ADULT LEARNERS: KNOWLEDGE AND USE OF LEARNING STYLES

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A One-Credit Project
Submitted to the Faculty of Education
of The University of Lethbridge
in Partial Fulfillment of the
Requirements for the Degree

MASTER OF EDUCATION

LETHBRIDGE, ALBERTA

December, 1995

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ABSTRACT

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In the realm of adult education it is imperative that the responsibility for learning be relinquished to the learners so that they, in turn, can become effective in initiating continued learning. One way to accomplish this is to make adults more aware of their learning strengths and weaknesses in terms of their personal learning styles and how to adapt these styles to new situations. This information will make learners more comfortable and thus less frustrated in the different learning situations in which they find themselves.

The intent of this project was threefold:

1) To prepare instructional materials that would enable students to identify their learning style (using Richard Rancourt's K.A.M.I., 1988); to organize and adapt incoming information according to their preferred style; and to maximize learning effectiveness in any setting through an awareness of other styles and to be able to function at least marginally within them.

2) To pilot the materials as part of a voluntary workshop.

3) To determine through participant feedback the effectiveness of the materials and presentation.

The materials were piloted with a group of Lethbridge Community College upgrading students in the winter of 1995 through an informal workshop format. Feedback, in the form of participant journals and a concluding questionnaire, indicated that providing this learning style information to students was instrumental in increasing their feelings of responsibility for the learning process. A structured less formal presentation was preferred and it was suggested that the workshops should occur within a more condensed period or else be integrated into already existing courses. The project results indicated that students benefitted from the materials and appreciated the form of presentation.

CHAPTER ONE

INTRODUCTION

Whether the definition for learning is described in terms of an intellectual, attitudinal, or psychomotor change (Kidd, 1959), an acquisition of knowledge, or a means by which people are enabled to live more successfully (Darkenwald & Merriam, 1982), it implies that learning is a continuous process with no definite initiation or completion time. If learning, then, is considered a life long process, it follows that adults are involved in this process. Thus, educators need to be more cognizant of the role of the adult learner in society, his/her needs within the educational process, and the factors that affect the adult learner's decision to be involved in the process.

Darkenwald and Merriam (1982) suggest several reasons why there is an increase in the number of adult learners in society today: a need for more training programs as a result of rapidly changing technology, the decision of more women to enter the work force, and the observation that people are more likely to change jobs more often in this decade than they did several years ago. In college upgrading departments additional reasons exist for the return of the

adult student to the learning environment: the decreased number of jobs available, personal difficulties at a young age preventing the completion of a diploma, the accessibility of sponsorship for those who did not finish high school, and to fulfill requirements of agencies such as Unemployment Insurance. Thus many factors contribute to the movement of adults back into the learning milieu. With this knowledge, it becomes imperative for educators to prepare appropriately for this emergence of the adult learner within the educational system.

When one combines the reasons for returning to school with the general profile of adult learners as self directed, voluntary learners (Knowles, 1970), it becomes apparent that instructors can be most helpful to adult learners in their transition from the work force to the formal educational setting by assisting them in becoming aware of their learning strengths and weaknesses which comprise their individual learning style. Adults need to learn how they learn in order to facilitate present and further learning. Even those who enter the venture reluctantly will experience a change in their attitude toward the educational experience after coming to understand how they learn. Thus a discussion of learning styles and developing an awareness in the individual of his or her particular style will enhance the educational experience for the adult. It seems that once adults understand the processes involved in learning and determine which style best suits them, they will become more comfortable in new learning situations and more willing to engage in them.

Much of the research to date seems to focus on learning styles from the

perspective of the instructor: teaching to particular styles can enhance academic achievement, improve attitudes towards school, and promote effective learning (Dunn, 1982). While instructors use this information to enhance the classroom experience, certainly to the benefit of the student, it would be more effective to allow the student to investigate his/her personal learning style with the purpose of encouraging greater responsibility in the learning process. If we want students to be more self-directed and to accept some ownership for learning, we need to provide them with some tools with which to make that possible. It seems unreasonable that teachers be the sole holders of knowledge about learning styles.

One of the ways to achieve this responsible state of learning would be to have students determine their primary and secondary learning styles and what these entail. Students should be aware of their strengths and weaknesses related to the learning process so they can capitalize on the strengths and compensate for the weaknesses. In understanding their style, students will understand their learning and possibly be able to relate this information to some of the frustrations they feel in particular classes. This knowledge reduces the tendency to blame oneself or the teacher for any frustration and presents a possible avenue for solution to the problem. Thus, they may find that the reason they do not get along with a particular teacher is the result of personal learning style rather than personality conflict. This would encourage more flexibility and positively change some student-teacher relationships.

Being aware of the range of learning styles would assist students in

identifying the style of a particular instructor. This knowledge would allow students to adapt these methods of instruction to their preferred style. Organizing study activities more effectively could also be a positive byproduct of informing students of their learning styles. It has been noted that some styles are directly linked to content areas (Bonham, 1989) and this would explain to students why they feel more comfortable in one subject area as opposed to another.

A word of caution is necessary in this discussion. Learning styles have to be seen as just one way of enhancing the adult learner's experience; they are not the ultimate solution to solving all the problems facing adult educators (Gregoric, 1982). Learners must not be given the impression that they can only learn using their primary learning style. This style information should be shared with the intention of facilitating adaptation to the different learning situations, not provide a convenient excuse for failure.

