries looking for light, yet it was only when they stopped looking where there was light that they discovered neutron stars and black holes. However he goes on to explain that expressions of intuitive conclusions are most often considered deviant because:

. . . our cultural system of preferences has created a reasonably distinct hierarchy of behaviours and performances for the healthy expression of rational or logical mind function. But no such counterpart exists for the healthy metaphoric mind. In fact, quite the opposite is true . . . Most often an expression of metaphoric mind function either in perception (sensing) or conception (thinking) is considered deviant . . . In hostile ecologies, those dominated by compulsive rationalists, the metaphoric mind is a deviant characteristic. It is treated as an illness or more often as a corruption of moral strength. Metaphoric mind function and those who display its operations are often spoken of by rational neurotics in the same terms bigots apply to physically different humans. The culture describes the norm. That which deviates from the norm is asocial, acultural. (p. 168)

Samples' term "*metaphoric mind*" could be easily substituted for the word "intuition."

Is it important or possible to distinguish intuition from "rational" thought?

Psychologist Carl Jung, one of the most important proponents of intuition on a grand scale, conceived of intuition as an irrational, perceptive function, a tapping in to the collective unconscious thought of human cultures past and present. Noddings and Shore (1984) depict "a nonreflective consciousness," with such an intense focus on the object that the structure of the processes cannot be known (p. 27). They assert that there is no point or possibility of subjecting intuitive experience to rational analysis. They conceived of intuition as direct contact with The Other -- an object or an idea -- permitting

understanding in the form of knowledge or feeling that inspires actions in the outside world. They emphasized that the results of this activity, activated by the Will (the central self that manifests itself as motive, desire, feeling), are real, "vivid representations" in many forms. Though they recognized the important contribution of theorists such as Buckminster Fuller, who integrated spirituality into the definition of intuition, Noddings and Shore deliberately chose to eliminate from their research any psychic or pre-cognitive associations with the intuitive force. Nel Noddings stated that this allowed for greater acceptance of their work in the academic field, and that, in addition, the psychic or spiritual elements were too far removed from the verifiable and too widely disparate to be applicable to education (personal communication, February 13, 1998).

As we see, the struggle for acceptance of this alternate way of knowing is both internal and external, like Child Rolande's crossing of the perilous plain. Despite Noddings' disapproval (according to her own statements), Shore included some eastern philosophy and references such as Carlos Castaneda near the end of their book. Even between the authors of a book on intuition, there was disagreement as to how it should be defined and explored! They came to the conclusion that ambiguity in the field was warranted, but they formulated the following definition: "Intuition is that function that contacts objects directly in phenomena. This direct contact yields something we might call 'knowledge' in that it guides our actions and is precipitated by our own quest for meaning" (Noddings & Shore, 1984, p. 57). They go on to explain that in their conceptualization, there is no mysticism: ". . . intuition looks upon and creates representations from two domains, the perceptual and the conceptual . . . intuition as a function or mapping carries perceptual material into the cognitive domain . . . (and) also



carries perceptual material to the Will" (pp. 61-62). The authors point out that the motivational and affective connections fundamental to intuition cannot be ignored. The force of the call to action and the associated feelings are powerful: "Clearly, if intuition follows, it also leads, and indeed, we have claimed that it provides the very foundation for experience" (p. 65). *Burningly it came on me all at once, this was the place!*

### Intuition and Altered States of Consciousness

The literature reveals that intuition can be experienced in various "modes:" in a dream-like state, such as that described by Browning; in a state of heightened conscious awareness brought on by such means as meditation; or in a condition known as "flow." (Czikszentmihalyi, 1990) induced by an intense level of concentration. Some of the most significant discoveries in many fields, including mathematics and science, came about as a result of "reverie" or dreams, according to the subjects themselves:

René Descartes . . . had some important personal dreams. On the night of November 10, 1619, he had a series of dreams that he interpreted as an answer to his desire to find a method that would enable him to pursue truth as a life occupation. According to his interpretation of the dreams, which he claimed were a divine sign, his destiny was to search for truth by applying the mathematical method--by which he meant analytic geometry, in particular--to all other studies.

In Descartes' first dream, which was full of anguish and terror, he was forced to lean on his left (corresponding to the unconscious) to continue walking, since his right (corresponding to the conscious) was so weak that it could no longer support him. By giving the left a higher significance than the right, the dream reminded Descartes, who thus far in his life had believed only in reason and rejected both his instinctive and religious life, of the importance and necessity of his nonrational side.

In another dream Descartes came across two books with which he was unfamiliar, a dictionary and a poetry anthology . . . The dictionary represented "all the sciences gathered together," whereas the anthology, full of sentences by poets, recalled the discovery of enthusiasm and imagination. The union of philosophy and wisdom, represented by the two books,

constituted the answer for which Descartes was looking and subsequently informed his waking intuition of the unity of all the sciences. (Lewis, 1995, pp. 64-65)

It would come as a surprise to many to learn that Descartes developed rational empiricism, the foundation of modern science, from a vivid dream. The list of writers, scientists, artists who described their dream state at the time of their greatest discoveries includes the physicist Michael Faraday, the romantic poet Samuel Coleridge, Albert Einstein and Sigmund Freud. This state is technically known as "hypnagogia" -- the intermediate state between wakefulness and sleep (Beaumont, 1989, p. 63). Texts on the dream state, as well as metaphoric and analagous thinking, all refer to the experience of Friedrich August von Kekulé, professor of chemistry at Ghent in 1865. who, dozing before the fire, envisioned a snake seizing its own tail. He awoke with the idea behind the discovery that certain organic compounds, such as benzene, are not open structures of atoms, but form closed chains or "rings," a principle which became the basis for modern organic chemistry (see Figure 1). Similarly, Neils Bohr formulated his theory of quantum physics based on a dream of horses at a racetrack and conceived of it as an analogy of fixed and specific orbits of electrons circulating around the nuclei (Kautz & Branon, 1987, p.7).

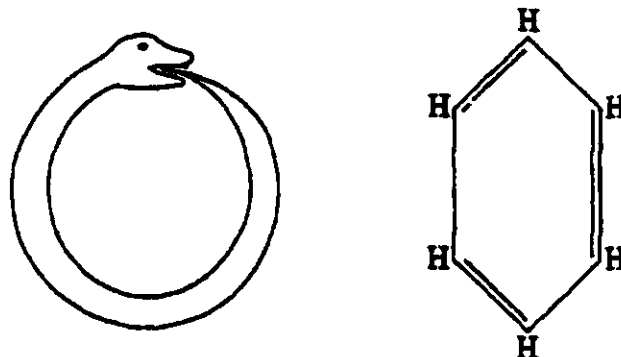


Figure 1. Kekulé's Intuitive Dream. Interestingly, Holyoak K. and Thagard, P. use this illustration as an example of a visual analog (not an "intuitive dream") in Mental Leaps: Analogy in Creative Thought, 1995, Cambridge, MA. Massachusetts Institute of Technology Press. Copyright 1995 by Massachusetts Institute of Technology. Reprinted with permission.

Though such experiences are quite common even in everyday life, they are not understood. It is postulated that when the conscious mind is relaxed, another level of the mind continues working, and then communicates its conclusions in symbolic form to the consciousness.

After intensively working on a project and frustrated by our inability to find a solution, we may give up, at least "for now." At this point, it is possible that the Intuition can maintain an unconscious (unaware) openness to a well-defined class of internal stimuli. While we are engaged in routine tasks or half-sleeping, while our senses are merely monitoring and not really engaged, our inward senses are listening, watching. This is the period of "incubation." Illumination, if it occurs, comes dramatically, accompanied by the characteristic Eureka! reaction. (Noddings & Shore, 1984, p. 79)

In many societies, the systematic use of dream incubation -- asking questions before sleep and expecting to find solutions in dreams -- was and is a common practice. In our culture, the expression "sleep on it" casually refers to the phenomenon of problem-solving that can occur during sleep, where solutions seem to emerge from the unconscious mind.

Sigmund Freud dedicated his studies of the human mind to researching the sexual and

aggressive desires which, he believed, were expressed through dreams. Carl Jung agreed with Freud's attribution of significance to dreams, but was convinced that their purpose is to reveal, rather than conceal, information in symbolic form, which requires interpretation. Jung conceived of the unconscious mind as personal and collective, with "the collective" consisting of archetypes common to all cultures and times in human history. The collective unconscious informs us through mythology and dreams. Joseph Campbell (1988) followed up on Jung's theories, conducting a life-long study of world myths to conclude that intuition is the only true source of knowledge.

In the West, dreams are usually discounted as simply the forebrain's way of cleaning up the "hard drive," responding to random electrical signals generated by the hindbrain during sleep, known as the activation-synthesis theory (Lewis, 1995. pp. 263-64). Throughout Western literature, including Shakespeare, dreams reveal the workings of the mind in the areas of memory, emotion and imagination, and are seen as powerful sources of inspiration:

Caliban:	Art thou afeard?
Stephano:	No, monster, not I.
Caliban:	Be not afeard; the isle is full of noises, Sounds, and sweet aires, that give delight, and hurt not. Sometimes a thousand twangling instruments Will hum about mine ears; and sometime voices, That, if I then had wak'd after long sleep, Will make me sleep again: and then, in dreaming, The clouds, methought, would open, and show riches Ready to drop upon me, that when I wak'd I cry'd to dream again.
Stephano:	This will prove a brave kingdom to me, where I shall have my music for nothing.

Shakespeare, The Tempest, Act III, Scene III, 133-148

Dreams might inform our waking actions, but in our society we do not pay much attention to them. Dreams are used in psychoanalysis however, such as Gestalt therapy. The development of the electroencephalograph for recording brain-wave activity allowed for intensive study of the period of sleep during which rapid eye movement occurs (REM). This was discovered to be the time during which people have the most vivid and complex dreams. Kautz and Branon (1987) report that Will Harman, president of the Institute of Noetic Sciences, found it ironic that:

. . . although mystics, in one guise or another, have been telling people about the importance of dreams for thousands of years, science has only officially begun to recognize it since it became possible to reproduce the experience under laboratory conditions, via biofeedback, where it could be quantified and analyzed. (pp. 19-20)

As we continue to develop the sophistication of our techniques for exploring the landscape of the unconscious, dream incubation and lucid dreaming may be "scientifically" validated as skills to enhance thinking and creativity.

In the West, dreams are not an important part of daily life. In other cultures such as the Senoi, however, children are given social recognition for discovering what might be called an "anxiety-motivated psychic reaction to dreams" (Lewis, 1995, pp. 213-214). Here, anxiety is regarded as important in that it blocks the free play of creative activity which dreams could inspire. Therefore the child is given help to interpret dreams as a power that can be controlled and directed. Lewis (1995) explains that the Senoi encourage children to incubate dreams and to become aware of and reflect upon their psychic reactions. But in the West, play, daydreams, and dreams are not worthy of consideration. As Sylwester (1997) states, there is a popular misconception that the most important things are the most difficult to learn. In biological terms this is false: understandings most

critical to our survival are learned without formal training, but rather are acquired quickly and easily: "We need to remember that from a biological standpoint, importance and difficulty are not at all the same" (p. 18).

Intuition does not occur only during or as a result of sleep, however. From time immemorial people have sought to access other levels of awareness through meditation techniques or mind-altering drugs. Such practices have been frowned upon in the Western world. Still, there is a persistent belief that we are not fully exploiting the potential of the mind. Current brain research is arousing even more awe at the physical processes of cognition:

When we analyze the various dedicated functions of the brain-mind system (including the central nervous system) it is clear that little is dedicated to what we call reason. Some researchers indicate that perhaps as little as 15% of the physical mass of the whole system is specifically dedicated to the rational and reductive modes of thought-and that is in the left cortex. This leaves more than 80% to carry out the non-verbal and non-reductive processes which support the metaphoric mind. (Samples, 1993, p. 18)

Though these percentages may be subject to dispute, we know that there is much we don't understand about the brain and the way we make sense of our world. Therefore, intuition may be a brain function whose existence only remains to be proven by scientific methods.

#### Intuition As Heightened Conscious Awareness

While dream states are frequently associated with intuition, it is not to be concluded that intuition is a solely a function of altered consciousness. In fact, Weisberg (1993) argues that the subject's efforts while awake are actually informing the so-called "visions," and not the opposite. He finds self-reports of works produced automatically, in a dream state, to be unreliable or deliberately exaggerated for effect. As one example, he points to the work of John Lowe, who studied the genesis of Coleridge's famous poem

*Kubla Khan*, which the author claimed came to him fully-formed, in a dream. Lowe found that while Coleridge may have conceived the poem in a semi-conscious state, he based his ideas on seventeenth century texts and classical readings, which, when compared to the poem are startlingly similar. He also has evidence that the poet did, in fact, revise the poem, even though the poet insisted that he wrote it in one sitting, except for a segment he "lost" when disturbed (Lowe, cited in Weisberg, 1993, pp. 216-217).<sup>\*</sup> Weisberg raises doubts about the validity of other accounts of automaticity in creation as well. He states that musicologists have declared a fake the famous letter by Mozart most often quoted in support of intuitive processes in art. Weisberg believes that the creative output of Mozart and others should more correctly be ascribed to early immersion in their fields of study combined with concentrated dedication to their craft, rather than spontaneous production. Gardner (1997) agrees that effort is required but, in his study of creative geniuses, he found that their common trait was a childlike quality:

Mozart is a particularly clear example—he was unable to reconcile his love of childhood games and jokes with the demands of existence in the adult world . . . (But) the combination of child and adult attributes may have its rewards . . . Mozart's music retains a simplicity and elegance that we associate with the innocence of childhood. (p. 67)

In our culture, play is only justified as children's "work." whereas in the Italian culture, as Firlík (1997) points out, play is valued for its own sake as part of life. Today "playing

<sup>\*</sup>This disruption in the intuitive mode has since been called "The Porlock effect," because of Coleridge's famous account of his despair at being unable to retrieve the vision in its entirety, after being disturbed by an associate on business from Porlock.

with ideas" has been validated largely through the work of psychologists such as De Bono (1993), who formalized the process of "brainstorming" and "lateral thinking." Still, for the most part, play is separated from work in our culture, as extraneous to the serious pursuits necessary for survival.

Goldberg (1983) says children have all the essential qualities of intuitive potential that is never exploited: curiosity, receptivity, innocence, wonder, the ability to surrender to the experience, and openness unconstrained by the need to be right. "In that sense, we would all do well to be more childlike" (p. 102). As to the traits of intuitive individuals, he believes that they are independent, confident and flexible, qualities that they may have in fact developed by listening to their inner voices (p. 99). Although he designed a test for intuitive ability, he cautions that there is not a definitive answer to the question "Who is intuitive?" He maintains that everyone possesses some measure of intuition, but, like any other skill, it must be developed and used: "Intuition is not an appliance that you plug in as needed; it is more like a telephone network into which you should always be connected" (p. 190).

#### The Intuitive Mode

No matter how they are produced, the sum of intuitive feelings known as the "intuitive mode" results in an immediacy of knowing: "The hallmark of the intuitive mode is seeing without glasses, hearing without filters, touching with ungloved hand. The immediate character of intuition does not imply accuracy, rightness or moral goodness. It does imply commitment and clarity" (Noddings & Shore, 1984, p. 50). It is a heightened awareness, brought on by environmental conditions that may be circumstantial or deliberately induced through such means as meditation or intense concentration.



Samples (1993) points out that at the present time we believe that human beings possess more than twenty senses. Gavin De Becker's thesis in The Gift of Fear (1997) purports that intuition is actually the survival instinct, set in motion by sensory input of which we are unaware at a conscious level. Fear heightens our awareness of the myriad of details in our environment and within our body, which we constantly perceive but disregard, and accelerates the processing of information to a speed far outstripping "normal," routine decision-making. Intuition urges us into action (fight/flight), but we often discount the warning because to the cautious, rational mind, the information seems strange, highly emotional and therefore risky. Intuition serves to protect us, but we ignore it, because it seems "unreasonable."

At the intellectual level, Noddings and Shore (1984) identify two distinct functions of intuition, which are constantly at work below the level of normal awareness: object-giving and experience enabling. Object-giving is seen in mathematics, whereby natural numbers and the process of iteration (to mark the next, the next and the next) are intuitively known, they are "given." Experience enabling means that through intuition we make sense of our experiences, linking them in patterns which allow us to anticipate, organize and interpret them: "The forms of pure intuition (of time and space) are prior to experience and make experience possible . . . (and) . . . a developing intuitive capacity makes increasingly sophisticated experience possible" (p. 50).

Highly complex, "sophisticated" tasks such as managing a class of thirty ten-year olds may demand a level of concentrated effort that favours intuition. Renowned psychologist Mihalyi Csikszentmihalyi (1990) was the first to intensively study the complete engagement of physical, emotional and mental faculties, which he labelled

"flow experience." He defined it as the merging of action and awareness. When a person is "in flow," they do not operate with the normal dualistic perspective whereby one is aware of performing an action. The flow is in fact broken if the awareness is split, in order to perceive. The "flow" state is deliberately attained through concentrating attention, by centering on a limited stimulus field and keeping out potentially intruding stimuli. People in many fields, including teachers, describe this impression of being at one with their subject, a feeling that is difficult to capture and often fleeting. For example, the meticulously-planned lesson may be an utter failure, whereas the lesson that develops "on the spur of the moment," inspired by the students may become an all-encompassing dialogue or experiment, and achieve significant results. All participants sense that everything is "in sync" -- the curriculum, the students and the teacher.

In some professions, however, being "in flow" is a matter not only of success, but also of survival. In an examination of the physical and psychological demands experienced by the top twenty Formula One race car drivers, Dan Marisi, performance psychologist and associate professor in education at McGill University (1996), described the "ideal driving state" to interviewer Philip Coulter. He described it as a flow state, wherein the driver is focused 70 to 75% in front of him, and the focus is complete:

And when they talk about "flow state" or "in the zone," some of them say, I feel like I am in a tunnel. Everything beside me is out of focus, defused . . . but out in front . . . it's quite crisp and quite clear, and this tends to grab (the) focus even more, and they have the potential to get in the zone . . . (When this happens) "you can't be beaten . . . You drive ten-tenths. Now it's different for different people. Some of them have out-of-body experiences, as a matter of fact. They see themselves watching themselves race. They're sitting on their right shoulder, as it were. Some of them feel omnipotent. Some of them can predict exactly what's going to happen before it does happen. Some of them feel they can will the car to move in a certain nuance or a certain manner. All in all, they are one with the race and

the racecar. They're not detached. They're not a driver driving a racecar. There is a total harmony going on there. And when they get into the flow zone, the state is altered to one that is completely absorbed and focuses on the task at hand, to the extent were they become swallowed up, if you will, by the driving. (transcript of radio interview, pp. 7-8)

This complete, synchronized engagement of body and mind allows drivers to maneuver a metal shell around the racetrack at speeds exceeding 200 miles an hour, and accidents are relatively rare. Drivers are both conscious and in an altered state of consciousness at the same time. Maslow saw "flow" as a narrowing of consciousness, a giving up of the past and the future (cited in Shallcross & Sisk, 1989, p. 10). The sense of timelessness makes the experience very pleasurable, but this positive sensation may also be due to a physical response: "They become addicted to the adrenaline rush, which does occur when they're driving that car on the edge" (Marisi cited in Coulter, 1996, p. 3). De Becker (1997) maintains that we all have the instinctive capacity to react this way, alert to all internal and external signals and therefore able to make accurate predictions which will ensure our survival, but our skills have been suppressed: ". . .because we are at a point in our evolution where life is less about predicting risks and more about controlling them" (p. 102). When racecar drivers are on the edge, their intuition is forced to engage, just as it does when we experience fear. De Becker, like Smith (1995), Holyoak and Thagard (1995), and others, suggests that patterns and sensations can be perceived seemingly instantaneously by the brain and inform our consciousness on a level which our logical mind does not attain and therefore tends to dismiss.

#### Intuition: Brain or Mind?

A further complication in researching intuition results from the fact that some writers speak of intuition as occurring in the mind, while others refer to it as a process of

the brain. Is the conscious level of intuition in which we make discoveries, evaluate situations, make choices and predictions and even reach a high level of self-awareness a function of the brain or the mind? Is there a difference?

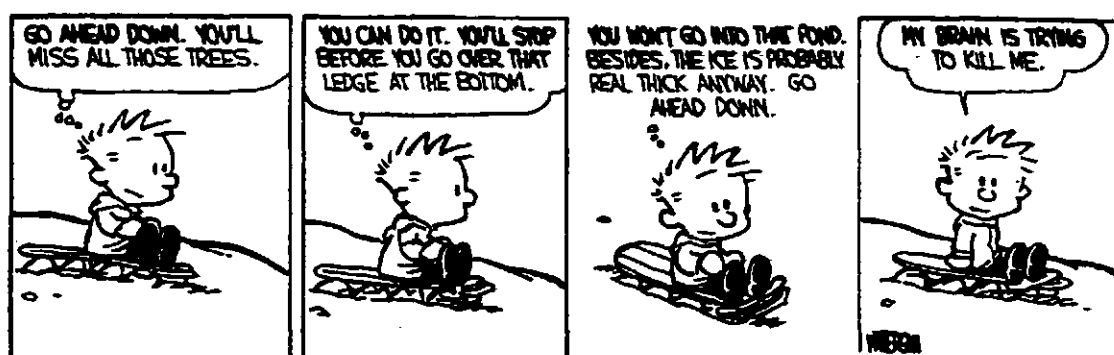


Figure 2. Intuitive Brain or Mind? From: CALVIN AND HOBBS, Watterson, B. 1988. Reprinted with permission, UNIVERSAL PRESS SYNDICATE.

Will Calvin listen to his brain or his mind, as he makes his decision to descend?

How is the mind distinct from the brain? Elliot Eisner (1997) explains it this way:

Minds . . . in a curious but profound way are made. Their shape and capacities are influenced by what we are given an opportunity to learn when young . . . Brains, in contrast to minds, are biological--they are given by nature. Minds are cultural--they are the result of experience. (p. 350)

To understand the mind, however, research on the brain has been focused on localizing the areas of dedicated functions. Throughout the seventies and early eighties it was believed that the two halves of the brain functioned independently, with logical functions dedicated to the left side and "the metaphoric mind" in the right. Here

the female or yin part of the brain (could) respond to an idea with . . . a sudden rush of relationship . . . and the original thought (would) expand rapidly outward into a network of new holistic perceptions. The role of metaphoric thinking is to invent, to create and to challenge conformity by extending what is known into new meadows of knowing. (Samples, 1993, p. 14)

Scientific theories of the bilateral functioning of the brain seemed to support the duality found in religious philosophies as diverse as the ancient Chinese and the Christian. The left hemisphere was believed to contain the verbal, analytic, sequential, rational, time-oriented and discontinuous, while the right was the seat of the non-verbal, holistic, synthetic, visuo-spatial, intuitive, timeless and diffuse (Gardner, 1997, p. 66). However, recently these conclusions have been disputed, as more sophisticated technology has allowed scientists to observe activity in each realm simultaneously, on both sides of the brain. Magnetic resonance imaging can now produce computer-enhanced images of brain activity, and the results seem to support Bohm's theory of the "holographic" brain, which postulates that information is stored throughout, with each part containing everything in the whole. Shallcross and Sisk (1989, p. 75) speculate that this may explain why intuition is an awareness that is rapid and complete, because it is occurring in many places in the brain at once.

Psychologist Daniel Cappon (1989) states that there is no definition of the mind, but that the distinction between the brain and the mind is that the brain is the concrete infrastructure and the mind is the abstract superstructure. The mind is more than the sum of the parts of the physical brain: "Once the tens of billions of the neurons of the human brain become embodied and connected, that body contains a mind" (p. 37). And for Cappon, intuition is at the highest level of cognitive processes, the point where perception meets thought. It happens as a result of a host of inputs to the brain, as an intellectual process and not as a result of magical inspiration. Below the tiny "cone of consciousness," intuition collects information from the interaction between background and foreground, senses contrasts, sensory closures, patterns and personal and collective memories, scans a

range of possibilities and then produces a whole picture, an insight, a flash. Cappon insists that it is a faculty of the mind like any other, crucial in making intelligent judgments.

The brain/mind question may be a limiting, either/or way of attempting to define a holistic process that simultaneously engages, body, mind and spirit. Jung believed that Western culture over-emphasizes the thinking function of the mind, to the exclusion of feeling (intuition and sensation) which involves types of perception that are different but equally valid. Hampen-Turner (1981) says that for psychologist Carl Jung

the rounding out of the psyche followed the "inner way" of the T'ai Chi. from thinking to intuition to sensing to feeling, a serpent winding to the heart of darkness, to the very depth of the unconscious where lies the knowledge of good and evil. (p. 44)

Hendlin (1989) agrees with the Jungian perspective that we must eliminate either/or thinking in order to develop a "discriminating" mind:

the mind that is able to make distinctions and to see subtle differences between ideas, relationships and forms . . . the mind that doesn't confuse one thing with another and the mind that produces our best judgment after considered thought . . . capable of razor-sharp clarity in noticing subtle changes in the ongoing flow of life experience. (p. 16)

In Schultz's (1994) book, successful entrepreneurs recall the lack of support, even disdain, their intuitive inspirations received from conventional sources. Their ideas were typically considered crazy. The most common refrain they heard was, "It'll never work." Despite obstacles in their path, people who are eventually successful display inordinate amounts of self-confidence and persistence. Edison is quoted as saying, "Genius is 10% inspiration and 90% perspiration!" In an effort to determine the factors that contribute to creativity and success, Howard Gardner (1997) studied geniuses in many fields, from art

to politics. Gardner maintains that the brains of geniuses often function differently from the average. He found that some artists, namely Dostoyevsky and Van Gogh, possessed a neurological condition called temporal lobe epilepsy, and that the extreme level of focus associated with creative genius is closely linked to autism, which is also often found in families of great mathematicians, scientists and engineers. From their earliest childhood, the geniuses Gardner studied were persistent learners, self-propelled, energetic, curious and focused. He also points to the importance of positive, nurturing experiences on the actual realization of talents. He believes that inherited potential in the brain, combined with environmental factors, are the crucial elements in the development of extraordinary minds. Noddings and Shore (1984) also emphasized the effort required to develop intuitive understanding through familiarity with a domain and rote memorization of routine processes. They agree with Louis Pasteur's famous remark, "Fortune favors the prepared mind, making it ripe for discovery."

#### Can Intuition Be Learned?

Are some people just naturally more "intuitive" than others are? It is generally believed that both women and children possess "more" intuition than men. Research however does not support this conclusion. De Becker (1997) maintains that the omnipresent dangers facing women in modern society may heighten their awareness to possible threats, but they are just as likely to ignore the warnings as men, maybe more so. Goldberg (1983) thought it absurd to assert that children are more intuitive than adults. In his view, the development of formal thought does not supplant intuition, but rather should enhance it, in the same way as logical reasoning. Children's natural intuition is underdeveloped, based on input from the senses and expressed in simple images and

concrete symbols: "To elevate fertile imagination and unpredictable sagacity to the level of wisdom . . . is like watching children splash around randomly with paints and comparing them to Picasso" (p. 101).

Goldberg believes, however, that the child's inherent capacity for intuition, like any skill, must be nurtured to grow and mature. Like Goldberg (1983), de Becker (1997), Kautz and Branon (1987) and others believe that intuition is a natural skill, which, according to de Becker, becomes even more powerful in the face of danger:

Nature's greatest accomplishment, the human brain, is never more efficient or invested than when its host is at risk. Then, intuition is catapulted to another level entirely, a height at which it can accurately be called graceful, even miraculous. Intuition is the journey from A to Z without stopping at any other letter along the way. It is knowing without knowing why. (p. 23)

De Becker references the work of social anthropologist Desmond Morris who identified a plethora of physical signals or "body language" which we are constantly reading on an unconscious level, that inform our judgments during social interactions. He illustrates how cultural pressures suppress this intuitive knowledge to the point that we unwittingly expose ourselves to dangers we could easily avoid if we just listened to ourselves.

Kautz and Branon (1987) maintain that some people are more intuitive than others through deliberate effort are. De Becker maintains that intuitive ability is largely based on previous experience. He believes that because he grew up in a violent, dysfunctional family he was forced to hone his sensitivity to cues present in the environment. So-called "women's intuition" can be accounted for in the same way, since women in our society must be constantly wary. Schultz (1994) references scientific explanations for why women score a little better on intuitive tests than men. These include the male's



infantilization of women, women's physical inferiority, and differences in brain processes that make them more sensitive to non-verbal, right-brained communication.

Stephen Hendlin (1989) concurs that the capacity for intuitive insight improves with experience. A child may ask a very deep question, but for an adult, if the relative ego is developed, the same question may lead to a deeper level of reflection. The problem is that Western society does not encourage the child to explore the question. The "correct" answer is either expected or provided, as quickly as possible, and thus intuitive understanding is diminished over time, in favour of analytic reasoning. As Picasso said, "Every child is an artist. The problem is how to remain an artist once he grows up."

Noddings and Shore (1984) describe the conditions necessary for intuition to flourish:

Somehow, it seems, we must approach . . . tasks guided by some sense of or desire for, meaning . . . If the teacher interferes with step by step instructions the students will move into an analytic mode . . . So first of all, there must be a feeling that it is safe to move on to the intellectual question, and there must be a will to do so. I must not be pressed for time; I must not be made to feel foolish as I begin my exploration. The intuition in its quest for understanding serves under the command of the Will, which seeks personal meaning, and enhancement . . . I must let things come in upon me. I cannot be interrupted. I am watching, being guided, attentive as though listening . . . I must be free to explore and to choose, and I must make a commitment . . . We deprive the intuition of an opportunity to see when we fail to encourage the invention and manipulation of objects in familiar settings . . . Long before the result is ready for public demonstration, there is inner assurance that things are coming right. (pp. 85-87)

Noddings and Shore (1984) outline three critical points in the intuitive activity process.

During the initial stage frustration may be so intense as to produce perpetual procrastination. In the second, the first clear intuition is accompanied by the possibility that it may in fact be wrong, thus producing more discouragement. In the third stage one faces the risk that the intuitions are devalued by the individual or by others, resulting in

abandonment of the authentic quest for meaning. Great "leaps of faith" are required to persist. Hendlin (1989) refers to the psychology of elite sport, which uses the term "paralysis by analysis" to convince high performing athletes to rely on "unconscious competence:" "Let it go, and let what you have been trained to do, let that become fluid. There's got to be a shifting between that conscious, deliberate strategizing and decision making and that unconscious spontaneity" (p. 2).

The key to beginning the process in the first place is the individual's desire for meaning, true curiosity. What is the motivation for learning about a subject, and what drives the motivation? In race car driving at least, Marisi (1996) asserts that there are two motivators, fear and desire, and therein may lie the difference between winning and losing, life and death:

The dominant thought in your mind, if it is fear, for example of crash, of injury, of death, will be the motivating impetus in your driving and performance. You will drive with fear. There is then inhibition and tension permeating your mind and your body. If on the other hand-this is where most of the successful drivers are-they have their desires as the prominent thought in their mind, that which they want-that is, successful racing, winning and racing, dominating the competition, being able to control that power-all these kinds of goals sit heavily in their mind and, in fact, act almost as if it were a magnet, pulling them toward their goal. (p. 9)

An intuitive style of problem-solving would allow the freedom to "wonder," which Kegan (1994) says is becoming more and more critical in the context of modern life. To wonder involves more than mere questioning:

"Wonder" is "wondering at" and "wondering about." "Wondering at" is watching and reverencing; "wondering about" is asking and reckoning. "Wondering at" is Eastern, receptive, contemplation as an end in itself; "wondering about" is Western, acting upon, a means to an end . . . (This admiring) . . . does not favor the analytic or the aesthetic. It does not regard science as evil or as a saviour. It does not castigate or canonize the stirrings of the human heart. It is dedicated instead to drawing deeply from both of

these kinds of wisdom . . . the lifeblood of wholesome teaching consists in just this two-sided way of admiring. (p. 8)

To enhance intuition, classrooms would offer time and space to wonder. The literature is clear on this point: intuition is not impulsive. It demands reflection, time and discipline. Edward de Bono developed techniques such as the PMI (plus minus, interesting) inventory to slow down the tendency to jump to conclusions:

The normal attention flow results in an immediate emotional reaction which then determines an attention flow to support that reaction. The PMI ensures a basic exploration of the subject before judgment. This is not at all natural. What is natural is to interpret, recognize and judge as quickly as possible. (p. 176)

De Bono's methods elicit more varied, creative solutions to problems.

According to the literature, intuition is not random or "magical." It can be enhanced through deliberate effort. Noddings and Shore (1984) maintain that to free the mind for intuitive thinking, the most basic, non-intellectual matters must be routinized. This allows students to be totally engaged in a search for meaning. Noddings and Shore suggest that teachers present and explore a concept or skill in a variety of ways, through concrete objects, visual representations and stories. The subject should be taken apart and re-constructed. Like Samples (1993), they believe in teaching the symbolic language of the subject through metaphor. And they agree with Hendlin (1989) that mental discipline and routine are essential to the development of intuitive processing.

The consensus among authors referenced for this paper is that intuition is a natural skill, which can be improved. The tendency in our society is to suppress intuition as "irrational," but according to the literature it is an essential part of reasoning, which we use whether we are aware of it or not. Due to genetic or environmental factors, some

people may access intuition first, or more readily, in the decision-making or creative process.

### Conceptual Definition of Intuition

Despite the wealth of literature, both academic and popular, it still seems no easier to arrive at a clear picture of intuition. From Hendlin's *discriminating mind* to Samples' *metaphoric mind*, from Holyoak and Thagard's *analogous leaps* to De Bono's *water logic*, am I any closer to understanding a phenomenon whereby understanding comes "burningly--all at once"? Two factors render the study of intuition difficult: either it is denigrated as impulsive and irrational, or it is recognized as a legitimate way of processing information to arrive at conclusions and make decisions, but remains in the esoteric realm of the mystical.

To summarize the literature review, intuition can be defined as a brain/mind process for interpreting information and arriving at conclusions, whereby the thought is perceived as complete, creating the sensation of putting the last piece in a puzzle. For the purpose of this study, intuition is a brain/mind function of pattern recognition and interpretation of information from environmental and internal signals, that allows for an "immediate," holistic sense of understanding. It is more than rapid reasoning, since it demands concentrated attention and strong emotions. Intuition is distinct from impulse, which is an instinctive response in the category of flight or fight. Intuition is more intellectually, spiritually and emotionally demanding. It is, as Noddings and Shore believed, a deep grasp of the Object, based on intense study. Study may be conscious, as in the case of the Formula One driver who trains intensively so that during the race he drives in the "zone," or subconscious, as in de Becker's personal case whereby the violence he

experienced in childhood allowed him to be highly perceptive in analyzing potentially violent situations. Enabled by, but not dependent upon, experience, **intuition integrates physical, mental and spiritual experience into a clear response to a question. accompanied by a sense of confidence.**

This sense of certainty or urgency does not make it right. Intuition is no more infallible than logical reasoning. Empirical reasoning, rational thought and intuition are integrated, essential parts of the overall way in which we make sense of the world and our own feelings. In our society, the deliberate practise of intuition has not been valued, and therefore the understanding of this "way of knowing" is not well-developed. In the context of education, the term is often used lightly, as if it were universally understood, when in fact it is as enigmatic as the logic of Confucius. Long ago, Confucius explained to his awe-struck students that he did not drown from falling in a raging river because "I know how to go in with the descending vortex and come out with the ascending one." He was describing intuition as a way of "knowing."

## CHAPTER THREE

### Conceptual Framework: Intuition in Teachers

Based on the definition of intuition as a **brain/mind function of pattern recognition and interpretation of information from environmental and internal signals, that allows for an "immediate," holistic sense of understanding**, what is an "intuitive" teacher? How would an intuitive teacher make decisions and solve problems? Shallcross and Sisk (1989, p. 8) found the work of D.K. Simonton to be useful for comparing analysis versus intuition in problem solving styles. Simonton discovered that highly creative people improve in their ability to solve problems under the instruction to intuit, and those with lower creativity improve their problem-solving ability under the instruction to analyse. In other words, individuals tend to approach problems in familiar, routinized ways. As Gardner (1997) points out, this is probably due to both inherited tendencies and developmental experience. In our rational, empirical society we are taught to rely on evidence, objective proof and mathematical statistics, rather than sensory input and internal information. Julia Cameron (1992) maintains that the result for many people is "blocked" creativity, a complete loss of the ability to "intuit:"

Logic brain was and is our survival brain. It works on known principles. Anything unknown is perceived as wrong and possibly dangerous. . . Logic brain is the brain we usually listen to, especially when we are telling ourselves to be sensible . . . Logic brain is our Censor, our second (and third and fourth) thoughts. Faced with an original sentence, phrase, paint squiggle, it says, "What the hell is that? That's not right!" . . . Any original thought can look pretty dangerous to our Censor. The only sentences /paintings sculptures/ photographs it likes are ones that it has seen many times before. Listen to your Censor and it will tell you that everything original is wrong/dangerous/rotten. Who wouldn't be blocked if every time you tiptoed into the open somebody (your Censor) made fun of you?  
(pp. 12-13)

De Becker (1997) would concur. He cites case after case in which the warning signs of danger were evident, but the victims allowed their second and third thoughts to convince them otherwise, to the point where following cultural norms of politeness and fear of embarrassment lead to death. This is why de Becker insists that we listen to our fear.

According to Bob Sylwester (1995) there are teachers who, despite external pressures from the rational, empirical point of view which dominates our culture, follow their persistent sense that learning and reasoning involve more than a series of lock-step processes. Sylwester believes that brain research is now providing biological evidence to support much of what experienced teachers come to know through experimentation and observation. In a recent interview, he defended teachers' intuitive understanding of their students' learning needs:

For example, teachers have long encouraged students to find patterns and connections in what they've learned, but new knowledge about our brain may help us discover new ways to help students expand their knowledge. And the best teachers know that kids learn more readily when they are emotionally involved in the lesson because emotion drives attention, which drives learning and memory . . . Teachers know that emotion is important; they just don't always know what to do about it (interview by Brandt, 1997, p. 17)

Once again we see that "teacher intuition" is credited with deeper insight than logic alone can provide, as well as a suggestion that some teachers are naturally more intuitive than others. Is this in fact the case? If we accept Gardner's (1997) view that the ways in which the brain processes information depend upon inherited characteristics and environmental conditions, is it possible to identify individuals who tend to rely on the intuitive mode?

### Theories and Tests for Thinking Styles

Goldberg (1983) found that although there is no solid evidence to support the notion that women are genetically more intuitive than men, there are certain personalities more prone to using intuition. Carl Jung's theory of personality types has been widely used to explain the ways different ways in which people respond to information and solve problems. His model is comprised of four functions, sensing, feeling, thinking and intuition. People are oriented one way or the other by their genetic make-up and use of the favoured mode over time. Myers, Briggs and others have created inventories to identify personality traits, including the intuitive. Dr. Richard Rancourt, of the University of Ottawa, developed an instrument to determine an individual's most preferred style for perceiving the world. His **Knowledge Accessing Modes Inventory** (1988) is designed to ascertain how people monitor and evaluate information, make decisions and communicate with others. In their study of learning styles, Leino, Leino and Lindstedt (1989) ascribe to the definition developed by S. Messick (1984, 1987) that cognitive styles " . . . organize and control abilities, attention, impulse, strategies and operations in such complex processes as problem-solving and learning" (p. 11).

Rancourt (1988) expands the notion of styles to encompass the operating systems of the whole person (cognitive, affective, motor and sensory) in interaction with the environment, to describe what he calls "epistemic" styles. The styles " . . . act as a set of criteria in the screening, selecting or rejecting of information . . . (which we) access selectively . . . which in turn, when accepted, is transformed into personal knowledge . . . not necessarily accessible to others" (p. 2). Rancourt based his test on the premise that



there are essentially three ways in which we acquire knowledge: through our senses, following an inductive reasoning process to determine the practical, objective worth of the incoming data (empirical); through mental processes, following a deductive process of reasoning to judge the fit between experience and beliefs (rational); or through personal, idiosyncratic, subjective feelings whereby information is screened and judged through an abductive (analogical/experiential/lateral) process of reasoning (noetic). The theory suggests that the individual with the "ideal" style would consistently refer to all three. However, research has found that ninety-eight percent of people have a dominant mode for accessing knowledge, as well as an associate mode, and sometimes a minor mode, which is most infrequently used. The individual who functions most often in the noetic (intuitive) mode is characterized as follows:

#### Psychological orientation

- Cognitive system: holistic, divergent, analogical, subjective, intuitive, experiential
- Affective system: expressive, impulsive, spontaneous, emotional, extroverted
- Sensory-motor system: visuo-spatial, good muscular tension, coordination and reflexes

#### Behavioural orientation

- to others: helping, friendly, intimate, permissive
- to time: present and future-centered
- to tasks: emotionally involved, person-centered, process-based, innovative
- to problems: intuitive, creative, insightful, unstructured

(KAMI Manual, 1988, p. 8)

This list of personality and behavioural characteristics would seem to be consistent with the preceding literature review: self-knowledge and self-reliance, imagination, persistence, commitment, the ability to take risks and to contemplate quietly in solitude,

as well as to be centered in the present. While the term "extroverted" may seem contradictory to the need for reflection and solitude emphasized in the literature, this may be linked to a different personality trait: field-dependence/field-independence. Leino, Leino and Lindstedt (1989) explain that the research in this area has shown that individuals who do not rely exclusively on external visual information (field-independent) are also more independent in social situations. Therefore, if those who function in the noetic mode depend on visual-spatial information, they are field-dependent, and are the types of people described socially as "warm, affectionate, tactful, nonevaluative and accepting of others" (p. 5). This may explain the personal characteristic "extrovert" in combination with a need for solitude.

Can these traits be ascribed to "intuitive" teachers?

#### Characteristics of Intuitive Teachers Based on the Literature

It was necessary to develop a profile of the intuitive teacher based on the literature review, in order to form a basis for comparison when the principals would be asked to describe them. The first challenge was to find a method for describing teaching behaviours and characteristics in a standardized way. A review of a variety of teacher evaluations received by the recruiting office of the Calgary Board of Education revealed that in order to facilitate the description and assessment of the multi-faceted roles of teachers, evaluators often categorize their comments by themes. I chose to follow the format used to evaluate student teachers at the University of Alberta, to provide a structure for describing intuitive teachers. I then synthesized information from both Rancourt's (1988) model and the literature on intuition, to arrive at a broad description of the intuitive teacher.

### Preparation, Planning and Organization

#### Requires solitude.

Two common traits of intuitive, creative individuals described in the references is that as children they spent a great deal of quiet time alone and that they had difficulty expressing their ideas aloud. While the intuitive teacher would be open and sociable, they would also have a great need for quiet and solitude. The need for inner quiet in order to focus attention on the subject is emphasized in all the literature. Intuitive teachers may not therefore be at their best in a forced team environment. If placed in such a situation, the teacher may withdraw and appear uncooperative.

This teacher requires inner stillness, only achievable through regular, daily periods of self-reflection. They may be found alone in the classroom before or after class, replaying the day's activities or events, in silence, gazing into space. Time alone is necessary for listening, " . . . to be able to hear all of the voices inside and be able to see various shadings, or gradations of choice, rather than just all-or-nothing choices" (Hendlin, 1989, p. 165).

#### Cultivates self-awareness.

If the teacher is self-aware, they may consciously strive to achieve the relaxed state required to access intuition. The literature chronicles routines and rituals employed by artists and scientists in order to enter the intuitive mode, from Schiller's aromatherapy using decomposing apples, to Beethoven's habit of chilling his brain with ice water. Even in the presence of danger, intruding stimuli must be ignored, in order to think clearly. De Becker (1997) explains the difference between fear and worry, insisting that a constant state of worry suppresses the ability to notice the genuine signals of danger. Kautz and

Branon (1987) cite various ways of calming the conscious mind through diet, exercise and breathing (especially yoga), meditation and the practice of spiritual exercises.

Noddings and Shore (1984) advise relaxing when faced with a difficult problem, by doing another activity and thus allowing the mind to access the inner landscape to retrieve the information it has gathered. The intuitive teacher may give evidence of these habits of mind.

#### Plans "holistically."

For the intuitive teacher, the process is more important than the content. They would allow a wide range of choice to students. The caution would be that they would have to ensure constant monitoring of activities against the prescribed curriculum, in order to avoid getting "caught up" in the excitement of the process and becoming side-tracked from program goals. There may be a tendency to follow ideological fads without analyzing a variety of possibilities. While maintaining a good knowledge of the prescribed curriculum in the sense of the "big picture," a lack of time-management skills may result in not setting or meeting deadlines.

#### Centered in the present.

Hendlin (1989) believes that being present-centered is essential to a healthy, balanced life, and especially the ability to access "the discriminating mind," including intuition. He suggests that one way of achieving this is through not attending to more than one task at a time--this would be a difficult one for teachers! Hendlin's description of being present-centered sounds much like the "zone" experience: "If we are more present-centered we will be in touch more of the time with bodily sensation rather than thought. But when we get lost in the reverie of past experiences, conversations, or regrets, we are

more "caught' in the web of time . . . The same is true if we get lost in the future, even though people who prefer the future are many times more hopeful, optimistic and energetic" (p. 37-38). When asked how Formula One drivers achieve the "zone" state, Dan Marisi (1996) described many of the same contributing factors that Hendlin insists upon: enjoyment, or total enthusiasm; loss of ego; complete absorption in the activity; and a clarity of immediate goals. According to the literature, intuition demands being present-centered, which does not correspond well to the long-term, detailed planning required in schools. This teacher may also be careless of detail and procrastinate rather than complete routine tasks.

### Teaching Skills and Strategies

#### Grounded in personal experience.

The intuitive teacher would rely heavily on personal experience and visualization to establish the context for learning. Noddings and Shore (1984) advise teachers to encourage the development of intuition in their students, through warm-up exercises that create a tone favorable to intuitive thinking. They caution that this can be dangerous in our modern, pluralistic society. Some parents and students may take offense to this type of inner, very personal exploration, and therefore such activities must be undertaken with care and respect. Exercises for mental imagery are found in most of the books on intuition, but even more conventional books recommend the practice: "Mental imagery is a valuable asset in creative thinking and problem-solving because it combines a freedom of association with a richness of organization" (Beaumont, 1989, p. 62).

### Values personalized, visual learning.

The intuitive teacher would introduce lessons using anecdotal and biographical references. Students would be encouraged to relate information to personal experience. They would also be given time to work on individual projects and would receive one-on-one assistance from the teacher. Dominant teaching strategies would include role-playing, projects, learning centres, discussions and multi-media presentations. Creativity and innovation would be valued by the intuitive teacher. Students would be encouraged to consider broad concepts and relationships. The weaknesses of this approach could be a lack of organization and established routines, and difficulty meeting the needs of students requiring a sequential, structured approach to learning. Since noetic thinkers do not learn best in hands-on, trial and error situations, they may not offer this to students.

### Communication

#### Imprecise in expression.

The intuitive teacher may have difficulty formulating and articulating concrete plans for a team partner, administrator, or parent. Bob Samples (1993) finds this only natural, and blames our emphasis on language for the inappropriate dominance of the analytical functions of the mind: "The accepted medium of communication, language, is the most dominant mechanism for implementing this prejudice...rationality requires order, logic and sequence-qualities that our culture labels grown-up, mature, and adult" (p. 19). For Samples, language often suppresses the "metaphoric mind," or intuition. As stated earlier, intuitive teachers have difficulty articulating their understanding. Since they have such a broad sense of the whole, it may be difficult for them to work with a colleague or student who is highly analytical, organized and structured. However, since noetic thinkers

learn through discussion, the intuitive teacher would readily offer opinions and enjoy communicating with others. They would motivate students through an appeal to the emotions. In the classroom, students would be asked more "why" than "how" questions, to stimulate imagination and hypothesis-generation.

Listens well.

Intuitive teachers would be sensitive to feelings and would be active listeners.

Noddings and Shore (1984) described the "intuitive mood" necessary to engage intuition:

. . . an attitude of alertness and receptiveness without actively directed participation of the perceptive ego. It is attained more easily with practice. it is fatiguable and fatiguing. Intuitions in different fields do not seem to interfere with one another. Intuitions are not all dependent upon extensive past experience in the given field. Extraneous physical stimuli, both external and internal, appear to be irrelevant. (Berne, 1977, cited in Noddings & Shore, p. 28)

The intuitive teacher, on a conscious or sub-conscious level, would be actively listening and observing, seeking patterns in speech, mannerisms or other behaviours which would inform understanding of the whole person. The disadvantages of this characteristic would be that the teacher may become too emotionally involved, and thus be inconsistent and overly lenient.

Management

Student-centered.

The intuitive teacher would value individualized learning, play, even day-dreaming and doodling. They would accept a high noise-level and a seemingly more unstructured learning environment. A minimum of direct intervention would be required due to the ability to maintain strong interpersonal relationships through frequent interactions with students, both verbally and with body language. They would be student-centered while

maintaining control, however they also may be disorganized and unpredictable.

Depending on the situation, they may be either extremely inflexible or over-compromising, with a tendency to jump to conclusions before analyzing all the facts.

### Class Climate & Relationships

#### Enjoys working with others.

Within the classroom environment and the school, the emphasis for this teacher would be on the development of relationships. They would be affectionate, trusting, very aware of feelings and promote harmony in the classroom. According to Rancourt's (1988) description of noetic teachers, this teacher may also be impatient, have overly high expectations and work more with the class as a whole than individual students.

### Professional Qualities and Initiative

#### Highly motivated.

Noddings and Shore (1984) insist that activation of the Will (their capitalization) in intuition is key. The intuitive teacher would have a high personal drive and would initiate a variety of creative activities. They would be very enthusiastic and willing to take charge of situations, seeking a new and different solution to problems and be very interested in the latest teaching trends. However, according to Rancourt (1988) the teacher may like learning new skills more than applying them, and lack initiative in task completion.

### Evaluation of Student Learning

#### Observant of patterns.

An intuitive teacher would spend a great deal of time observing students, both deliberately and "naturally." Details are grasped at a sub-conscious level, which may be hard to articulate, but which inform decision-making about individuals and the



curriculum. The teacher moves freely about the classroom, from student to student, praising and criticizing and expressing assessments verbally and through body language. According to Hargreaves' (1997) research, such a teacher would follow a non-linear, "emotionally charged" planning and assessment process (p. 17). The difficulty arises when they are unable to justify decisions using a comprehensible, common language. In Not Even Close: Teacher Evaluation and Teachers' Personal Practical Knowledge, Webb (1995) describes the difficulties such a teacher encounters in a rigid teacher evaluation process. Hammond-Darling (1996) points out the hazards present when teachers follow an intuitive approach:

Structuring active learning situations for students infuses more uncertainty in the learning process from the teacher's point of view. When a student is constructing his or her own understanding...a teacher does not know what he or she is learning without well-designed strategies for eliciting what the student's think and probing for understanding. Especially in settings that are not structured for or supportive of this kind of endeavour, it seems a very risky business indeed. (p. 9)

An intuitive approach to teaching would require time. Teachers are constantly under pressure to speed up, complete the prescribed curriculum, and report student progress in terms of marks and percentages. The intuitive teacher values creativity in practical and theoretical areas, and is not bound by strict notions of time. Deep emotional engagement and difficulty in articulating understanding of the teaching process leads some teachers to be very defensive if questioned and to become disillusioned with teaching, as depicted by both Webb and Hammond-Darling. In terms of meeting requirements, weakness would be in completing activities and evaluations according to schedule. Assessments of student learning would tend to be global and anecdotal, sensitive to students' emotional needs. The teacher may have difficulty expressing this understanding in terms of precise marks.

## Reflection and Self-Evaluation

### Reflective.

Most writers in the field of intuition suggest using a personal journal and/or a dream journal, to heighten the awareness of the self. Cameron (1992) tells readers to institute a daily ritual of "automatic writing," by waking a half hour early and beginning immediately, to access the unconscious and release intuitive, creative thoughts. She also explains that doodling or "automatic drawing" is another way to access intuition, a technique used by artists such as Jackson Pollock, who, according to Cameron, credited the unconscious as the sole inspiration for his art. Intuitive teachers may engage in such activities as journaling "naturally," since they must process information through the lens of their personal experience. Such deep self-reflection may not always be positive however: it may lead to an overly-subjective interpretation of events. They may disregard facts and theory in favour of personal bias, and become careless when required to attend to detail. A balance between intuition and rationality must be found. Michael Fullan (1997) quotes many authors in his assertion that suppressing intuition and emotion as promoted by our culture is actually a barrier to good judgment, and that both are essential to deal with the complex, changing world.

The above characteristics, both positive and negative, describe the intuitive teacher in the most practical terms that could be gleaned from the literature. Noddings and Shore (1984) believe that intuition is a thinking skill, but they also emphasize that the essence of education is spiritual. In the Pestalozzian tradition, they contend that the presence of love is necessary, and they have refined the definition as "educational caritas," encompassing three facets: "love for students, to 'go beyond superficialities and become involved with

the other person,' love of subject, and love of teaching and learning, in the drive to explore, discover and share with the students" (p.159). They add that for some teachers there may also be a sense of "calling," an intuitive sense that teaching is for them, so that it becomes more a significant life experience than a job. They recognize that, given the circumstances in schools, it is difficult to maintain love on all of these levels. In order to continue to feel it requires " . . . toleration, patience, a sense of humor and transparent enthusiasm for the process of discovery and learning" (p. 169). Teachers must have a belief in themselves, in their own ability to solve problems and in their capacity to make a difference through their knowledge and ongoing process of discovery. For Noddings and Shore (1984):

Love in the classroom is neither naive expectation nor stoic resignation, but a commitment to the whole experience of learning and teaching. It is also an eagerness to use intuitive feelings to guide students and ourselves, and a strength to endure inevitable setbacks and disappointments. (p. 171)

The intuitive teacher would possess this "love," and would be on a quest for a sense of self through teaching. The level of understanding of the *true self*, as described by Confucius, would be dependent upon the individual's desire to gain "a deep understanding of The Object:"

*He who is naturally true to himself is one who, without effort, hits upon what is right, and without thinking understands what he wants to know. whose life is easily and naturally in harmony with the moral law. Such a one is what we call a saint or a man of divine nature. He who learns to be his true self is one who finds out what is good and holds fast to it.*

*In order to learn to be one's true self, it is necessary to obtain a wide and extensive knowledge of what has been said and done in the world; critically to inquire into it; carefully to ponder over it; clearly to sift it; and earnestly to carry it out.*

*It matters not what you learn; but once you learn a thing, you must never give it up until you have mastered it. It matters not what you inquire into, but when you inquire into a thing, you must never give it up until you have thoroughly understood it. It matters not what you try to think out, but when you once try to think out a thing you must never give it up until you have got what you want. It matters not what you try to sift out, but once you try to sift out a thing, you must never give it up until you have sifted it out clearly and distinctly. It matters not what you try to carry out, but when you once try to carry out a thing, you must never give it up until you have done it thoroughly well. If another man succeeded by one effort, you will use hundreds of efforts. If another man succeeded by ten efforts, you will use a thousand efforts.*

*Let a man really proceed in this manner, and, though dull, he will surely become intelligent; though weak, he will surely become strong.*

*To arrive at understanding from being one's true self is called nature, and to arrive at being one's true self from understanding is called culture. He who is his true self has thereby understanding, and he who has understanding finds thereby his true self.*

*Confucius, 551-479 B.C.  
translated and edited by  
Lin. Y. (1938). The Wisdom of  
Confucius. p. 122. NY: Random  
House, Inc. (bold-mine)*

Can administrators identify teachers whose practise and personality match the characteristics of an “intuitive” teacher, based on the literature?

## CHAPTER FOUR

### Methodology

#### Assessment Tool

In this descriptive study, the **Knowledge Accessing Modes Inventory (KAMI)** was chosen to identify teachers whose preferred thinking style is intuitive (Appendix G). This inventory was developed by Dr. Richard Rancourt (1988) of the University of Ottawa, who began his research by working with the psycho-epistemic profile by J.R. Royce and L.P. Mos (1980). Royce's theory is based on the premise that personality integrates a number of systems (style, value, cognitive, affective, sensory and motor) in interaction with the environment. Rancourt and Dionne (1982) used the Psycho-Epistemological Profile to study teaching and learning styles and found that the teachers' psycho-epistemic profiles closely matched the epistemic characteristics of their specializations (Leino, Leino & Lindstedt, 1989). As a result, Rancourt concluded that an inventory specifically designed for education was needed, which reflected a theoretical base in the social sciences rather than just the field of psychology (1986, p.3). In 1986 he developed the KAMI a twenty question, forced-choice instrument, which has since been field tested on approximately 25,000 subjects of many ethnic and cultural backgrounds. The test is still widely used in both educational research, as well as in sports, government, and the military. Over fifteen years of reliability and validity testing of the inventory have shown the following, according to Validation data concerning the KAMI, Rancourt, R. (1998):

- internal consistency (split-half) as obtained between two constructed halves of the original inventory yield correlation coefficients of .82 for the noetic scale, .78 for the empirical scale, and .79 for the rational scale. Ref. Leino, A.L. (1987);

- concordance with Royce's Psycho-Epistemological Profile is significant at  $P < .001$  for each of the three scales. Ref. Rancourt, R. (1983);
- concordance with the Barrett-Lennard Relationship Inventory is established at .87 for the noetic scale and the following subscales: Regard, Empathy and Conguence;
- construct validity obtained from some 55,000 subjects;
- with respect to the Myers Briggs, the Rational scale is positively correlated with thinking and judgment; the Noetic scale is positively correlated with intuition, feeling and perceiving and the Empirical scale is positively correlated with sensing and thinking. Ref. Wyspianski, J. (1995);
- correlations were found between the Modes of Thought Questionnaire as developed by Aylwin and the three scales of the KAMI. Particular positive correlations were found between the visualization scale of the MOTQ and the Noetic scale. Ref. Gurney, 1992;

In terms of reliability, Rancourt points out that the nature of inventories is always problematic, since it is difficult to determine whether it is the instrument or the subject that is reliable. However he experimented with the test, re-test reliability and found that after a three month interval with a group of 26 graduate students was satisfactory ( $N = .87$ ;  $E = .71$ ;  $R = .81$ ), though the sample was admittedly small— $n = 26$  (1983). Results were confirmed by another researcher, using a 48-month interval, indicating that the modes can be considered as invariants within the personality system. (Ref. Forgues, O. (1987)

#### Rationale for Use of the KAMI

The KAMI is distributed by Impact Consulting Ltd. which is accessible via the internet (<http://www.impacttraining.com>). The test can be completed and scored quickly

and is easy to read and administer, taking approximately fifteen minutes to complete. For the purposes of conducting research with busy professionals, it is ideal from this perspective. The test has also been field-tested on teachers and administrators at both the elementary and secondary level, in almost every area of subject specialization. Thus the need to validate the test using a large sample from the field is eliminated. Results could also be compared with other studies.

Myers, Briggs and others have created inventories to identify personality traits, including the intuitive. The Myers Briggs test is well known by many educators, which is a disadvantage for the purposes of this study. It is also longer to administer. The KAMI has been shown to be equivalent to the Myers Briggs in its ability to identify styles. Another advantage of the KAMI is that it is not widely known. Other tests such as Goldberg's Test of Intuitive Ability (1983) have not been as well validated as the KAMI. In their study of learning styles, Leino, Leino and Lindstedt (1989) ascribe to the definition developed by S. Messick (1984, 1987) that cognitive styles "... organize and control abilities, attention, impulse, strategies and operations in such complex processes as problem-solving and learning" (p. 11). Also, the test was specifically designed as a tool for research in education.

### Procedure

#### Step One: Identify Intuitive/Non-Intuitive Principals

At the outset of my research I spoke to Jim Dean, a retired, highly respected superintendent with Calgary Board of Education, and asked his opinion of intuition in teachers. To eliminate personal bias and due to the fact that I don't know many of the principals in our district, Mr. Dean was asked to identify four administrators at the

elementary and four at the secondary level, two intuitive and two non-intuitive, at each level. The sample was balanced for gender, four males and four females. The reason that gender is brought forward is to counter the possible argument that females would "naturally" be more intuitive than males. According to the literature, this is not the case.

#### Step Two: Superintendent's Description of the Intuitive Teacher

Mr. Dean was given the same task as the principals: to describe an intuitive teacher. Rather than posing an open-ended question such as "Describe an intuitive teacher," consistency in the pattern of responses and with the literature review was assured by using a guided interview format. The administrators were asked to describe an intuitive teacher in each of the specific categories from the University of Alberta teacher evaluation form:

- Preparation, Planning and Organization;
- Teaching Skills and Strategies;
- Communication Style;
- Management;
- Class Climate/Relationships;
- Professional Qualities and Initiative;
- Evaluation, Reflection and Self-Evaluation

The questions simply introduced each category, for example: "How would an intuitive teacher . . . prepare, plan and organize?" "What teaching skills and strategies would you see?" "Tell me about . . . ." The responses were taped, and I analyzed the data from the transcripts of the conversations. To maintain consistency, no probing was done, with the



exception of the additional question: “Are there any weaknesses in this style?” (See sample interview response, Appendix J).

#### Step Three: Interaction with Principals

Each principal identified by Mr. Dean was given the KAMI, before being asked to identify their most intuitive and least-intuitive teacher on staff. Male/female was not specified. Six of the principals were told that the teachers they selected would be informed, following completion of the test, as to the dominant style predicted: intuitive as a dominant mode or as having a different dominant mode. The test was administered first, to prevent bias as the principals responded to the interview questions. Otherwise, the questions on the test may have caused them to interpret intuitiveness differently. The results of the test were compared with Mr. Dean’s original assessment of the relative intuitive/non-intuitive thinking styles of the principals identified. The principals were then told the purpose of the study, to have principals identify and describe intuitive teachers. The researcher did not provide a definition of “intuitive.” Their descriptions are compared to the attributes outlined in Chapter Three.

#### Step Four: Identification of Intuitive/non-intuitive thinking styles in teachers

The 16 teachers identified by principals were invited to participate in the study by taking the KAMI test. Four teachers were told that their principal identified them to be suitable candidates for this study, described as examining the ways in which educators access information when thinking and solving problems. Twelve of the sixteen subjects were told that upon completion of the test, the manner in which they were selected by the principal would be disclosed to them.

For their interest and information, the test was fully explained and the results shared with the teachers. The researcher used only the summary of the results. The test was administered in a private setting, at the school. Participants were assured that their names would not be used in the study; individual results would be confidential and not shared with the principal or readers of the study and the participants reserved the right to withdraw from the study at any time (see consent letter, Appendices D & E).

Upon completion of the ten-minute test, the participants were told that the study was examining ways in which principals characterize and identify teachers with intuition as their dominant thinking style. It was explained that the KAMI identifies dominant thinking styles in three modes. There is no mode which is preferable to any other, since each has its positive and negative attributes, as outlined in the KAMI, and everyone has some combination of styles in varying degrees. Twelve subjects were told that the principal identified them as having either an intuitive (noetic) dominant style or another dominant style (rational/empirical), and so were able to compare their results with the principals' predictions. The first four teachers were not told this (see: Limitations of the Study).

The debriefing was conducted so that the original deception, necessary to avoid possible influence during the testing, was alleviated. The teacher was always given the opportunity to withdraw from the study following the debriefing, without prejudice. No participant indicated a desire to withdraw. Participants were generally very eager to take the test and learn more about their thinking styles. Only one teacher initially was reluctant, as she wondered how her principal had selected her for the test. When provided

with further details as to the theory behind the test, she was pleased to participate and discuss her thinking style.

An incident with one teacher who had been identified as intuitive by her principal reveals how intuitiveness can be interpreted positively or negatively, dependent upon the individual. The teacher was very interested in the study and willingly completed the test. However, when we reviewed her results, she expressed dismay that the principal had not identified her "correctly," and was somewhat insulted at being thought of as "intuitive:" she believed that he should have known her better. It is interesting to note that both she and the principal, both of whom had been identified as intuitive, came out with the same style, which was empirical. When informed that most of the principals had not been able to guess the teachers' thinking styles, the tension seemed to be relieved. In this case, the teacher saw the term as pejorative, suggesting she was disorganized and overly sensitive, whereas her principal identified her as intuitive in a positive sense, following his description of the intuitive teacher. He was very surprised by her reaction, and spent time alleviating her concerns afterward. This incident supported the importance of informing teachers as to how they were identified by their principals, and fully explaining the purpose of the test.

#### Step Five: Analysis of Results

Based upon the results, conclusions were drawn as to whether the principals were accurate in their identification of teachers possessing an intuitive thinking style, according to the assessment tool. The intent was to compare the knowledge accessing modes of the administrators with their success rate in determining the intuitive styles of teachers, to answer the following questions:

- Do principals' description of an intuitive teacher match the description summarized from the literature?
- Do principals' perceptions of the intuitive teacher reflect the "actual" thinking styles of teachers identified?
- Is there a difference in the ability of principals to identify intuitive/non-intuitive teachers (according to the KAMI results), depending on their own knowledge accessing style (intuitive/non-intuitive)?

The study was conducted during the months of February and March, 1999, with teachers and principals in the Calgary Board of Education.

#### Limitations of the Study

While the KAMI is a well-validated instrument, it is none the less quite simple, and does not pretend to fully reflect the complexities of individuals. Also, because the test was administered quite informally, with a deliberate lack of background information provided to participants initially, teachers involved may not have completed it honestly or seriously. Teachers may have been reluctant to participate, since people in general tend to be reticent about "personality" tests, and in this case they may be even more so inclined, since their principal, who is responsible for their performance evaluation, is involved.

Trust may have been an issue with the principals involved in the study. I did not know the principals well, which was intentional on my part, but may have caused some hesitation in participating fully in the study or influenced their choice of teachers selected to participate.

Ideally, the interviews would have taken place in a relaxed setting, away from the school, and not during the work day. This was impossible to arrange for this study, and

therefore the conditions of the interviews were not consistent and sometimes not ideal. At times, the principals were interrupted, or they struggled to fit the interview into their busy daily schedules. This may have impacted the detail they were able to provide during the discussions.

Another disadvantage was the principals' knowledge of the teachers identified. Naturally, all teachers would not be known to the same extent by each principal. It may be that other factors, such as the length of time of professional association or involvement in the school, are more likely to cause a principal to identify a teacher as more or less intuitively inclined. For example, Mr. Dean did not feel completely confident in his choice of the secondary principals, since he didn't know them as well, given that most of his years as a superintendent he was responsible for elementary schools.

The open-ended format of the interviews results in a possible limitation, in that the individual ways of responding to the descriptors had to be interpreted to "fit" the descriptions in the literature review. For example, when a principal said that the intuitive teacher "weaves the curriculum into a beautiful tapestry," this description was aligned with "holistic planning" (See Appendix J for a sample of a taped interview).

Another possible limitation is that the first four teachers who participated in the study were not told how they had been selected, following the testing. (See Appendix E) As a result of direction from the Accountability Officer of the Calgary Board of Education, Dr. Sandra Sangster, the last twelve teachers tested were informed of the basis upon which they were selected by their principal (intuitive/rational-empirical). Dr. Sangster felt that this was an important consideration, since principals are in a position to evaluate teachers (See Appendix F). This may have had an impact on the principals'

selections of teachers, since they were then also told that the teachers would be informed as to how they were identified. Their choice of individuals may have been influenced by their assessment of teachers' willingness or suitability to participate in the study, as much as by their judgement of intuitive/rational-empirical.

Another limitation is certainly the number of participants in the study. Because of the small sample, conclusions cannot be generalized to the wider population. The study is descriptive, intended to provide insight into the ways in which the principals involved describe intuitive teachers, and their ability to then identify teachers who actually operate from a noetic, or intuitive, perspective in accessing knowledge and making decisions.

## CHAPTER FIVE

### Report on Results

The study began with the identification of intuitive and non-intuitive principals based on the superintendent's perceptions. The principals identified were then tested using the KAMI, to determine if the superintendent was able to identify intuitive principals, just as principals were asked to identify intuitive teachers. I also wanted to discover whether the principals' thinking style positively or negatively affected the accuracy of their prediction of the thinking styles of their staff members—to see whether "intuitiveness" of the principal made any difference in their accuracy rate. Principals were asked to describe the intuitive teacher, then identify the teacher most likely to possess an intuitive thinking style, and the teacher least likely to be intuitive. The principals' descriptions were interpreted for consistency among themselves and with the original description developed from the literature. The KAMI scores of both the principals and the teachers were compared with the predictions as well as with Rancourt's findings to explore the similarities and differences between the results of his large, random sample studies and this small, targeted sample. The results force us to re-examine how the intuitive thinking style is defined in the KAMI, in educational settings and in the literature.

#### Superintendent's Identification of Intuitive/Non-Intuitive Principals

According to the KAMI results, the superintendent correctly identified half the cases, but only one intuitive principal. Three non-intuitive principals were identified correctly. One principal labelled as non-intuitive was in fact intuitive. Only one fourth of principals tested had an intuitive thinking style (2/8). Both "intuitives" were female, but

only one had been selected as intuitive. The principals' actual scores are shown in Figure 3. These can then be compared with the superintendent's predictions (see Figure 4).

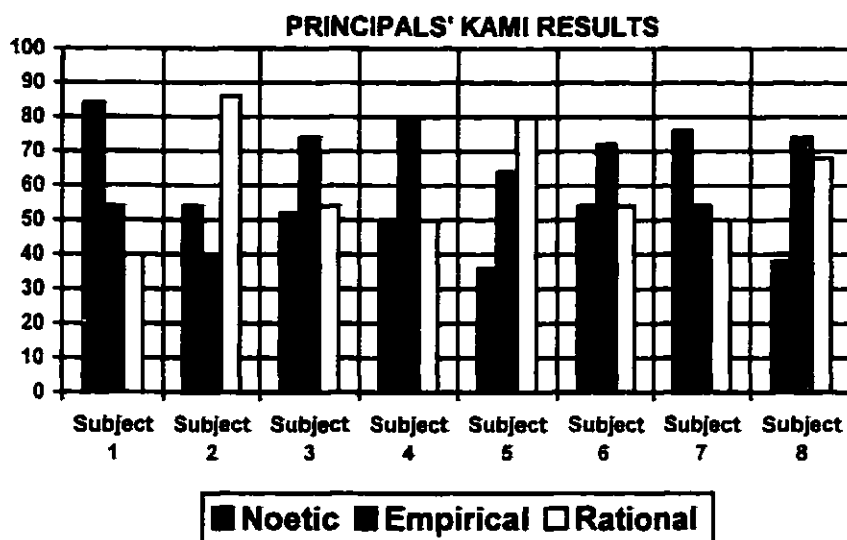


Figure 3. Results of Principals' KAMI tests.

		KAMI RESULTS	
		INTUITIVE	NON-INTUITIVE
DEAN'S PREDICTIONS	INTUITIVE	SUBJECT 1 – Elementary Female	SUBJECT 2 – Elementary Male SUBJECT 5 – Secondary Female SUBJECT 6 – Secondary Male
	NON-INTUITIVE	SUBJECT 7 – Secondary Female	SUBJECT 3 – Elementary Female SUBJECT 4 – Elementary Male SUBJECT 8 – Secondary Male

Figure 4. Comparison of Superintendents' Predictions with Actual KAMI Results.

As illustrated in Figure 3, the dominant style was relatively high in all cases. Four of the principals do show the intuitive style as their second preference, but it is either much weaker, or balanced with the rational. The KAMI manual states that if there is less than a five-point spread between the first and second mode, the individual will exhibit



more flexing behaviour into the second mode. It is evident that the empirical/rational modes are strong in the majority of subjects, and the spread between first and second mode is wide for all principals except Subject 8, who is dominantly empirical/rational. Half had the empirical mode as their dominant style. Only two principals were intuitive in their thinking style, both female. Since there were no intuitive males, this might mean that females are indeed more likely to be intuitive than males. However the sample is too small to draw such a conclusion, and, of the four females, two were not intuitive.

Rancourt's studies show that the intuitive thinking style is the least common in administrators, at least at the elementary level, as shown in Figure 5:

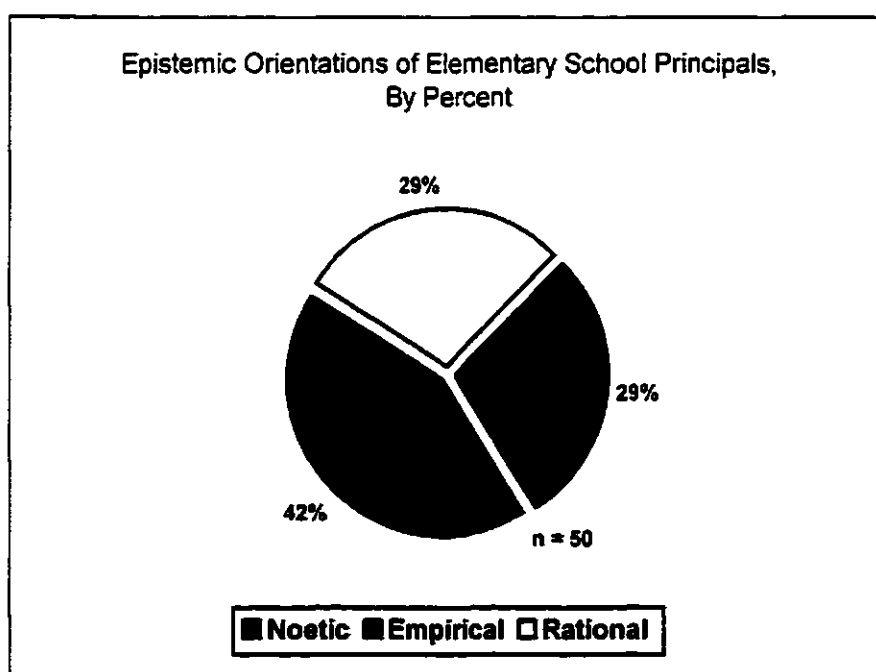


Figure 5. Epistemic Orientations of Principals, by percent, from Rancourt, R. (1998). Table 4. Means, Standard Deviations and Epistemic Orientations of KAMI Educational Practitioners, Ottawa, Ontario: Impact.

In this random sample, the majority of the administrators were not intuitive in their dominant thinking style. The results of the very small, targeted sample in this study were surprisingly similar, as shown by percent in Figure 6.

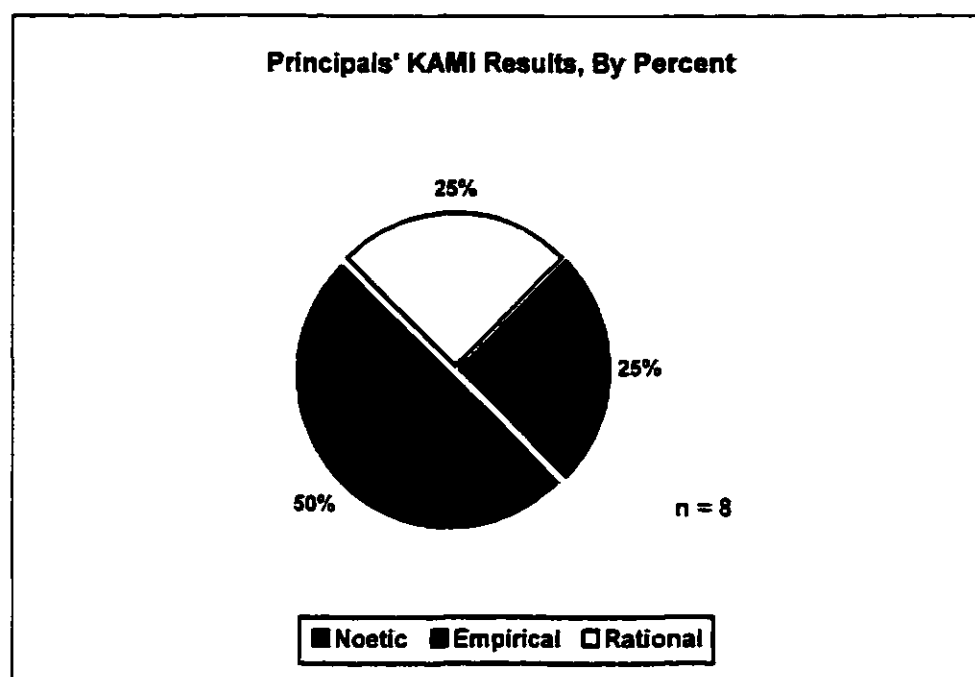


Figure 6. KAMI Results of Principals Tested, By Percent.

Almost the same percentage of administrators was intuitive and non-intuitive in both this study and the studies by Rancourt. The majority in both cases was empirical. Therefore the results would have been no different had the study simply used a random sample of administrators, rather than a targeted sample based on the superintendent's prediction of their thinking styles. One might expect, given his long-term familiarity with the school board, that Mr. Dean could select four "intuitive" principals from over two hundred. Indeed he was very confident in his choices in this category, and his detailed descriptions of the intuitive teacher were very close to the characteristics based on the literature review. Yet only one principal of the four predicted to be intuitive was intuitive in thinking style. His choices in the category of empirical/rational were more accurate, but then the three other principals were also empirical/rational. Since empirical is the most

common thinking styles among principals, according to Rancourt's results (Figure 5), the probability that those identified as non-intuitive was much greater.

The results indicate that while Dean has a very clear personal definition of intuitive teachers, he was unable to identify those who actually rely on intuition in their thinking and decision-making. In fact, a closer examination of his descriptions revealed that the only references to **thinking** are the ability to "think on their feet" and the inability to explain what they know. The principals he selected as intuitive did not have the noetic thinking style as their preferred mode, but in his description of intuitive teachers, Dean's major emphasis was on strengths in relationship building and creativity. Both these qualities are also listed in the KAMI descriptors. The administrators identified as intuitive probably do demonstrate these traits. Dean's choice of them as intuitive may have been based on his own relationship with them. He may simply "know" them better, and therefore be more aware of their personality traits that he associates with intuitiveness. Another possibility is that the principals identified as intuitive are extroverts, and therefore seem more adept at establishing relationships or expressing creative ideas. Again, affective traits like "extroverted" are indeed part of the KAMI descriptors for noetic individuals. However, as the results of the test show, they may or may not be intuitive in thinking style. If Mr. Dean is accurate in his assessment of the principals he identified as strong in relationship-building, which is an "N" trait, and yet they were **not** intuitive in thinking style, what does this signify about the test? Are distinct personality traits and behaviours associated with the intuitive style a reflection of a person's way of thinking?

As will be seen in the interviews, the principals' descriptions of the intuitive teacher closely match those of the superintendent. Their subsequent predictions of teachers with an intuitive thinking style also results in a similar questioning of the meaning of the results.

#### Interviews with the Principals

The characteristics of intuitive teachers most frequently mentioned by the principals are illustrated in Figure 7. The discussion of the interviews will provide details of the principals' descriptions in each of the categories of the teacher's role as defined by the interview, and compare their responses to the list from the literature outlined in Chapter Three.

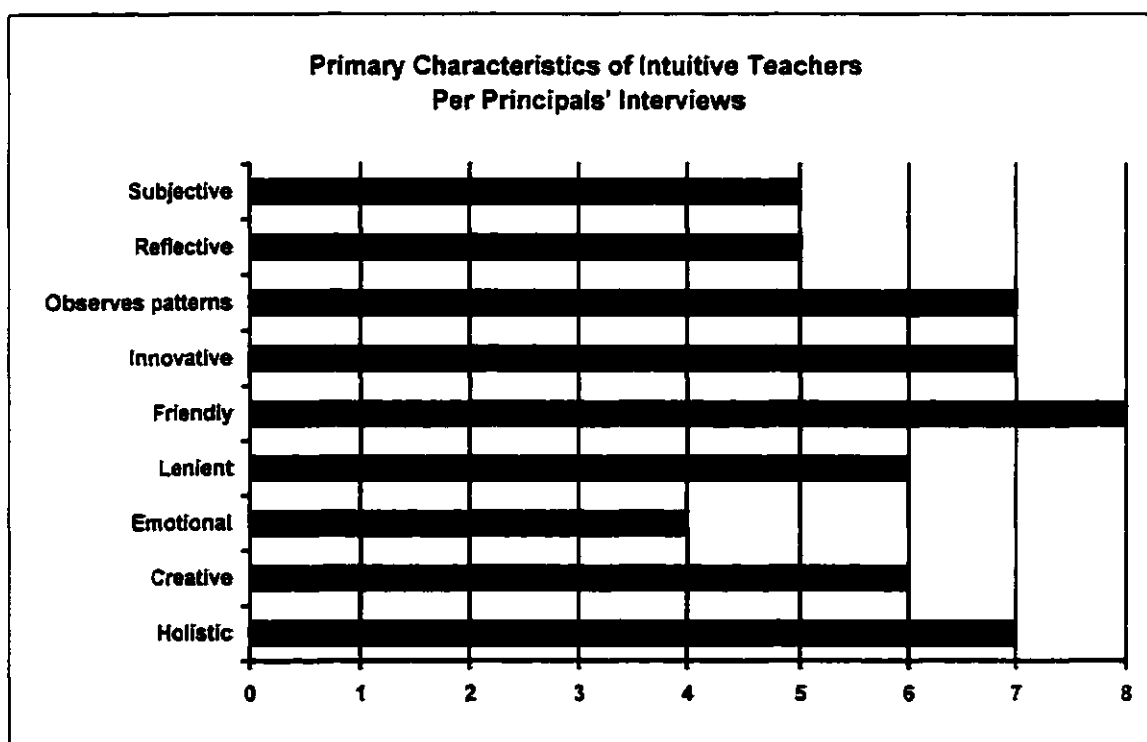


Figure 7. Primary Characteristics of Intuitive Teachers, Summarized From the Interviews.

The interviews were rich in detail and therefore a certain amount of interpretation was required in searching for alignment between principals' responses and the literature.

In some cases, the terms used by principals were exactly the same as the characteristics I was listening for, but usually it was necessary to "read into" responses to find the parallels. For example, "broad parameters" would be aligned with "holistic;" "Choose the strategies that meet the needs of the children, providing for a wide range of skills, choice, learning styles, a place where kids could design something on their own" would be linked to "broad concepts and approaches; lacks structured, sequenced approach" under teaching skills. This process was not difficult, but it could be argued that the responses could be interpreted differently (See Appendix I for a sample of interview responses).

My intent in the open-ended interview style was to avoid leading the responses in any direction. The task for the principals was not easy: they were asked to describe the characteristics of an intuitive teacher "on the spot." It is surprising then that so many common themes emerged. Another unexpected result was that the principals did not mention weaknesses in the style. Because the description based on the literature review did include weaknesses, for the sake of comparison I added the direct question: "What would be the weaknesses in the thinking style of an intuitive teacher? What might be their Achille's heel?" The answers to this question have been incorporated into the appropriate categories below.

#### Preparation, Planning and Organization

According to the literature, the traits listed below would characterize intuitive teachers in the planning phase. These were the traits that I was listening for in the interviews. The chart indicates the number of times there was agreement between the description in the literature and the principals' descriptions, as I interpreted them:

Indicators of intuitiveness in teachers	# of times stated
Requires solitude	0
Cultivates self-awareness	0
Plans holistically	7
Centered in the present	3
Careless of detail/lacks routine structures	3

There was general consensus that intuitive teachers tend to plan in a holistic manner, relying on feedback from the students to adjust their lesson plans. Three principals spoke of the teachers' sensitivity to cues in the environment and from the students in order to act responsively. These principals used the term *flow* to describe the flexibility of the on-going planning process. If these responses are interpreted to mean an ability to recognize patterns and a deep connection with the interrelationships of the students, the curriculum and the community, this could be seen as intuitive, according to the conceptual definition in this study.

Five principals stated that these teachers would start their planning by learning who the students are before structuring activities, in order to best meet students' needs. Four subjects stated the importance that intuitive teachers would attach to engaging students in the planning process, through questioning and exploring thoughts and feelings as a group. Creativity and innovation were also noted in the planning phase. Engaging students in planning, knowing the students and adjusting lessons to meet their needs are recognized as essential practises for effective teaching to ensure student learning (Quality Learning Document, 1998). Therefore these would not be expected behaviours of only "intuitive" teachers. One principal stated that intuitive teachers are quite practical, which would not

normally be a characteristic associated with intuitiveness, but which Nodding and Shore (1984) might find acceptable.

When asked to identify weaknesses in this style, five principals referred back to planning, stating that these teachers may become caught up in the big picture, moving in such tangential ways that they lose focus and lack an organized plan for meeting mandated curriculum objectives within a given time-frame. This stereotypical characteristic was to be found in Rancourt's (1988) descriptions of noetic teachers. In contrast, Subject Five insisted that intuitive teachers make good plans, based on their sense of situations. She stated that intuition is sometimes confused with "running by the seat of one's pants," which she believes is unjustified, and that this is why it is seen in a negative light.

The need for solitude and personal space to cultivate self-awareness was never brought forward in any of the conversations, yet according to the literature, these are crucial requirements for accessing intuition. Like Jim Dean, principals focused on relationship-building and saw intuitive teachers as outgoing, friendly, and effective team planners. Would "friendliness" be a trait of only intuitive teachers? Could some teachers whose thinking style is intuitive actually be "unfriendly" or at least "introverted"? In this section the focus is on personality traits, rather than on the ways in which teachers make decisions in their work.

### Teaching Skills and Strategies

Indicators of intuitiveness in teachers	# of times stated
Grounded in personal experience	0
Values personalized, visual learning	3
Creativity, innovation	5
Broad concepts and approaches	2
Doesn't provide hands-on, trial and error	0
Lacks structured, sequenced approach	2

It was remarkable that the importance of visual stimuli was noted by three subjects. as this is mentioned in the literature but is not a trait which might commonly be linked to intuition. Creativity and innovation were emphasized here. Three principals also spoke of the links to personal experience and teaching. Again, a flexible style with a wide range of choices, and differing expectations according to rates of learning of individual students were seen as significant traits of intuitive teachers. Once more, these are described as knowledge, skills and attributes related to Permanent Certification of the Teaching Quality Standard:

Teachers know there are many approaches to teaching and learning. Teachers appreciate individual differences and believe all students can learn, albeit at different rates and in different ways. They recognize students' different learning styles and the different ways they learn, and accommodate these differences in individuals and groups of students including students with special learning needs. Teachers understand the fluidity of teaching and learning. They constantly monitor the effectiveness and appropriateness of their practices and students' activities, and change them as needed.

(Alberta School Act, Ministerial Order #016/97, 3, d)

Perhaps what the administrators mean by "intuitive" in this context is that these skills do not have to be acquired by intuitive teachers, but are a "natural" part of their



personal style. Again, like Jim Dean, one principal stated that their skills are natural for these teachers, and are inborn, not learned: "They have an innate ability to see ahead, to anticipate, to question, to work with the resources that are there and the teachable moment." However, most of the authors referenced in the literature review believed that intuitive ability can be learned as a thinking skill, like rational reasoning. De Becker (1997) argues that pattern recognition happens constantly in our subconscious mind, and that, with practise and attention, it can be accessed and acted upon. It is only because listening to intuition is not valued in our society that we don't rely on it more consistently. If teaching practice is to be improved, one would expect that the skill to work with the "teachable moment" could be acquired by all teachers, given practise and on-going support.

Most principals were not specific in the types of teaching strategies used by intuitive teachers. Two stated that they would construct knowledge with the students as they went along, through peer teaching, questioning, and active involvement. This could be paralleled with personalized learning. In fact, construction of knowledge demands trial and error and hands-on learning, which according to Rancourt's description of the NRE style (KAMI Manual, 1988, p. 12) is not consistent with a dominantly intuitive teaching style. Rancourt doesn't explain why, but it may be that an intuitive thinker tends to listen and observe, then make "mental leaps" to form a picture of the "whole," without experimentation along the way. However, hands-on learning is an important aspect of all mandated curricula and would be seen as essential by administrators. Thus they might believe that an "intuitive" teacher would naturally use manipulatives in the learning process. The administrator may even believe that a trial and error "discovery" approach is

typical of the intuitive style, which, according to the literature, is not so. Browning, Kukulé, Coleridge, Howe, McLintock, Mozart and others referenced in the literature review claimed that their images came to them fully-formed, in an intuitive "flash."

#### Communication Style

Indicators of intuitiveness in teachers	# of times stated
Imprecise in expression	1
Listens well	2
Appeals to emotions	3
Lots of discussion – "why" vs. "how" ?s	1
May be too lenient or inconsistent	6

As noted earlier, only two principals referred to the capacity of intuitive teachers to listen well, and neither is an intuitive thinker, according to their KAMI results. Like Jim Dean, three individuals stressed the importance of appealing to emotions in their communication, especially through humour, honest praise and empathy. An open communication style was seen as a strength by all. Since effective communication is so essential to teaching, one questions whether only intuitive teachers are capable of it. Similar to the literature, one principal commented that discussions centered on "why" questions would be ongoing in the classroom. Again, since the curriculum demands the development of higher order thinking skills based on Bloom's taxonomy, it would be an expectation that such discussions should occur in every classroom.

Leniency and inconsistency were brought forward when weaknesses were mentioned. Six of the eight principals believed the intuitive teacher might have trouble with discipline. They stated that intuitive teachers find it hard to draw the line and make

the "bottom-line" decisions, because they concentrate on feelings and relationships. One of the two intuitive principals, Subject One, explained it this way:

Drawing that final line is really hard, discipline is hard. They always see hope. It's hard to say, "Now you're suspended." They always see the good side of any child, they have trouble saying, "The buck stops here." I don't think that's bad, it's very hopeful for children, but it's tough to draw the line sometimes. Also very sensitive, very sensitive to kids. They realize how important building relationships is and so sometimes the relationship can muddy the waters about making a really hard decision about where to go, what to do.

It is interesting that this leniency was seen as a "forgivable" weakness by the six principals who mentioned it.

One of the rational/empirical principals however, framed this in terms of inconsistency, in that when faced with a number of different demands at once, intuitive teachers tend to become caught up in situations and are unable to remain objective. Given the emotionally-charged stresses of dealing with students and parents, do only intuitive teachers have difficulty remaining objective?

#### Management

Indicators of intuitiveness in teachers	# of times stated
Student-centered	5
Lacks analysis	2
Frequent interactions, verbal/non-verbal	2
Preventative discipline	2

Subject One described the preventative management style as "unobtrusive:"

They can do more than one thing at a time. Their eyes are constantly roving around the classroom, they're internalizing what's going on and they're able to talk about what's going on while they're talking about what they're teaching. They're constantly noticing interactions among people, they're

able to react spontaneously without causing great havoc to the lesson or stopping the train of thought. They're just always thinking about something that will be non-intrusive, so they can go over and tap a student on the shoulder or give someone a look, while they they're talking and doing the lesson and everything, so everything flows, and I find that the intuitive types are very calm, it takes a lot to rattle them. They're able to put everything together in a wonderful, beautiful tapestry and it seems effortless, but they just have so many skills going for them at one time.

From the text it is not clear whether these skills are innate or learned, but the suggestion is made that it is natural for them. One of the "rational" principals called this style "artistry:"

This is where the artistry comes forward. Intuition is wrongly understood as disorganized, as anything goes. They would orchestrate within broad parameters, allowing children's voices to come forward, but within these parameters, so that there are some guidelines within which children can move back and forth. They are pedagogically thoughtful, through the curriculum and the children's voice at the same time. They interpret the children's voices within the framework of the curriculum.

Again, classroom management skills such as use of proximity, low-key responses and organization are effective strategies, which would not be the exclusive purview of intuitive teachers. All principals but one stated that these teachers would have clear expectations and provide a lot of on-going feedback, both verbal and non-verbal, to keep the students on track. Setting clear expectations and providing relevant feedback are also standards quality teaching (Quality Learning Document, 1998), and therefore are not behaviours that must necessarily be associated with an intuitive thinking style.

While the literature didn't refer to a tendency to be disorganized, Rancourt's (1988) description of the NER style does. Only two principals stated, as did Jim Dean, that their classroom may be considered messy, and both of these said that management would be there, but focused on children rather than on an organized desk. Subject One, an intuitive

principal, doesn't see herself as disorganized, but thought intuitive teachers might appear

so:

Sometimes they're not very, what would to me be very organized. They can be very creative. They have lots of stuff going on at once, and they know where everything is, and they've got it all together but if you looked at it you might say it looked a bit scrambled, but in the course of the day, the materials are there and there's a lot of free choice for the people who are using the materials so it actually is very structured even though it doesn't look very structured. There's a strong sense of what's available, and how I'm to use resources and kids are interacting with each other. It's a very positive and open kind of classroom. There's free movement - the kids are not tied to their desks. They have a really good sense of what they're there for and where they're going. The teacher very much has that, knowing exactly where he or she is going and is able to communicate that in a very free and open way.

This principal seems to suggest that the teacher maintains a structured but flexible environment. The other intuitive principal saw intuitive teachers differently, as messy, with vague expectations such as "everyone should just do their best" and inconsistent in task completion. Both administrators have an intuitive thinking style, which may commonly be seen as a disorganized style, yet both value organization highly. Two of the principals who scored as empirical in their dominant thinking style believed the management style may not differ from that of other teachers. These principals may be recognizing the difficulty of distinguishing intuitive teachers from empirical/rational teachers based on their observable behaviour.

Class Climate/Relationships

Indicators of intuitiveness in teachers	# of times stated
Enjoys working with others	8
Sees whole class	0
Overly high expectations	4
Impatient	4

All eight principals and the superintendent stated that intuitive teachers enjoy working with others. Five principals said that intuitive teachers love teaching and love children: "They create a warm secure environment. The children love talking to them and they love talking to the children." "The climate is comfortable, engaging and inclusive." "This is the teacher who constantly has kids hanging around after class." "Kids look forward to going to that class. They want to be there on time, and they bring good questions with them." Forming a sense of classroom community based on significant questions was noted twice. "Generative curriculum" is viewed very positively in the Calgary Board of Education, and many schools base their planning entirely on this philosophy. Therefore many teachers may be using this approach, which on the surface may seem to be intuitive.

Two principals referred to the teacher's ability to persuade through personal charisma and humour, creating a climate where the students want to work with the teacher and peers in positive ways. Could a personality trait such as "sense of humour" be associated only with an intuitive thinking style?

No one stated that these teachers may not attend adequately to individual needs, but instead work with the class as a whole, as Rancourt suggests in his list of traits for the NRE style (KAMI Manual, p. 12, 1988). One principal however did say that they may become too engrossed with their own class to become adequately involved in the goals of the whole school community, and this was seen as negative.

According to Rancourt's (1988) description, noetic teachers are good motivators, with high expectations of themselves and others. However, this same trait is described in the RNE style (KAMI Manual, p. 16). These characteristics were referred to by four of the principals, as well as the tendency to be overly hard on themselves.

#### Professional Qualities and Initiative

Indicators of intuitiveness in teachers	# of times stated
Highly motivated to begin new tasks	6
Interested in trends, enthusiastic	7
Seeks new solutions to problems	7
May lack follow-through	1

Six administrators saw intuitive teachers as energetic, open to new ideas and very self-motivated. They stated that they value discussions and inquiry in their relationships with other professionals, are highly committed and "driven" to achieve in answer to a calling. In Awakening the Inner Eye (1984), Noddings and Shore express the need for educational caritas (love) in the relationship between teacher and students in order to develop intuition in both. One of the intuitive principals depicted the intuitive teacher in much the same way:

They are very self-motivated, very creative, are in this for the joy they get, and definitely not the pay-check. It's more than just the teaching involved, it's bigger than that, it's the whole moral enterprise. It's having them (the students) be the best they can be as citizens, as human beings. It's about the whole child, it's not about "math now." They communicate that they too are learners. They model what they want in their kids, they model: "I'm not perfect, let's learn it together." It's such an exciting atmosphere to be where those kinds of people are working.

Another principal pointed out that they really enjoy the success of their students, and want to share it with others, as their personal reward in teaching. Again, the question emerges: how does "a sense of joy and personal satisfaction" connect to "intuitiveness" in a teacher? Could not those with the rational/empirical style also experience "educational caratis?"

#### Evaluation of Student Learning

Indicators of intuitiveness in teachers	# of times stated
Observes patterns	7
Emotionally-charged planning	3
Not time-dependent	2
May be frustrated with systems	3

Consistently, intuitive teachers were seen as making close observations and using many forms of assessment to gain understanding of students' growth over time and their levels of achievement. This could be interpreted as pattern recognition, but is also an expectation of teachers as part of the reporting process. There was consensus on the use of anecdotal records, portfolios, projects, class participation and on-going diagnostic testing, rather than reliance on standardized, paper and pencil tests. Once again, broad-based assessment is accepted and expected practice in our school district. The analysis of



the individual and emotional needs of the child was brought forward three times, with emphasis on the purpose of evaluation being to support the child's progress. One principal felt that it would be easier for intuitive teachers to modify programs, to design individualized progress plans, because they "know" their students, and would allow for personalization and exceptions. Another stated it this way:

They would focus on the child, and deviate from the norm to a certain degree because of a situation with a child or in the home. They would have a very good understanding of the child and the circumstances that would cause a child not to master something on a paper or pencil test for instance. The teacher would understand, would improvise, find some other way to evaluate.

Assessment of the child as an individual is mandated by the Department of Education, and forms the basis of the Individualized Program Plan required for students whose achievement is significantly below or above grade level expectations. This would be an expectation of all teachers:

Teachers monitor students' actions on an ongoing basis to determine and respond to their learning needs. They use a variety of diagnostic methods...select and develop a variety of classroom assessment strategies and instruments to assess the full range of learning objectives. They differentiate between classroom and large-scale instruments such as provincial achievement tests, administer both and use the results for the ultimate benefit of students. (Alberta School Act, Ministerial Order #016/97, 3, i)

However the suggestion was made by administrators that intuitive teachers base evaluation on personal assessment, and two principals as well as Jim Dean referred to the intuitive teachers' frustration with impersonal systems of evaluation. There is quite widespread discontent in our district with the ways in which achievement test scores are published and interpreted, so that it may not be surprising that this is mentioned as a source of frustration, but it would not be exclusive to intuitive teachers.

When weaknesses were solicited, one of the intuitive principals mentioned that intuitive teachers might have difficulty meeting deadlines in the reporting cycle. This perception harkens back to the stereotypical notion that intuitive teachers are disorganized and somewhat non-conformist.

#### Reflection and Self-Evaluation

Indicators of intuitiveness in teachers	# of times stated
Process through experience	5
Deep self-reflection	5
May lack objectivity	5
Careless of detail	2

Most principals saw self-evaluation and on-going reflection as defining qualities of intuitive teachers. In addition to the qualities listed above, two of the principals added that intuitive teachers have a strong belief in themselves and their ability to make changes as necessary. Subject 8 stated that they would have to process their beliefs through experience, because if daily practice didn't confirm what they knew at an emotional level, they may have low self-esteem. In relation to high personal standards, two principals brought up self-esteem:

These teachers would want to cover the curriculum in a way in which they were left with a good feeling about it. Did they relate to the student, were they motivated and interested? If that did not meet the standard they set for themselves they would be disappointed, in themselves.

These principals stated that self-evaluation would be more important to them than feedback from others. This could be paralleled with the descriptor "lacking objectivity."

The need for intuitive teachers to gather ideas from colleagues and published authors to inform their intuition was emphasized by all the principals. It was evident that they believed that intuition could not be relied upon exclusively, that their "feelings" must be brought to the surface, examined, and articulated very clearly in terms that others can understand:

In the absence of reflection, the intuitive's ability to move forward would be diminished, because they wouldn't have a language other than, "It feels like this to me" and I think that in some arenas that language would be found wanting, in terms of its strength and its ability to convince people to move forward, so this business of being reflective is very important for the intuitive, or they run the risk of being marginalized, as people who can't talk the "real talk," but who know in their hearts that this is right. It's the old "cardiac method." Particularly in the social and political climate in which we live today, the cardiac method of assessing or advocating for something doesn't work. Self-reflection will give them strength, and will position them then in ways that will allow the great strength from their intuition to be brought forward into other arenas as opposed to remaining localized, and, given the social and political milieu in which we work now, almost side-lined. They must be credible in many arenas about what they know about children, and children's learning and education and how schools move forward.

This principal values intuition, but it seems only within the parameters accepted by the rational/empirical domains! It is obvious that the principals were very clear in their perception that the intuitive teacher has a definite style based on certain personality traits and observable behaviours. Like Mr. Dean, they were confident in their predictions of those with an intuitive thinking style. Were they then able to identify teachers with an intuitive thinking style, according to the KAMI results?

### Principals' Identification of Teachers' Thinking Styles

#### Predictions Compared With KAMI Scores.

Most principals, like Mr. Dean, were unable to identify intuitive teachers, as shown in Figures 8 and 10. Only three of the eight teachers identified as intuitive, in both the elementary and secondary groups, actually are intuitive in thinking style, as illustrated in Figures 9 and 11.

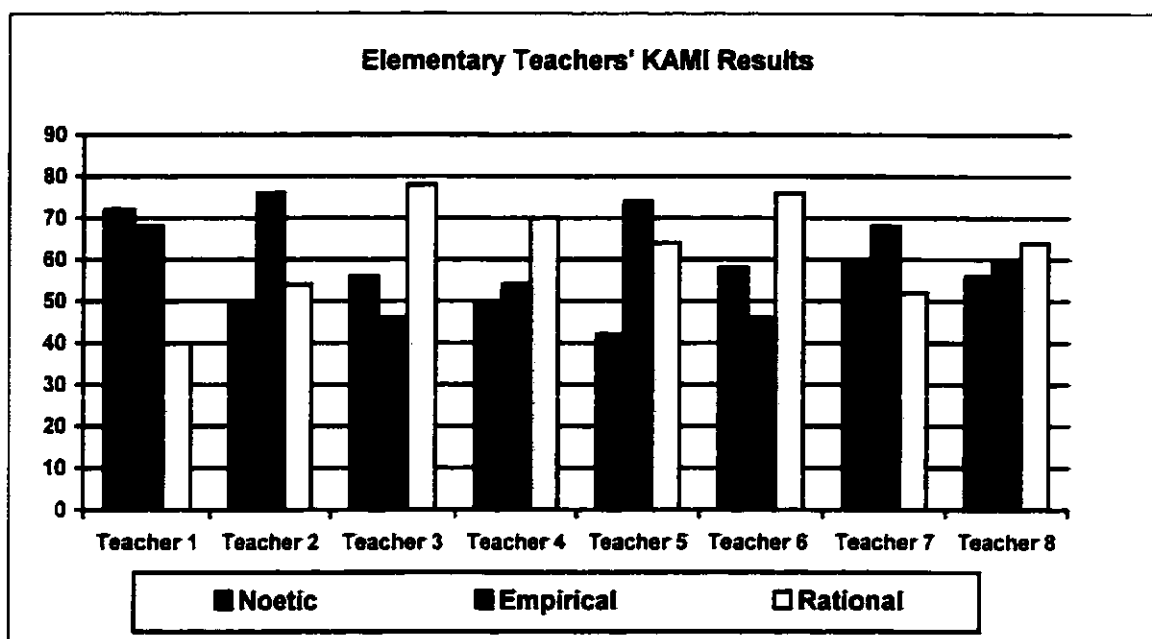


Figure 8. KAMI Results of Elementary Teachers.

		KAMI RESULTS	
		INTUITIVE	NON-INTUITIVE
PRINCIPALS' PREDICTIONS	INTUITIVE	Teacher 1 (Female), by Subject 1	Teacher 3 (Female), by Subject 2 Teacher 5 (Female), by Subject 3 Teacher 7 (Male), by Subject 4
	NON-INTUITIVE		Teacher 2 (Female), by Subject 1 Teacher 4 (Female), by Subject 2 Teacher 6 (Female), by Subject 3 Teacher 8 (Female), by Subject 4

Figure 9. Comparison of Principals' Predictions with KAMI Results (Elementary).

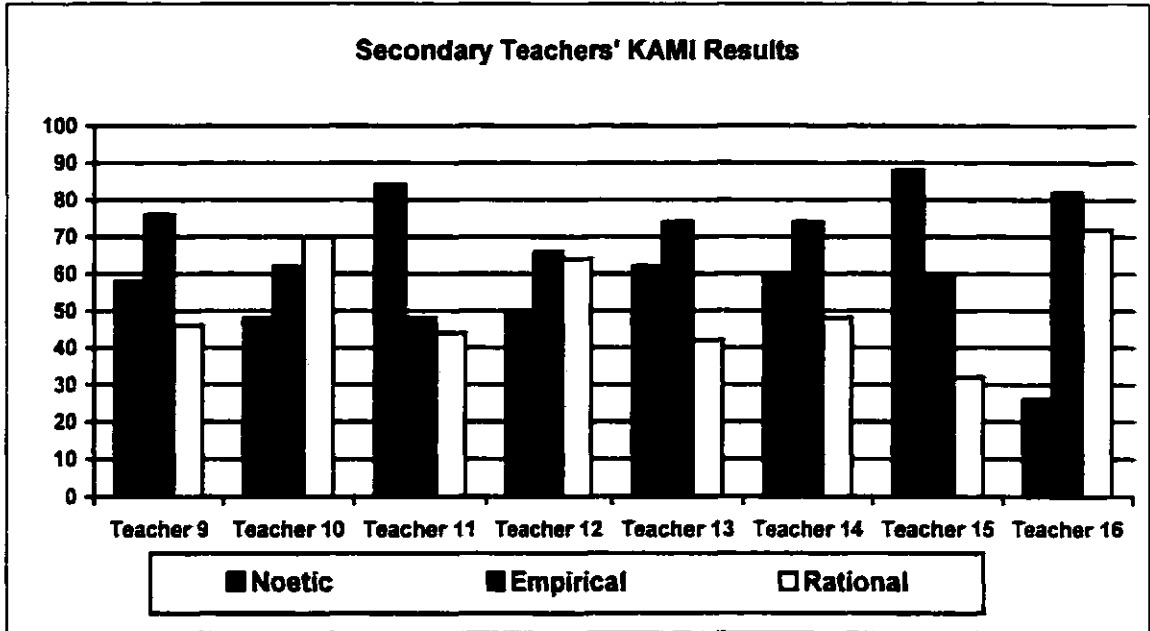


Figure 10. KAMI Results of Secondary Teachers.

		KAMI RESULTS	
		INTUITIVE	NON-INTUITIVE
PRINCIPALS' PREDICTIONS	INTUITIVE	Teacher 11 (Female), by Subject 6 Teacher 15 (Female), by Subject 8	Teacher 9 (Female), by Subject 5 Teacher 13 (Male), by Subject 7
	NON-INTUITIVE		Teacher 10 (Male), by Subject 5 Teacher 12 (Male), by Subject 6 Teacher 14 (Female), by Subject 7 Teacher 16 (Male), by Subject 8

Figure 11. Comparison of Principals' Predictions with KAMI Results (Secondary).

From these results, it can be seen that four teachers incorrectly identified as intuitive do have noetic as their secondary mode, as shown in Figure 12, which is perhaps what the administrators were able to identify.

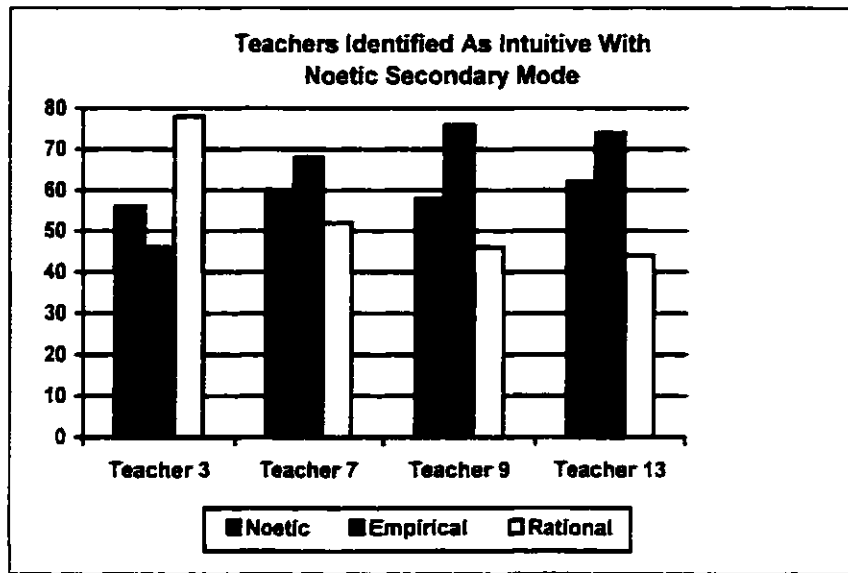


Figure 12. Teachers with Noetic Secondary Mode, Identified by Principals as Intuitive.

However, two teachers identified as non-intuitive also have noetic as their secondary preference, Subject 6 and Subject 14. There is the possibility that **any** positive results were just "lucky guesses," but principals were accurate in identifying the rational/empirical teachers, just as Jim Dean was very close in his identification of non-intuitive principals, with only one exception. It may be easier to identify non-intuitive styles, either empirical or rational, than the intuitive. It seems that because the non-intuitive style is more common, the probability of correctly guessing an intuitive style is lower. Yet the principals were very assured in their choices of intuitive teachers. Were factors other than thinking style influencing their perceptions?

### Possible Reasons for Principals' Selection of Intuitive Teachers

If the teachers identified as intuitive are not, what caused the principals to place them in this category?

#### Gender

At the school level, gender was not specified as a criteria, since elementary schools often do not have many male teachers. Even without specifying male or female to the principals, of the eight teachers identified as intuitive, six were female. This may have been a result of the popular belief that females are more intuitive than males or simply because the majority of teachers are female. Indeed, Rancourt's results, at least at the elementary level, would seem to confirm this. He reports that the majority of elementary female teachers are intuitive (53%), and noetic is the second most common thinking style of elementary males (38%) (see Figure 13).

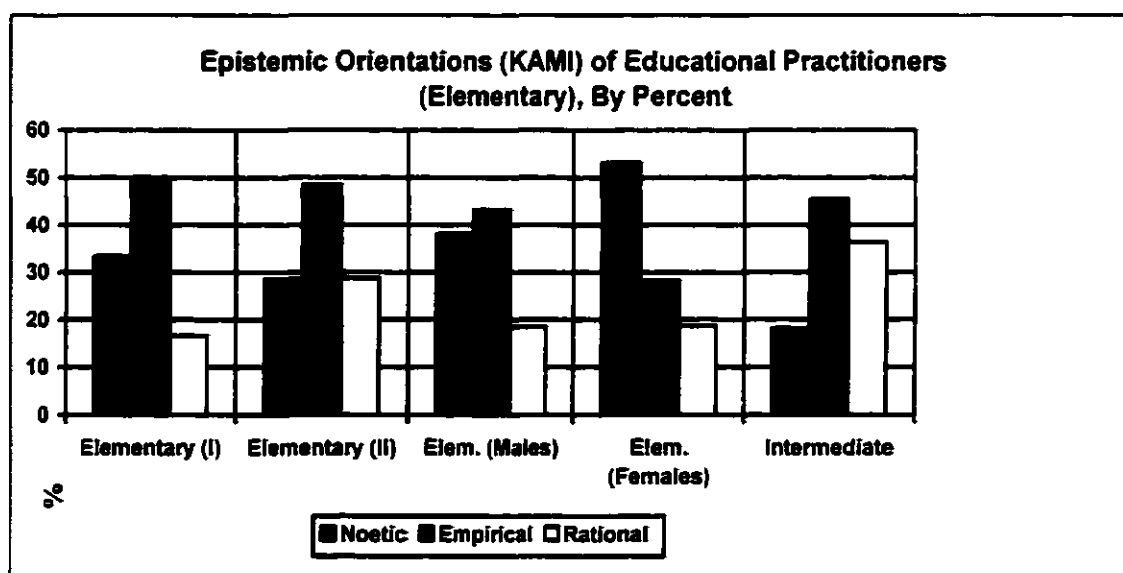


Figure 13. Epistemic Orientations of Educational Practitioners (Elementary), by Percent, From: Rancourt, R. (1998). Epistemic Orientations (KAMI) of Educational Practitioners, Ottawa, Ontario: Impact.



This is not borne out by this study, since of all eight elementary teachers tested, seven were female and only one scored as noetic. The other two intuitive teachers taught secondary school. These results would support Goldberg's (1983) contention that females are not more intuitive than males.

However, there were **no** intuitive males in either the teacher or principal category, according to the KAMI results, but the sample is too small to make any generalizations. All four of the males in the study identified as intuitive did have noetic secondary modes, however. Perhaps the environment elicits aspects of their behaviour consistent with the intuitive thinking style, according to the KAMI, even though they access the empirical/rational modes when thinking.

Four of the eight female teachers in the empirical/rational category have a noetic flex style. Goldberg also maintains that intuitive thinking can be learned. Perhaps working with students causes some teachers to demonstrate behaviours that are then perceived as intuitive by their administrators. However, only two of the four were identified as intuitive. Why were the other two not seen as intuitive? For example, one of the secondary female principals, Subject 5, was identified as intuitive but is highly rational/empirical. Why are some individuals identified as intuitive when they are not, and vice-versa?

It may in fact be that the behavioural characteristics that the administrators are identifying are consistent with the KAMI's discriminators for personality traits and behavioural characteristics. This may be the case regardless of gender. Or are other influences at work?

"Like Me"

One of the most startling results is that all four elementary principals identified as "most intuitive" teachers whose thinking styles were amazingly similar to their own, as illustrated in Figure 14:

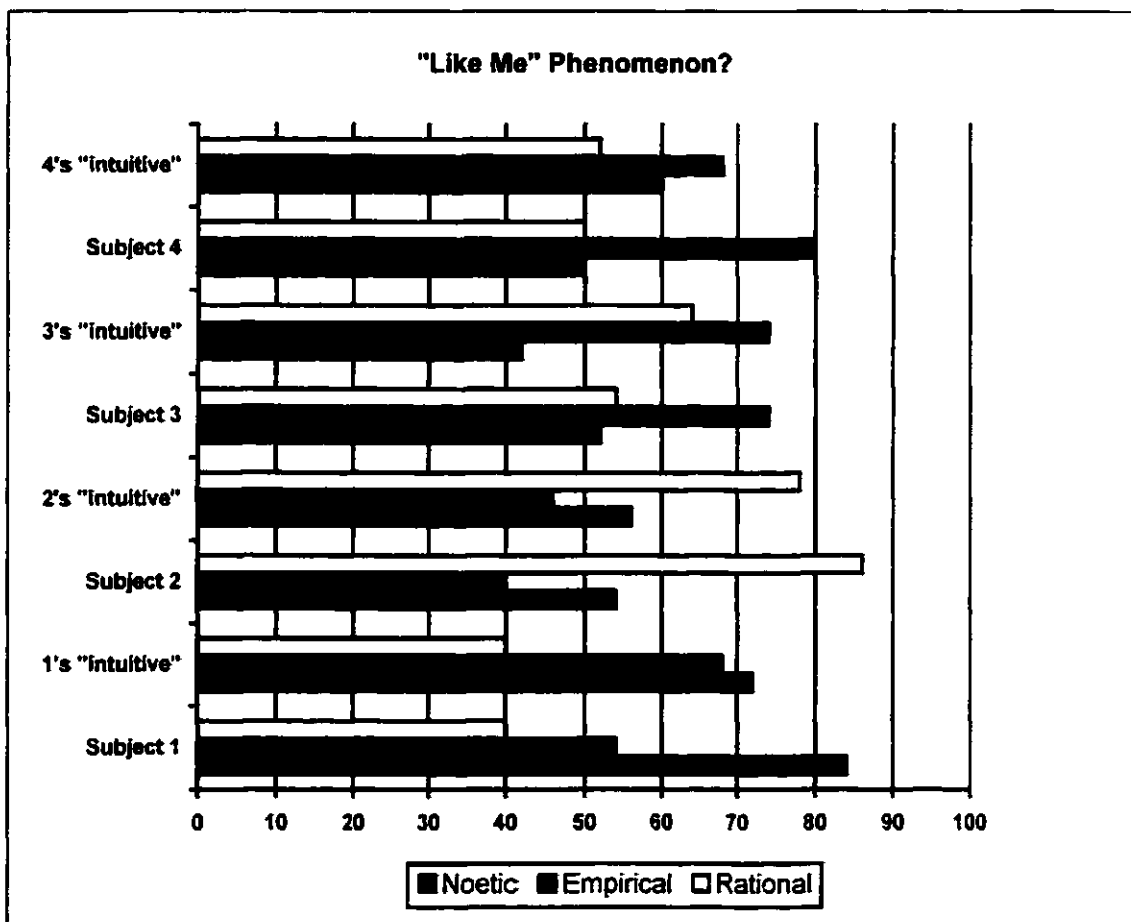


Figure 14. "Like Me"?

As can be seen, the profiles of the principals and the teachers identified as "intuitive" are almost identical. The consistency of these results makes it unlikely that this is mere coincidence. How can this be explained? In human resources management theory pertaining to the selection of personnel, it is well known that the tendency to hire "like me" is prevalent: candidates who display personality traits and physical characteristics

similar to those of the recruiter have an advantage. This may not be in the best interests of the organization, and therefore recruiters are cautioned against following their "intuition:"

The research evidence strongly demonstrates the superiority of systematic combination over intuitive judgment. (In systematic combination, all of the information on an applicant is coded in numerical terms . . . The hiring decision is then based purely upon the final score assigned to the applicant as a result of this systematic combination of numerical scores.) Fifty-one different studies have compared intuitive judgment to systematic combination as methods of making decisions . . . There was not a single example of intuitive judgment outperforming systematic combination. (Arnold, Feldman & Hunt, 1992, p. 79)

Yet it is very difficult to counteract this tendency: "The vast majority of selection decisions are made by intuitive judgment" (p. 79). Is a similar effect at work when principals identify and select "intuitive" teachers? Do principals subconsciously believe that individuals who behave and seem to think in ways much like their own are intuitive? If so, do they really know what is meant by "intuitive" as a style of thinking?

#### Agreeableness

When asked to identify the teacher who best fit their description of "intuitive" each one instantly provided a name, sometimes several. However, the identification of the person within the rational/empirical style proved more difficult. The response was more hesitant and guarded. Most often the principal would have a person immediately in mind, then state that this person would not participate in the study and name a different teacher. None of the individuals identified refused to participate, which may indicate that the principals were judicious in their choices.

This strengthens the argument that the principals' perceptions of intuitiveness may be based more on certain behaviours or personality traits than on thinking style. This becomes even more obvious in cases where the principal identified as intuitive and non-

intuitive people with the same kind of thinking style, according to their KAMI profile.

This occurred in two cases, and the congruence of the scores of the two teachers is startling (see Figure 15):

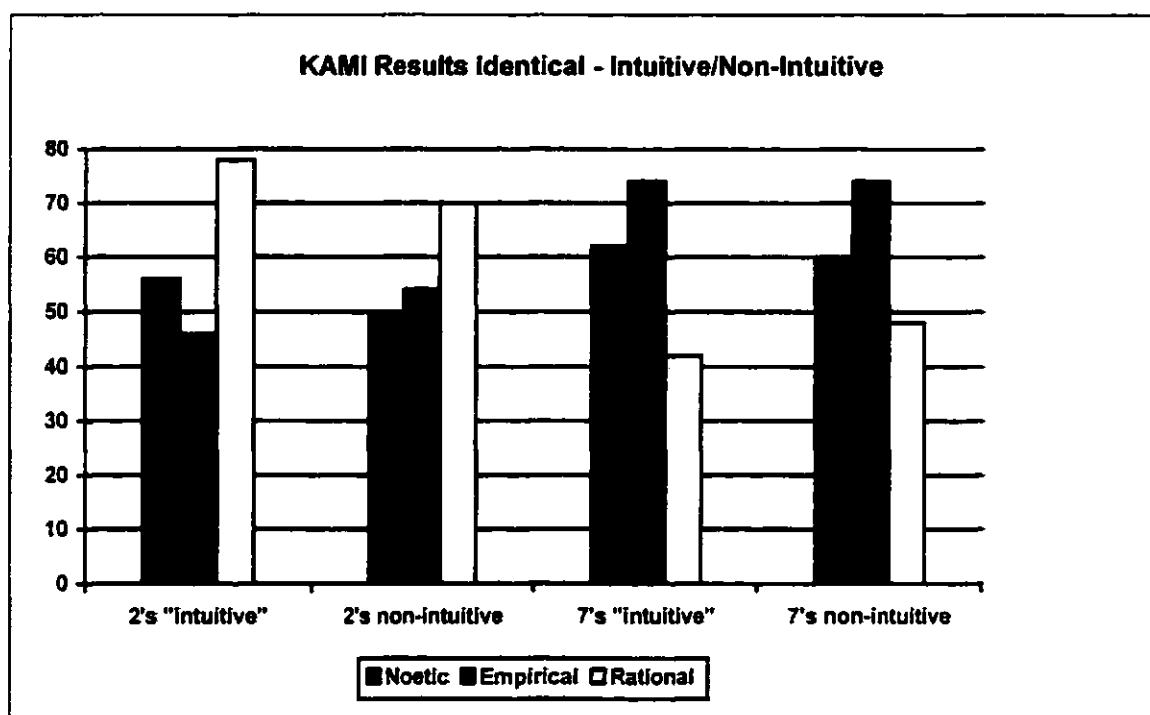


Figure 15. KAMI profiles of teachers identified as Intuitive/Non-Intuitive, by the same administrator, whose KAMI results were the same.

In the case of Subject 2, the teacher identified as intuitive did have a noetic secondary mode, but the dominant mode is definitely rational. In the case of Subject 7, the principal stated that both teachers were quite intuitive, but one would be more so than the other. Their profiles are surprisingly similar, so in that respect she was very accurate. Both were dominant in the empirical mode, while the flex style was intuitive. If their thinking style profiles are so similar though, why is one teacher considered more intuitive than another? Are their observable behaviours or personalities essentially very different, even though they think the same way? If both Knowledge Accessing Modes profiles are

the same, do factors other than thinking style influence the perception that a teacher is intuitive? Is it possible that these principals were accurate in their assessment of the teachers' styles, and that instead the test fails in its ability to identify intuitive/non-intuitive teachers?

#### Re-Examination of the KAMI

In his introduction to the KAMI, Rancourt explains that knowledge is acquired through three means: the senses (perceptions); reason (thought) and intuition (insight). He goes on to illustrate how each one of these means may take precedence, depending on heredity and environmental factors, in how we interpret incoming data and add to our knowledge base. The empirical style uses sensory perception to screen data in objective and practical terms. The rational mode relies on deductive reasoning based on previously held beliefs, concepts or principles to determine the nature and quality of incoming information. The noetic mode screens data through personal, subjective certainty, using analogical, experiential and lateral processes.

These descriptions would be very consistent with those found in the literature which formed the basis of the conceptual definition of intuition: **a brain/mind function of pattern recognition and interpretation of information from environmental and internal signals, that allows for an "immediate," holistic sense of understanding.** The difficulty arises when the description of how individuals think is associated with personality traits and behaviour. For example, affective characteristics such as spontaneous, expressive, emotional, extroverted and impulsive are listed in the detailed illustration of the noetic style by Rancourt. The administrators also honed in on observable behaviours and personality traits in their descriptions of the intuitive teacher.

The inclusion of such broad, loosely-defined personality traits and behaviours, which also overlap within the styles, causes one to question the descriptions of the affective and behavioural systems in the Knowledge Accessing Modes Inventory. If intuition were a way of thinking, why would it be associated more with a "friendly" person than one who is "aloof," as is suggested in the descriptors? What level of "friendliness" or "aloofness" would determine the degree to which a person was intuitive in thinking style?

Based on the test results, if the KAMI is accurate in identifying thinking styles, and the principals are also accurate in their perceptions, then "friendly, innovative, lenient, creative, holistic, subjective, reflective" teachers are **not** intuitive in their preferred thinking style, even though these characteristics fall under the "noetic" category. Is it appropriate to associate characteristics like these with a particular way of *thinking*?

It must be remembered that Rancourt developed the KAMI from the more complex Psycho-Epistemological Profile of Royce and Mos (1980) which integrates the cognitive, affective and value systems. It is grounded in the theory that these systems act together in the functioning of the personality (Leino, Leino & Lindstedt, 1989, p. 20). For this reason, personal characteristics associated with the style are integral to the thinking function:

In the theory, the cognitive styles are more general and deeper in personality than abilities which are located in the cognitive system. . . . Styles are activated when alternative possibilities exist or when the situation is sufficiently complex that multiple modes of response are feasible.  
(Leino et. al., p. 23)

This would suggest that responses to given situations would be based on a combination of thinking, personality, values and environmental conditions. How were the personality traits listed in association with thinking style determined? The KAMI

questions do not focus exclusively on thinking as such. There are questions about beliefs and behaviours that would then determine a personal style, such as how the person chooses clothes, plays sports and responds to competition. In many cases, it is difficult to tell if the question is about thinking, feelings or values, for example: "What type of teacher do you admire?" Does the resulting profile accurately reflect the individual's way of *thinking*? What percentage of the KAMI measures thinking style and how much reveals a personality type?

The results of this study present a clear illustration of this dilemma, as shown in Figure 16. Four teachers who were identified as intuitive by the principals, following their own definitions, which were consistent with the descriptions in the KAMI, did indeed have a noetic secondary mode:

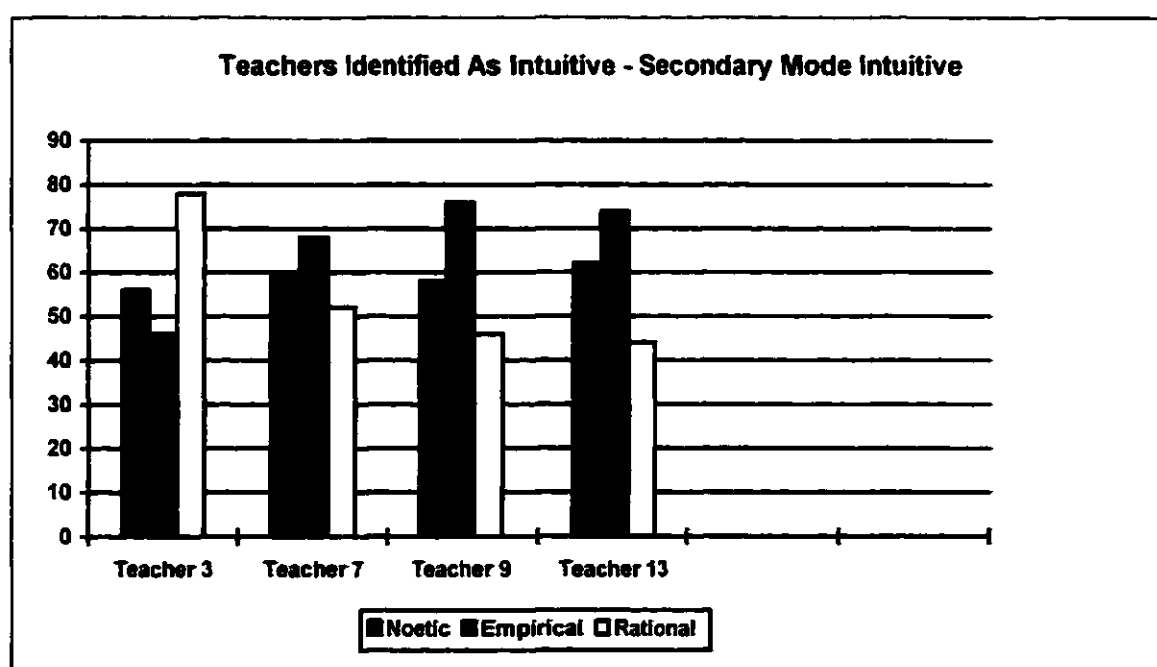


Figure 16. Teachers Identified as Intuitive, Secondary Mode--Intuitive.

Three of these teachers have the empirical mode as their dominant style and are ENR.

Some of the characteristics listed in the KAMI description of this style would fit with both the qualities I was trying to match with the literature in the descriptions of intuitive teachers, as well as with the principals' descriptions of intuitive teachers:

- loyal and understanding
- readily accept affection and reject aggression
- prefer activity-based student learning
- act as curricular organizers and reinforcers rather than information dispensers
- prefer daily quizzes to formal tests
- favour individualized approaches to learning
- emphasize a democratic environment

Which of these traits is truly distinct from those of the NER or NRE individual? Strong relationship-building seems to be part of the empirical/noetic style as well, and it would be ludicrous to suggest that dominant "rationals" are not interested in building relationships. The RNE, REN descriptions do emphasize a strong intellectual rather than an emotional focus, but this may **contribute** to positive relationships in academic settings. The RNE style, for example, is said to be comprised of charming, sensitive intellectuals who are great motivators (Rancourt, 1988). This sounds very much like the intuitive teacher described by the principals. Thus when they identified their "charming, motivating" teachers as intuitive and they turned out to be rational, maybe they were honing in on personality traits found in RNE.

In fact, personality traits like "friendliness," "charismatic" and "charming" used by the administrators and in Rancourt's descriptions of the epistemic orientations seem to confound the issue of *thinking* styles. When Rancourt focuses exclusively on presenting the three ways in which knowledge is acquired the alignment with the conceptual definition is clear. Here, the focus is on thinking: empirical, through an inductive (bottom



up) reasoning process; rational, using a deductive (top-down) reasoning process; noetic, via an abductive (analogical/experiential/lateral) process of reasoning (KAMI Manual, 1988, p. 3). However, when personality traits and teaching behaviours are combined in the KAMI as reflections of how a person thinks, the relationships are questionable.

All three types of thinkers may arrive at the same conclusion in different ways, yet their observable behaviour may be the same! As Sirois (1997) states, most teachers would have a hard time explaining the thinking process behind their pedagogical decisions. He does not suggest that only teachers with a certain personality type are intuitive, but rather that *all* teachers act on the basis of intuition to a large degree. Intuition is defined as “pattern recognition and a deep grasp of the Object;” this could indeed be a thinking process accessed by any personality type. It would be impossible for observers, or the teachers themselves, to tell how a solution was formulated through either/and rational, empirical, noetic thought processes.

Would it not be equally difficult to quantify traits such as “friendliness” and to associate them more with one thinking style than another? In fact, as de Becker (1997) points out, “friendly” people can sometimes be the most dangerous! The principals described intuitive teachers as friendly and identified friendly teachers as intuitive. But those they identified as intuitive were not, for the most part, noetic thinkers, according to the KAMI. Yet if they were ENR, the N may represent this personality trait. Or it may not. What part of the N reflects thinking style and what part represents a behaviour or character trait? Is the KAMI valid?

Is it reasonable to associate certain behavioural characteristics and personality traits to thinking styles? Are these valid indicators of how people *think*?

### Re-consideration of the Characteristics of Intuitive Teachers

Intuitive thinking was not linked to particular personality traits in the work of Noddings and Shore (1984), Goldberg (1983), Hendlin (1989), Cappon (1989), De Bono (1993), or Samples (1993). Philip Goldberg emphasized the "spontaneity and immediacy of knowing...not mediated by a conscious or deliberate rational process," while maintaining that intuition is integral to rational thinking: "Because we usually have insufficient information and too little time to gather it when we reason, we skip many of the intermediary steps required by strict logic and leap to conclusions that are not strictly defensible" (1983, p. 32-33).

Noddings and Shore (1984) spoke of strong feelings associated with a quest for knowledge. Smith (1995) and Holyoak and Thagard (1995) contend that these feelings are produced by pattern recognition. McLintock advised scientists to "get a feeling for the organism" (in Webb, 1995, p. 216). Noddings and Shore describe intuition as "a nonreflective consciousness," with such an intense focus on the object that the structure of the processes cannot be known (p. 27). Others such as Hendlin (1989) speak of a state of heightened conscious awareness brought on by such means as meditation, while Mihaly Csikszentmihalyi (1990) refers to an intense level of concentration which brings on a condition he defined as "flow." Other authors explained that intuition could also be activated during "hypnagogia:" the intermediate state between wakefulness and sleep (Beaumont, 1989, p. 63). None of these saw intuition as the exclusive purview of one personality type, but rather as a thinking process to be enhanced.

When Noddings and Shore (1984) describe the conditions necessary for intuition to flourish in the classroom, they suggest that all teachers can and should encourage the

development of this important thinking skill through these means. They did not suggest that only "intuitive" teachers would be able to teach to enhance intuition. In Chapter Three the need for quiet, solitude and self-awareness was extrapolated from conditions that favour intuition, as described by Hendlin (1989), Noddings and Shore (1984) and Gardner (1997). But again, none of these authors suggested that one personality type would be more intuitive than would any other.

Thus the personality and behavioural descriptors which formed the characteristics of intuitive teachers at the conclusion of the literature review came primarily from the KAMI profiles for the NRE/NER style. The traits based solely on thinking might be limited to the following:

- **Preparation, Planning and Organization:** plans holistically;
- **Teaching Skills and Strategies:** grounded in personal experience; broad concepts and approaches; lacks structured, sequenced approach; doesn't provide hands-on, trial and error;
- **Communication Style:** appeals to emotions; why rather than how questions;
- **Management:** lacks analysis;
- **Class Climate/Relationships:** sees whole class;
- **Professional Qualities and Initiative:** seeks new solutions to problems;
- **Evaluation of Student Learning:** observes patterns; not time-dependent.

Could a test be devised which would identify teachers who think in these ways? How would skill in observing patterns, without "formal" analysis, be measured? It may be that the KAMI questions come close enough to selecting for these characteristics that the N does identify individuals who access and process information in these ways,

notwithstanding the ambiguity in the behavioural and affective descriptors. The validation reports cited in Chapter Three would certainly suggest that this is so. If this is the case, and the teachers really do think through the dominantly noetic, rational or empirical indicated by their results, what do the principals' perceptions of intuitive teachers really mean? Why were they generally so inaccurate? What about those who were "right" based on the KAMI? Did their identifications differ in any way from the others?

#### Analysis of Identified Teachers' KAMI Results

The dominant modes according to the KAMI results of the teachers participating in the study are shown in Figure 17:

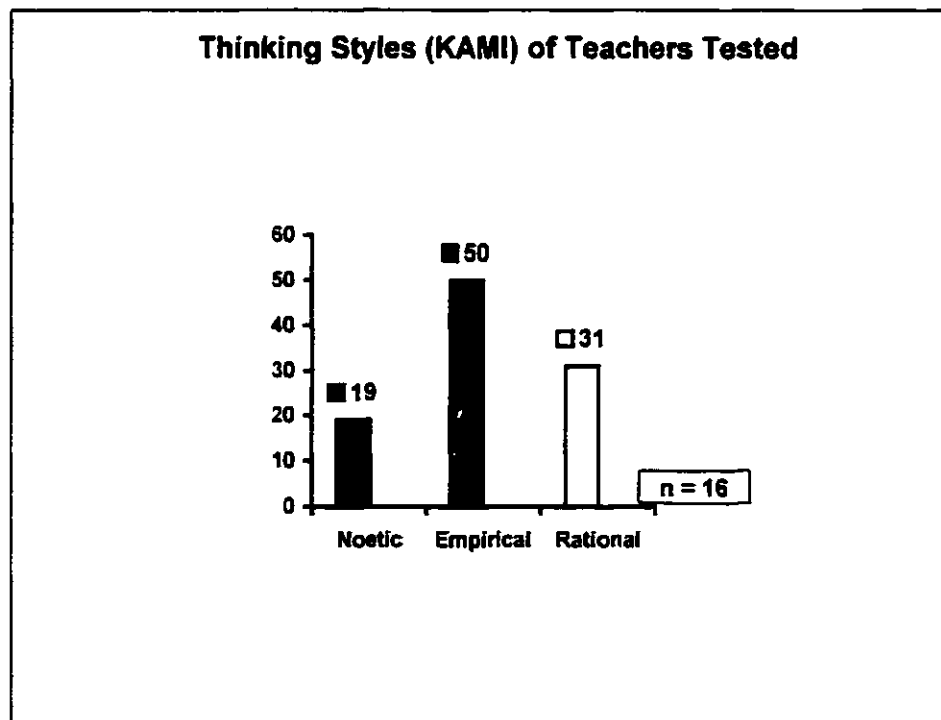


Figure 17. Dominant Modes of Teachers Tested, Based on KAMI Results.

The results of this very limited study when compared to those of Richard Rancourt, who has sampled hundreds of educators, show that in many instances the percentages in

each category of thinking style are very similar, as shown in Figure 13, for Elementary teachers and Figure 18 for Secondary teachers.

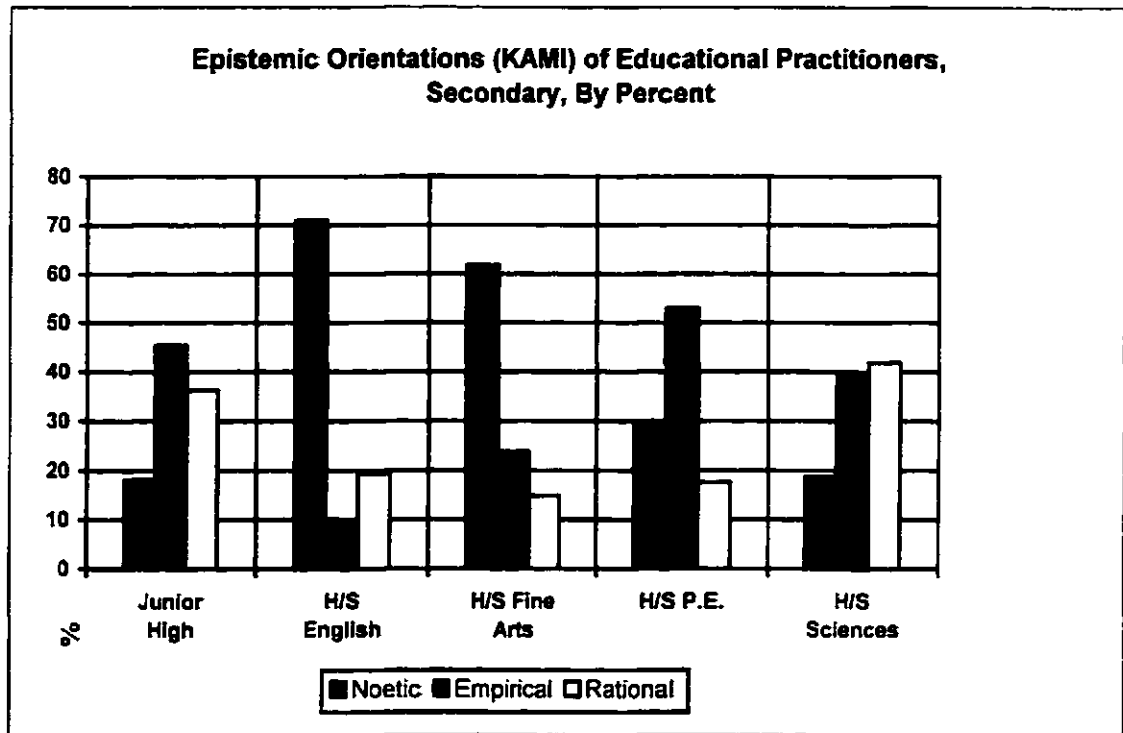


Figure 18. Rancourt's (1998) Report on Epistemic Orientations of Secondary Educators (By Percent).

Rancourt focused his studies on comparing the epistemic orientations of teachers to their subject specialization. In some specializations he found the patterns of thinking styles to be skewed in favour of one dominant style, for example in High School English the predominant style is noetic. I did not ask the subjects taught by the secondary teachers, but I was told by the principal that Teacher #9 is an art teacher who is "highly intuitive." Rancourt's Fine Arts teachers were dominantly noetic, but the teacher in this study was empirical. Interestingly, during our discussion she indicated a strong belief that she was intuitive.

Because this study was not focused on a particular subject area, if we look at the more generic results for Intermediate Division (grades 7-10), the percentages match the results of this study (N: 19%; E: 50%; R: 31%) almost exactly: N: 18%; E: 45%; R: 36%. The proportions closely match those of the elementary school principals Rancourt tested as well: N: 28% E: 42%; R: 28%. French Immersion teachers tested by Rancourt had a similar distribution: N: 20%; E: 43% R: 36%, and even though the percentages in Junior Division were very different, the distribution was the same, with Empirical being the predominant style (Rancourt, 1998). Again, these studies were given to a random sample whereas in this study the participants were targeted. If the results are so similar to many of Rancourt's findings, would they have been any different if the test had been administered simply on a random basis? The fact that the results so closely match Rancourt's random samples, in all but the specific subject domains, suggests that the selection of teachers based on a prediction of their intuitive/non-intuitive thinking style was no better than guessing or selecting at random. The principals believed they were identifying teachers with an intuitive thinking style, and provided detailed descriptions of their perception of this particular style. But in most cases, if the KAMI results are to be believed, they were wrong. Were "intuitive" principals more accurate in their predictions? Were those who were "correct" simply lucky, or were their assessments of the intuitive teacher somehow different from the others?

#### Principals whose Identifications were "Correct"

The intuitive thinking style, as a dominant preference, is very uncommon in both elementary and secondary teachers in this study (19%), and therefore the probability of

"hitting" an intuitive teacher was much lower. All principals correctly identified "non-intuitive" teachers.

Three of the eight principals correctly identified both intuitive and non-intuitive teachers. One of the principals whose predictions were accurate is intuitive, while the other two are not. The profile of the three principals who were accurate in identifying both the intuitive and non-intuitive teachers is shown in Figure 19.

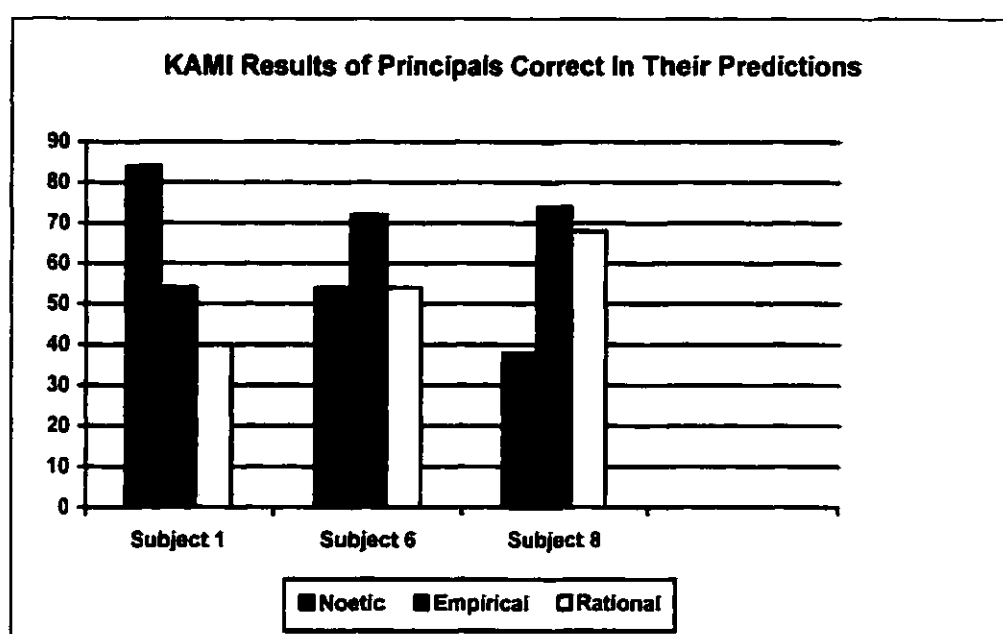


Figure 19. KAMI profiles of principals who correctly identified teachers with a dominant noetic thinking style.

There is no consistent pattern to be found by comparing their styles, except that two were empirical. Subject Six has a noetic flex style, but it is comparatively weak, given the spread between the scores, and is close to the rational score, so either may be a secondary mode. Interestingly, the superintendent identified this principal as "highly intuitive", but he was in fact empirical, as was Subject 8. Subject 8 had the lowest N score of all eight principals in the study. He was accurate in his predictions for Teachers 15 and 16, and

was even considered to be very intuitive by the teacher he correctly identified as such! Yet the superintendent correctly identified him as non-intuitive. It is significant to note that his assessment of the intuitive teacher was focused on thinking more than personality, in comparison with the descriptions of the other principals:

These teachers may be open, outgoing, and emotional, but not necessarily. Their management style may not differ from any other teacher. They would be energetic, value discussion and inquiry. They may not be patient with others who do not have the same skills, or who approach teaching in a traditional way and lack spontaneity, even though they may be competent. Rigidity and bureaucracy would be a real source of frustration for them.

Subject 8 stated that despite their enjoyment of working with others, teachers who have a high level of trust in their intuition and experience may be quite opinionated, or have developed a personal style "which they may not want to push on anyone else."

The intuitive principal who was correct in her predictions, Subject 1, focused largely on personality traits such as sense of humour and creativity. She described them as patient, respectful and sensitive. These are traits that could be attributed to any thinking style. She was very descriptive in her responses, and they were well-aligned with the descriptors in the KAMI manual. Some principals were so articulate and self-assured in their responses that I, like the superintendent, guessed them to be intuitive during the interview. Based on their KAMI results, they were not. Subject 7 was very similar in style to Subject 1 (NER), as shown in Figure 20, but she was not accurate in her predictions.



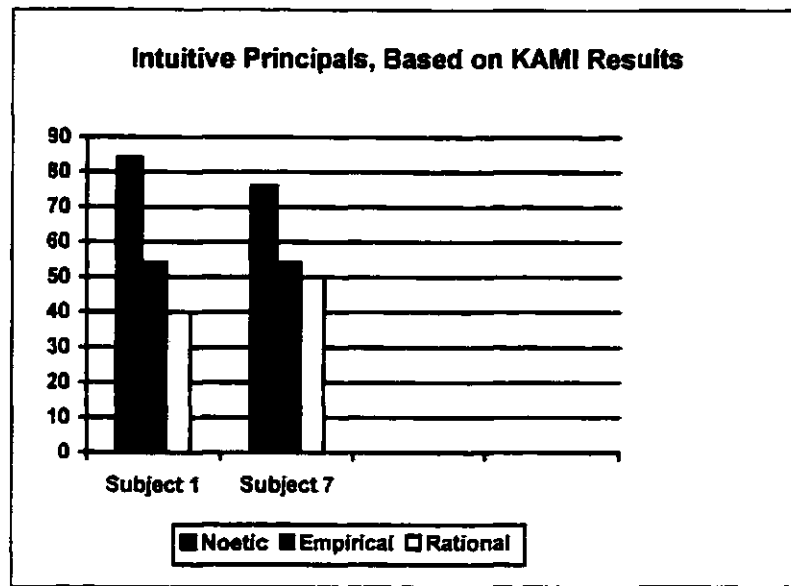


Figure 20. Comparison of Intuitive Principals' KAMI Results.

Subject 7 gave some of the briefest responses of all. The circumstances may have impacted this, as the interview took place in the middle of the school day when she was preoccupied with the myriad of demands on her time. She seemed harried and distracted, and jokingly stated even before learning the test results that her intuitive style makes it hard to be a principal. Perhaps this is not far from the truth, since there are in fact few principals with the intuitive thinking style. It is also worth noting that this was the only principal incorrectly identified as non-intuitive by the superintendent.

The difference in the depth of responses in the case of Subject 1 could be explained by the fact that the interview was conducted at the end of the day. Also, it happened in this case that I have a long association with the principal, so she felt relaxed in speaking to me, and anxious to help, whereas I had never previously met any of the other principals referred to me by the superintendent. I also know that she is very skilled at expressing her ideas orally.

From this very small sample, it would seem that an intuitive thinking style does not necessarily allow administrators to have an advantage in identifying teachers with an intuitive thinking style. It is interesting that the two "rational" thinkers were the most defensive of the validity of "intuition" as a thinking style. The female secondary principal (Subject 5) was REN. She took great exception to the term "intuitive" teacher, as she thought it could be seen in a negative sense, and she thought the KAMI was biased toward the perception of an intuitive thinking style as signifying "disorganized." In fact, the descriptors in the KAMI do include traits such as impulsive, permissive and unstructured. She was insistent that the "intuitive teacher" is simply another term for "highly skilled." She was perhaps aware of, but unable to express, the argument that personality traits are not necessarily a reflection of thinking style.

## CHAPTER SIX

### Conclusions and Implications for Further Research

The majority of administrators referred positively to an innovative, creative and flexible teacher as "intuitive." This may be more of a description of an "open" classroom structure than of an intuitive teacher. Such classrooms can, and obviously are, designed by teachers with any combination of thinking orientations. Five of the eight teachers described by their administrators as facilitators of this type of learning environment were not intuitive in their dominant thinking style, if the KAMI is an accurate indicator.

Besides creativity, innovation and relationship-building, the trait most principals named was self-reflection. The word was provided in the guided interview, which may have led the principals to state this. In any case, five of the eight principals stated that reflection would be important to the intuitive teacher. There seems to be a strong link between how principals perceive a "reflective practitioner" and an "intuitive teacher." Elementary principal Ross Jaques (Calgary Board of Education, March, 1999), who was not interviewed for this study, recently expressed this link in two separate teacher evaluations:

- "..... is a thoughtful and reflective educator. She spends time journaling about her teaching day and finds this an effective tool to help think through the way the day went. ....'s *instincts* as an educator are impressive as well. These two factors together result in an effective practice and an impressive potential."
- "..... is a reflective educator who is developing a personal vision of the purpose of teaching. As ..... gains more knowledge through both experience and professional development, her practice will grow and further enhance her ability

- to articulate the pedagogical soundness of what is now simply part of her natural abilities."

Schon (1983) expressed the link between intuitive understanding and reflection this way:

When practitioners reflect-in-action, they describe their own intuitive understandings...It is true, nevertheless, that there is always a gap between such descriptions and the reality to which they refer. When a practitioner displays artistry, his intuitive knowing is always richer in information than any description of it. Further, the internal strategy of representation, embodied in the practitioner's *feel for* artistic performance, is frequently incongruent with the strategies used to construct external descriptions of it...But the gap between artistry and its description need not obstruct reflection-in-action...Incompleteness of description is no impediment to reflection. On the contrary, anything like a complete description of intuitive knowing would produce an excess of information...Reflection-in-action does not depend on a description of intuitive knowing that is complete or faithful to internal representation. Although some descriptions are more appropriate to reflection-in-action than others, descriptions that are not very good may be good enough to enable an inquirer to criticize and restructure his intuitive understandings so as to produce new actions that improve the situation or trigger a reframing of the problem. (pp. 276-277)

As a result of Schon's work, many techniques such as journal writing, critical dialogue and action research have been adopted by educators and were mentioned by principals in the interviews. Because Schon linked these practices to accessing intuition, principals may believe that teachers who "reflect in action" are intuitive, when in fact, anyone could consciously endeavour to hone their teaching skills through reflection. Their dominant thinking style may not be intuitive, but they may begin to recognize patterns, which is a characteristic of intuitive thinking that anyone, according to the conceptual definition, could possess. We see that the administrators in this study consider intuitive thinking "special," and this is supported by researchers such as Mohlman Sparks-Langer and Berstein Colton (1991) when they quote a teacher's journal:

I think the most notable change for me was the ability to start backing away from the need to get an immediate solution to a problem. Instead, by using the problem solving/reflective framing format, I really feel like I'm giving the wealth of knowledge I possess about my profession a chance to come more fully into play...There is something magical and very personal in all of this. Like finally finding just the right word for a poem you've worked on for ages. Teaching, like any other art form, comes from a special place within us. (Morris-Curtin, cited in Mohlman Sparks-Langer and Berstein-Colton, 1991, p. 42)

This teacher believes that the process is "magical," yet de Bono (1993), de Becker (1997) and Noddings and Shore (1984) would argue that it is not. Such practices and revelations are not exclusive to teachers whose thinking style is intuitive. They may, however, allow for pattern recognition and "mental leaps" in different ways than those attainable through empirical or rational thought.

None of the literature suggested that the ability to recognize patterns and learn from practice is exclusive to "intuitive" thinkers. The teachers described as "intuitive" by their principals may in fact have consciously honed the skills needed to reflect on their practice and "artistically" create a positive climate for learning. Just as two of the non-intuitive principals were able to recognize and describe intuitive thinking, rational/empirical thinkers may become more adept at pattern recognition than the "true" intuitive thinker through analysis of their successful strategies.

Experience may also be a factor. Mohlman Sparks-Langer and Berstein Colton (1991) explain the differences in the novice and expert teacher in terms of their *schemata* --the organized structures which allow a large body of information to be stored and accessed very rapidly: "... experts have deeper, richly connected schemata to draw upon when making a decision. In contrast, novices tend to have leaner, less developed schemata, presumably because of lack of experience" (p. 38). The authors refer to many

studies which illustrate how experts operate with more refined skills in prioritizing, responding "automatically" and improvising by using cues in the environment and referring to previous experience. In a new situation, an expert teacher engages in "self-regulated, purpose-driven behavior more than do novices, (whereby)...a teacher attends to it, makes inferences, and then mentally tests them by looking for similarities and differences apparent in this situation and comparing them with events and ideas (schemata) stored in memory" (p. 38). This describes pattern recognition on a grand scale.

It could be argued that the principals might have been identifying "expert" rather than "intuitive" teachers. I did not ask about the number of years of experience of the teachers identified, but the majority of teachers tested at each school were close in age. Expertise, however, may not depend exclusively on classroom experience. Expertise is linked to intuition in several aspects: the deep appreciation of the Object; pattern recognition at a subconscious level; the conception of a holistic picture without following an identifiable step-by-step process; the formulation, seemingly spontaneous, of a conclusion. De Becker (1997) believes that this type of "instinctive" pattern recognition and awareness sometimes called "body knowledge" can be gained through experience in a variety of contexts. As noted earlier, however, other writers on intuition believe that experience can be a disadvantage. De Becker also maintains that:

. . . many experts lose the creativity and imagination of the less informed. They are so intimately familiar with known patterns that they may fail to recognize or respect the importance of the new wrinkle. The process of applying expertise is, after all, the editing out of unimportant details in favor of those known to be relevant. (pp. 27-28)

It is said that the expertise of the captain of the Titanic, Edward Smith, actually worked against him in navigating this newly-designed vessel. What is perhaps more critical than

experience is the ability to identify what is relevant. This may or may not be a thinking process that occurs intuitively.

Empirical thinkers, for example, have strengths in perceiving and analyzing data. Their responses may appear intuitive to those who are unaware of the environmental and sensory cues actually present. They may be able to "read" students much as a skilled auto mechanic "reads" an engine. The distinction between this and intuition would be that the intuitive Formula One race car driver goes beyond the noise of the engine into the realm of "feed forward," where decisions are made based on little or no "hard" data. But if the behavioural response is the same, who could tell the difference between the two types of **thinking**? How would an administrator know if a teacher were an intuitive thinker, based solely on observable behaviour? Should traits such as "lenient" or "disorganized" be associated with a noetic thinking style, as was done by Rancourt and some of the administrators? Many an intuitive thinker might be highly organized, in order to capitalize on their intuitive abilities. In fact, this was a strategy suggested by Noddings and Shore (1984) to enhance intuition in students. Appearances can be deceiving.

In conclusion, then, it seems mistaken to associate particular personality traits and behaviours with intuition. The conceptual definition of intuition for this study is "a brain/mind function of pattern recognition and interpretation of information from environmental and internal signals, which allows for an 'immediate,' holistic sense of understanding." It would be difficult to determine whether this was happening by observing behaviour. The personal characteristics that were extrapolated from the literature should **not** be associated exclusively with an intuitive thinking style. For example, the need for self-awareness and reflection were cited in the literature and by

some of the principals as essential for enhancing intuition. This may not mean that an intuitive thinker would "naturally" be self-aware or reflective. As Hendlin (1989) emphasized in The Discriminating Mind, this level of awareness takes years of determined, concentrated effort. In that light, the only personal characteristic to assign might be "persistence," which could be a trait of anyone, regardless of thinking style.

It is clear that in the interviews administrators were agreed in their descriptions of a certain "kind" of teacher who uses a "non-traditional" approach, but not necessarily an intuitive one. They didn't address pattern recognition or thinking except in very vague ways. They seemed agreed on the "naturalness" of this style, but described behaviours that could be learned and developed through experience, both personal and professional, regardless of thinking style. They identified teachers with a certain teaching style which best fit with their notion of intuitive teachers. Three of these teachers do have an intuitive thinking style as their preferred knowledge accessing mode. The majority does not.

Thus to use the word "intuitive" in teaching evaluations to describe characteristics of a teacher is misleading. The results of this study would suggest that the words "intuitive teacher" denote characteristics of observable behaviour that principals view positively, for the most part. They seem to believe that this behaviour comes quite naturally, and may not be refined to the level of expertise that is most desirable. The "intuition" of the teacher is most closely associated with the ability to build strong relationships with students. If this is linked to the teachers' skill in recognizing patterns of learning or behaviour in a holistic sense, and basing responses on a clear, immediate vision of the whole, then the word intuition would be appropriate. Unfortunately, this understanding is muddled with traits of personality, which are not necessarily exclusive to



intuitive thinking. As Goldberg (1983) affirms, anyone can be intuitive. It is a way of thinking, which in our society has been suppressed, but can be developed just as rational or empirical thinking processes, and may even be inextricably linked to these. Some people may be "naturally" intuitive, but this does not mean their thinking is more accurate --their results still have to stand the test of time in the "real" world. It is said that Einstein intuitively grasped the theory of relativity, and then spent the rest of his life developing the mathematics to explain it to others. Only recently have some of his mathematical theories been proven by observations made possible through advances in technology. Such may eventually be the case with the processes by which people think, but at this point, the mind is still very much a mystery. The central question of this study was: "Are principals able to identify intuitive teachers?" The results here would show that they are not.

In their identification of intuitive teachers the administrators focused on personal characteristics, rather than on thinking style. The analysis of the interviews revealed that they saw "intuitive" as synonymous with: "creative;" "flexible;" "open;" "skilled;" "reflective;" "innovative;" "resourceful;" "dependable;" "likable." Both they and the literature also described intuitiveness as: "lenient;" "disorganized;" "overly emotional;" "unreliable;" "impatient;" "overly independent." What does this imply for educators who find the word "intuitive" in their teaching evaluation reports? Or for administrators tempted to use the word to describe a teacher's style or performance?

This study reveals that there are many misconceptions about the meaning of the word, even in the literature, and certainly no agreement among administrators about its significance in a pedagogical sense. If the evaluator means "intuitive" to denote

"reflective practitioner," or "strong in relationship-building" or "effective in management and planning," and so on, then these are the terms which should be used, as they would be more relevant to both the teacher and a third party. They are not characteristics that would be exclusive or perhaps even relevant to an intuitive thinking style.

This is not to suggest that intuition is not a valuable skill for teachers to develop and employ. It simply means that for others to judge when this thinking skill is being used is impossible, since behaviour does not necessarily reflect the reasoning process behind the action. Enhancing intuitive skills through reflection and observation of details and patterns can and should be encouraged, in both teachers and students, as Noddings and Shore (1984) suggested. The outcomes should be evaluated, however, as one of the "least" intuitive principals, Subject 8 stated:

It all depends on how good their intuition is - if they make the right decisions, no one will complain! How well-defined it is relative to their practical experience. If they are intuitive they would have an ability to use experience to great benefit.

Intuitive thinking, just as rational and empirical thinking, can be learned and refined. Because everyone uses a combination of all three, it would be difficult to say if only one knowledge accessing mode were at play in any given decision. However, as stated in the literature review, the intuitive thinking style is not well developed in our society. Most administrators and teachers in this study do not have the intuitive thinking style as their primary thinking mode, which is consistent with Rancourt's 1998 summary report indicating that most educators are empirical thinkers (Table 4-Means, Standard Deviations and Epistemic Orientations (KAMI) of Educational Practitioners).

However, the KAMI may not be the best instrument to measure thinking style. Too many ambiguous, generalized traits were associated with each style to make it possible to distinguish between personality and behavioural characteristics and thinking. It may well be that those with an intuitive thinking style are more "friendly" in comparison to empirical or rational thinkers. But how could this be evaluated? If the KAMI is able to identify thinking style, eight "friendly" teachers in this study, thought to be intuitive, were not. It is likely that these eight teachers also demonstrate the other personality traits identified by the KAMI as part of the noetic style, but they were not intuitive. Either the test is not reliable, or it is measuring only some aspects of thinking style and then erroneously associating these with certain traits, just as the administrators did. It would be interesting to conduct the study again with the same subjects, using a different test such as the Myers Briggs, to see if the alignment emerged, as reported in the KAMI validity studies. A test such as Goldberg's Test of Intuitive Ability (1983) seems to be much more focused on thinking style than on personal attributes. A study could be conducted comparing the results using this test with those found when using the KAMI. The study could also be repeated with a much larger sample.

The positive perception of intuitive teachers reflected in the interviews does not imply that the teachers or principals identified as rational/empirical were not effective. The principals were not asked to describe the characteristics of these teachers, but some offered that they would be more organized, structured, grounded in time and follow established curricular objectives. In many cases this was seen as necessary to balance a staff and one principal stated that a more non-intuitive approach would be essential to

success in that particular setting. It would be beneficial to have the principals describe the characteristics of rational/empirical teachers to be contrasted with intuitive teachers.

Surprisingly, the perception of the intuitive teacher by administrators was favorable. Would this be the same in other school districts, in Canada or other countries? There was little recognition of negative attributes of the intuitive thinking style. It would be interesting to follow-up this study by interviewing the teachers to determine whether they see themselves as intuitive and, using the same interview process, to find out if their perceptions agree with those of the administrators. Do they, like one of the subjects, find it insulting to be thought of as intuitive? What does intuitive mean to them? How would those identified as intuitive find themselves relying upon intuition in their work with students? This may lead to an answer to the question, "Can intuition be learned?" If it is indeed perceived in such a positive light, should administrators encourage its development?

A fascinating "coincidence" (?) is that all the elementary principals chose teachers whose thinking style was remarkably similar to their own as their intuitive teachers. It would be interesting to use a broader sample, to discover whether the "like me" phenomenon is at work here. This would require using a similar process but perhaps a different instrument, to see if the administrators once again identified teachers with profiles similar to their own as being intuitive.

The sample is too small to make any broad generalizations. But consistencies within the study did indicate that administrators consistently perceive intuitive teachers in a particular way. Their perceptions were very close to the NER/NRE profiles in the KAMI manual (1988). These do not reflect the conceptual definition of intuition as

pattern recognition and a deep knowledge of The Object, however. Yet the KAMI claims to be able to screen for thinking that is "holistic, divergent, analogical, subjective, intuitive and experiential," (KAMI Manual, 1988, p. 8) which would describe intuitive thinking. If this is so despite the problem of associating observable behaviours with thinking, the administrators were generally unable to identify teachers with this style. For this reason, in the context of assessment of the quality of teaching performance, this study suggests that intuition as a thinking skill should not be judged or commented upon by evaluators. Observable behaviour and personality traits are subject to bias, and are not accurate indicators of the way in which a teacher thinks.

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## Appendix A

**Memorandum**

The  
University of  
Lethbridge

Faculty of Education

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**TO:** Lise Mayne  
**FROM:** Richard L. Butt, Research Co-ordinator  
**DATE:** February 12, 1999  
**RE:** Research Proposal

Dear Lise:

I am happy to inform you that the Human Subject Research Committee has given ethical approval to your research project entitled: Principals' Perceptions of the Intuitive Teacher.

We assume you have sought permission to conduct this study from your school district.

Enclosed please find a Certificate of Ethical Approval.

Best of luck with your research.

Richard L. Butt, Ph.D.

RB/jm

cc Cathy Campbell

## Appendix B



## Calgary Board of Education

## MEMORANDUM

Date: March 9, 1999

To: Lise Mayne  
Recruitment Consultant, Teacher Staffing  
Employee Services

Re: Research Proposal – Intuition at Work in the World of Education

Approval has been granted by the CBE for you to complete the data collection for your study. The permission granted is based on a change in your procedures to include debriefing of participating teachers about the focus of the study and the basis upon which they were identified as potential participants. This is necessary to address the fact that teachers are not fully informed about the basis upon which they have been selected as potential participants in your information letter/consent form. The ethical approval which your project received from the University of Lethbridge unfortunately did not address this issue.

It is my understanding that you proceeded with the study and have collected approximately half of your data without first receiving CBE approval from this office. Based on our March 9, 1999 discussion of what happened, this oversight was clearly unintentional on your part and resulted from a misunderstanding of the stages in the review and approval process. Ethics approval from the researcher's university is the first stage and is necessary before the CBE considers whether to approve a research project.

I appreciate your forthrightness in sharing with me your experience with one of the participants. I believe, based on the information you provided, that you responded appropriately to this teacher's questions about the study and the basis for her selection. As we discussed, it is important to ensure that all future participants have complete information about the thinking style characteristics that are being assessed and how they were selected, and that you respond to any questions and concerns they may have. If, after debriefing, a teacher wishes to withdraw from the study, he or she has the right to do so without penalty and to request that all personal information and responses are destroyed or otherwise excluded from the study. Teachers should also be advised that any complaints about the research should be addressed to me (294-8600; e-mail [slsangster@cbe.ab.ca](mailto:slsangster@cbe.ab.ca)).

I would like to take this opportunity to wish you success with the completion of your degree.

DR. SANDRA SANGSTER  
DIRECTOR  
ACCOUNTABILITY SERVICES

pc: Dr. Cathy Campbell, University of Lethbridge

## Appendix C

### Consent Letter - Superintendent

Dear Mr. Dean:

I am conducting a study on how administrators perceive the thinking styles of teachers whom they supervise. The purpose of the study is to ascertain whether administrators can accurately assess the ways in which teachers process information to make decisions about teaching and learning. I am requesting that you identify four intuitive/non-intuitive principals at both the elementary and secondary level, balancing the sample for gender. I will not share the names of the principals identified in each category, nor publish their names in the study. The principals will then be asked to similarly identify their most and least intuitive teachers. The accuracy of their assessment will be judged using a test with the identified participants, known as the Knowledge Accessing Modes Inventory (KAMI). This consists of a twenty-question multiple choice test which was designed by Dr. Richard Rancourt of the University of Ottawa. This test has been validated over a period of more than fifteen years, both nationally and internationally, and has been shown to be both valid and reliable, and comparable with other instruments. The test was specifically designed for use in an educational setting. To avoid bias, teachers will not be told prior to the testing that they have been identified as intuitive or non-intuitive, but they will receive their results and will benefit by gaining insight into their personal way of accessing knowledge. The expected outcome is that the study will add to knowledge about how principals identify and describe intuitive teachers.

I would also ask that you take the test, as part of the background for the study. Your results will not be shared. The test requires about fifteen minutes of your time and your results will be shared with you. You have the right to withdraw from the study without prejudice at any time. Upon completion of the study, I would be happy to provide you with a copy of my results.

If you choose to do so, please indicate your willingness to participate in this study by signing this letter in the space provided below, and returning this form to me in the envelope provided. I very much appreciate your assistance. Also, if you require further information, feel free to contact the supervisor of my study, Dr. Cathy Campbell, University of Lethbridge (329-2459) and/or any member of the Faculty of Education Human Subject Research Committee, chaired by Dr. Richard Butt (329-2434).

Sincerely,

Lise Mayne  
University of Lethbridge Master of Education student  
*(Please detach and forward the signed portion)*

---

Teachers'/Administrators' Thinking Styles Project  
Lise Mayne, University of Lethbridge

I agree to participate in this study. I understand that all personal information will remain confidential, and that I can withdraw at any time without prejudice.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## Appendix D

### Consent Letter (#1 - 6 participants)

Dear Colleague:

I am conducting a study of how administrators perceive the thinking styles of the teachers they supervise. The purpose of the study is to ascertain whether administrators can accurately assess the ways in which teachers access and process information. The expected outcome is that the study will add to understanding of how principals describe and identify thinking styles of teachers. Participants in the study will benefit by gaining insight into their personal way of accessing knowledge, by completing a Knowledge Accessing Modes Inventory. This consists of a twenty-question multiple choice test which was designed by Dr. Richard Rancourt of the University of Ottawa. The test has been validated over a period of more than fifteen years, both nationally and internationally, and has been shown to be both valid and reliable. The test was specifically designed for use in an educational setting. The test will require about fifteen minutes of your time and your results will be shared and left with you. Please note that all information will be handled in a confidential and professional manner. Results will be reported in summary form only. All names, location and any other identifying information will not be included in any discussion of the results. You have the right to withdraw from the study without prejudice at any time.

If you choose to do so, please indicate your willingness to participate in this study by signing this letter in the space provided below, and returning this form to me in the envelope provided. I very much appreciate your assistance in this study. If you have any questions, please call me at 294-8136. Also, if you require further information, feel free to contact the supervisor of my study, Dr. Cathy Campbell, University of Lethbridge (329-2459) and/or any member of the Faculty of Education Human Subject Research Committee, chaired by Dr. Richard Butt (329-2434).

Sincerely,

Lise Mayne  
University of Lethbridge Master of Education student

*(Please detach and forward the signed portion)*

---

Teachers' Thinking Styles Project  
Lise Mayne, University of Lethbridge

I agree to participate in this study. I understand that all personal information will remain confidential, and that I can withdraw at any time without prejudice.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## Appendix E

### Consent Letter #2 (18 participants)

Dear Colleague:

I am conducting a study of how teachers' thinking styles are perceived by administrators. The purpose of the study is to ascertain whether administrators can accurately assess the ways in which teachers access and process information. The expected outcome is that the study will add to understanding of how principals describe and identify thinking styles of teachers. Participants in the study will benefit by gaining insight into their personal way of accessing knowledge, by completing a Knowledge Accessing Modes Inventory. This consists of a twenty-question multiple choice test which was designed by Dr. Richard Rancourt of the University of Ottawa. The test has been validated over a period of more than fifteen years, both nationally and internationally, and has been shown to be both valid and reliable. The test was specifically designed for use in an educational setting. The test will require about fifteen minutes of your time and your results will be shared and left with you. Please note that all information will be handled in a confidential and professional manner. Results will be reported in summary form only. All names, location and any other identifying information will not be included in any discussion of the results. When you have completed the KAMI, you will be informed as to how you were selected for participation. You have the right to withdraw from the study without prejudice at any time.

If you choose to do so, please indicate your willingness to participate in this study by signing this letter in the space provided below, and returning this form to me in the envelope provided. I very much appreciate your assistance in this study. If you have any questions, please call me at 294-8136. Also, if you require further information, feel free to contact the supervisor of my study, Dr. Cathy Campbell, University of Lethbridge (329-2459) and/or any member of the Faculty of Education Human Subject Research Committee, chaired by Dr. Richard Butt (329-2434).

Sincerely,

Lise Mayne  
University of Lethbridge Master of Education student

*(Please detach and forward the signed portion)*

---

Teachers' Thinking Styles Project  
Lise Mayne, University of Lethbridge

I agree to participate in this study. I understand that all personal information will remain confidential, and that I can withdraw at any time without prejudice.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



## Appendix F

**KAMI<sup>®</sup>**  
**KNOWLEDGE ACCESSING MODES INVENTORY<sup>®</sup>**  
**RESPONSE SHEET**

<p>1. I enjoy reading about subjects that are:</p> <input type="checkbox"/> a) practical in nature <input type="checkbox"/> b) artistic or biographical <input type="checkbox"/> c) theoretical or scientific	<p>11. I learn best when I am encouraged to:</p> <input type="checkbox"/> a) touch and manipulate things <input type="checkbox"/> b) think about new ideas <input type="checkbox"/> c) express my personal feelings
<p>2. I prefer to be with people who are:</p> <input type="checkbox"/> a) spontaneous <input type="checkbox"/> b) trustworthy <input type="checkbox"/> c) realistic	<p>12. A good friend is one who:</p> <input type="checkbox"/> a) is down-to-earth and practical <input type="checkbox"/> b) lives by a set of principles <input type="checkbox"/> c) shares personal experiences
<p>3. A good teacher helps me to:</p> <input type="checkbox"/> a) improve my thinking skills <input type="checkbox"/> b) become more self-confident <input type="checkbox"/> c) learn useful and practical skills	<p>13. When visiting a new area, I like to:</p> <input type="checkbox"/> a) see as much as possible <input type="checkbox"/> b) meet and make new friends <input type="checkbox"/> c) plan my activities beforehand
<p>4. I accept advice when it appeals to my:</p> <input type="checkbox"/> a) logic <input type="checkbox"/> b) feelings <input type="checkbox"/> c) common sense	<p>14. School should help us to:</p> <input type="checkbox"/> a) think and reason critically <input type="checkbox"/> b) know ourselves better as persons <input type="checkbox"/> c) learn technical and useful skills
<p>5. When playing a game or a sport, I:</p> <input type="checkbox"/> a) do what feels right <input type="checkbox"/> b) focus on strategy <input type="checkbox"/> c) demonstrate flexibility	<p>15. When I buy clothes, I want them to be:</p> <input type="checkbox"/> a) an expression of my personality <input type="checkbox"/> b) well tailored and designed <input type="checkbox"/> c) practical and comfortable
<p>6. In a dangerous situation, I:</p> <input type="checkbox"/> a) imagine an escape <input type="checkbox"/> b) observe the situation <input type="checkbox"/> c) react spontaneously	<p>16. I admire a teacher who is:</p> <input type="checkbox"/> a) down-to-earth and helpful <input type="checkbox"/> b) creative and dynamic <input type="checkbox"/> c) competent in subject matter
<p>7. A job should offer the occasion for:</p> <input type="checkbox"/> a) personal growth <input type="checkbox"/> b) an intellectual challenge <input type="checkbox"/> c) varied experimentation	<p>17. My opinions are most often based on:</p> <input type="checkbox"/> a) facts or observations <input type="checkbox"/> b) principles or logic <input type="checkbox"/> c) hunches or feelings
<p>8. I would feel hurt if someone accused me of:</p> <input type="checkbox"/> a) being biased in my observation <input type="checkbox"/> b) acting before thinking <input type="checkbox"/> c) not having any principles	<p>18. I understand things because I use:</p> <input type="checkbox"/> a) my intuition <input type="checkbox"/> b) my thinking <input type="checkbox"/> c) common sense
<p>9. I appreciate a teacher that:</p> <input type="checkbox"/> a) lets me discover and try things <input type="checkbox"/> b) presents a well structured course <input type="checkbox"/> c) is caring and enthusiastic	<p>19. Friends would describe me as being too:</p> <input type="checkbox"/> a) sensitive <input type="checkbox"/> b) practical <input type="checkbox"/> c) logical
<p>10. I like to believe that I am:</p> <input type="checkbox"/> a) sensitive and spontaneous <input type="checkbox"/> b) practical and realistic <input type="checkbox"/> c) logical and analytical	<p>20. If I am involved in a competition, I:</p> <input type="checkbox"/> a) adjust to situations as they arise <input type="checkbox"/> b) participate instinctively <input type="checkbox"/> c) follow a predetermined plan

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Richard Hancock Ph. D.  
 Faculty of Education  
 University of Ottawa

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## Appendix H



October 5, 1998

Mrs. Lise Mayne  
3731-44 Street SW  
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Dear Mrs. Mayne:

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Rae Stapp  
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## Appendix I

**Original Message****From:** Guy L. Lvert <[glevert@impacttraining.com](mailto:glevert@impacttraining.com)>**To:** Lise Mayne**Date:** December 14, 1998 12:19 PM**Subject:** Re: examens KAMI Good morning Lise,  
Standard price for the KAMI (quantities under 1000 copies) is set at \$7.00 CDN dollars per copy.

For researchers, IMPACT is pleased to cut this price in half the standard price.

We offer the KAMI at \$3.50CDN dollar/ copy times 20 = \$70.00 + Shipping and Handling (about \$15).

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If you wsh, I will inform you of when we will have our next course given in

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Our agreement (you and IMPACT) would include that you provide us with the following:

- (1) approving that we add your name and thesis research title on IMPACT's Web site;
- (2) sending us your project proposal for our filing;
- (3) send us a copy of your final thesis document with data;
- (4) allowing us to post your results on our Web site (only the abstract).

If the above is fine with you, then it is fine with me.

Let me know.

Sincerely,

Guy Lvert

## Appendix J

### Transcript of Taped Interview: February 9, 1999

#### Preparation, Planning and Organization

- requires solitude
- cultivates self-awareness
- plans holistically \*
- centered in the present
- careless of detail/lacks routine structures

See people first. Rather than structuring activities first, they will see who it is they are working with, and then form their planning around that. If they have children that are very tactile, they'll make sure that whatever they are doing involves lots of hands-on, that will be instinctive, intuitive and they'll know that up-front.

#### Teaching Skills and Strategies

- grounded in personal experience
- values personalized, visual learning
- creativity, innovation\* (mentioned below)
- broad concepts and approaches
- lacks structured, sequenced approach\*
- doesn't provide a lot of hands-on, trial and error

Can do more than one thing at a time, their eyes are constantly roving around the classroom, they're internalizing what's going on, they're able to talk about what's going on while they're talking about what they're teaching. They're constantly noticing interactions among people, they're able to react spontaneously without causing great havoc to the lesson or stopping the train of thought. They're just always thinking about something that will be non-intrusive, so they can go over and tap a student on the shoulder or give someone a look, while they they're talking and doing the lesson and everything, so everything flows, and I find that the intuitive types are very calm, it takes a lot to rattle them. This doesn't mean they're not excited about what they're doing, they can be very excited and excitable, they can be very patient, they can take a lot and not take it personally, but think it through and then deal with it. They're able to put everything together in a wonderful, beautiful tapestry and it seems effortless, but they just have so many skills going for them at one time.

#### Communication Style

- imprecise in expression
- listens well
- appeals to emotions\*
- lots of discussion - why rather than how questions
- may be too lenient or inconsistent\* (stated later)

Most are really “withit” people. They have a real sense of belonging to the time that they’re in. They know what’s going on in their world, they have a real generalist knowledge. They get along with everybody, they have an excellent sense of humour and can use humour to diffuse things, to encourage people. They use humour in so many different ways that it’s quite beautiful to watch. It’s like what we used to call “wrapping people around your little finger.” They can do that with lots of different kinds of people, and all different ages. They can be friends and friendly with people of many different ages, children, peers, people that are older and so on.

#### Management

- student-centered
- lacks analysis
- frequent interactions through verbal and non-verbal, preventative\* (mentioned above)

Sometimes they’re not very what would to me be very organized. They can be very creative. They have lots of stuff going on at once, and they know where everything is, and they’ve got it all together but if you looked at it you might say it looked a bit scrambled. but in the course of the day, the materials are there and there’s a lot of free choice for the people who are using the materials so it actually is very structured even though it doesn’t look very structured. There’s a strong sense of what’s available, and how I’m to use resources and kids are interacting with each other. It’s a very positive and open kind of classroom. There’s free movement, the kids are not tied to their desks. They have a really good sense of what they’re there for and where they’re going. The teacher very much has that. Knows exactly where he or she is going and is able to communicate that in a very free and open way. Lots of choice and different materials.

#### Class Climate/Relationships

- enjoys working with others\*
- sees whole class, overly high expectations, impatient

Reciprocal respect. Language shows this - very respectful. One teacher that I’m working with right now always gives the benefit of the doubt, it is so positive. Very gentle, non-confrontational, this is the way it is can you help me out, persuasive. Charisma, using your bank deposits, personality, relationship building so that you can rely on kids to do what you want them to do

#### Professional Qualities and Initiative

- highly motivated to begin new tasks\*
- interested in trends, enthusiastic, \* (stated earlier) seeks new solutions to problems
- may lack follow-through

Very self-motivated, very creative, in this for the joy they get, definitely not the pay-cheque. More than just the teaching involved, it’s bigger than that, it’s the whole moral enterprise. It’s having them (the students) be the best they can be as citizens, as human beings. It’s about the whole child, it’s not about “math now” , they communicate that they

too are learners. They model what they want in their kids, they model it, I'm not perfect, let's learn it together, it's such an exciting atmosphere to be where those kind of people are working.

#### Evaluation of Student Learning

- observes patterns
- emotionally-charged planning
- not time-dependent
- may be frustrated with systems of evaluation

They would use a variety of things. Not too heavy into the paper and pencil test, Heavy into observation, and some creative things, like portfolios, definitely the child's work, how thoroughly they are able to complete it, the quality of their work, the quality of their responses, those kinds of things would be very important to the teacher. They would see the growth over time, it would be in the subjective domain rather than the objective. although it's quantitative too, in that you can observe how many times a student does things. They would have clear examples of specific ways to back up what they're saying but it may not be with last week's tests. It would be with more creative things, projects, presentations, etc.

#### Reflection and Self-Evaluation

- process through experience\*
- deep self-reflection\*
- may lack objectivity
- careless of detail

Maybe they're not used to it but they could easily get into it. They are reflective but maybe don't do much with it, but once they get a taste for it they fall right into it, because it's natural for them. When they drive to and from school, they would reflect on the day, reflect on what happened. They're continually reflecting on and analyzing their own work, so that maybe something that happened before recess, they'll go away and mull it over, and come back and refine it right after recess. They don't say, oh well that didn't work, I'll try it another day. They think, I have to do something about that right now, it's adjusting in motion the whole time. The whole thing is flowing and moving, it's a work of art in motion, refining things as they go.

#### My question: Any weaknesses? Their Achille's heel?

Drawing that final line is really hard, discipline is hard. They always see hope, it's hard to say, now you're suspended. They always see the good side of any child, they have trouble saying "The buck stops here." I don't think that's bad, it's very hopeful for children, but it's tough to draw the line sometimes. Also very sensitive, very sensitive to kids. They realize how important building relationships is and so sometimes the relationship can muddy the waters about making a really hard decision about where to go, what to do.