Learning styles encompass more that just institutionalized learning. They also affect how we solve daily problems, how we work with others and how we function in different situations encountered in everyday life. I have experienced this global effect of learning styles as I reflect on how my particular style affects not only my classroom teaching and learning but also the role it plays in my daily life. It appears to be an integral part of my personality. In discussing and determining student learning styles, educators may be providing a key that opens the door, not only to educational opportunities but also to more effective living in society.

STATEMENT OF PURPOSE

As students move through the educational system, they will encounter several instructors with preferred styles of teaching and fellow students with preferred styles of learning. It becomes imperative for students to locate themselves in the learning process and adapt to the different styles they encounter daily. This results in a measure of comfortableness about themselves and about situations that are not conducted in their primary learning mode. This project will focus on developing the awareness of personal learning styles and the ability to adapt different learning styles in the adult learner to new situations.

The intent of this project is threefold:

1) To prepare instructional materials that would enable students to identify their learning style (using Richard Rancourt's K.A.M.I. 1988), to organize and adapt incoming information according to their preferred style; and to maximize learning effectiveness in any setting through an awareness of other styles and function at least marginally within them.

2) To pilot the materials as part of a voluntary workshop.

3) To determine through participant feedback the effectiveness of the materials and presentation.

QUESTIONS

As the preceding discussion and statement of purpose suggest, preparation and presentation of appropriate materials were the focus of the project. Therefore, several questions needed to be addressed pertaining to these materials and how effective they were in achieving the initial purpose. The following questions were answered by students through journal writing and completing a final questionnaire and by my personal reflections on the process:

1. Was it beneficial to students in their educational endeavor to understand and become aware of the particular learning style that they have? In other words, did students feel that their learning experience would be enhanced by obtaining this knowledge about their learning style?

2. How would this knowledge create more personal responsibility in the learning process? Did students feel that they had obtained a tool that, in future, would help them learn?

3. What kinds of material could be produced and presented that would benefit the student in the learning process? Would theoretical discussions be sufficient or would more practical, hands-on materials suit the needs of the students better?

4. What form should the presentation of these materials take? What kind of atmosphere and teaching techniques were desirable in order to facilitate learning?

TERMS

Inherent in this project was certain terminology arising from the theoretical premise of Epistemic Orientation and the related K.A.M.I. (1988) instrument. The following list of terms and definitions should serve in facilitating the understanding of further discussions.

Learning style   the means by which a person learns or acquires the attributes of an object or concept (comes to know)

Accessing Mode   how information processing occurs - knowledge acquisition

Rational Mode   acquisition of knowledge by thought processes and deductive reasoning

Empirical Mode   acquisition of knowledge primarily through the senses and inductive reasoning

Noetic Mode   acquisition of knowledge through experience and subjective encounter, abductive reasoning

Major Mode   the dominant means of knowledge accessing

Associate Mode   the secondary means of knowledge accessing sometimes referred to as the flex style - used in conjunction with the major mode

Minor Mode   the least used means of knowledge accessing

In order to fully clarify the position that this paper takes on the importance of personal knowledge of learning styles, it is necessary to review the literature on the subject. The following chapter outlines the emergence of learning style information, its growing importance in the field of education and establishes the need to look at learning styles from the perspective of the student as well as the teacher.

CHAPTER TWO

LITERATURE REVIEW

Adult Learning

Literature abounds on the topic of childhood education: numerous texts and

research concerned with teaching strategies, curriculum planning, and program

implementation that relate to the normally accepted school years are readily

available to any educator in these areas. However, there seems to be a lack of

material concerning those who choose an educational route after high school.

In 1970, Malcolm Knowles, strove to incorporate some of the informal existing

ideas about adult education into a theory of adult learning called andragogy:

"the art and science of helping adults learn" (Knowles, 1970, p. 38). This theory

differs from that of pedagogy (primarily concerned with the teaching of children)

because in Knowles' opinion there is a difference between teaching adults and

children and that these differences must be acknowledged and accounted for.

Characteristics that separate the adult learner from the child learner must form

an integral part in an educational model that purports to assist adults in their

learning goals.

In explaining his theory of andragogy, Knowles (1970) postulates five characteristics that describe the adult learner:

1) Adults are continuously progressing from a dependent state of learning to that of a self-directed learner. This assumption implies maintaining the self concept of adults by providing a comfortable, accepting environment, by treating them with respect, by allowing and encouraging them to be involved in decision making, and by regarding their input as a valuable asset to the functioning of the class.

2) Each adult enters the learning situation with a wide range of valuable experiences that can contribute to the environment in the classroom. Adults need to feel that the experiences they bring with them can be used and appreciated within the learning context. Adults also carry school related experiences with them (Draves, 1984): some of these experiences can be positive (possibly a satisfactory work history or a measure of success in previous school situations) or negative (preconceived ideas about the subject matter, the memory of failure in the past). These experiences comprise the sum total of the individual and may be seen as playing a crucial role in interacting in the classroom.

3) Adults' motivation is more linked with societal expectations and the tasks associated with those expectations. They may view education as a means to an end and expect instruction to have meaning for them in their particular situation.

4) Adults view the results of education as more immediate and, therefore, tend to be problem solving oriented rather than subject oriented. In the every day world there are problems to be solved, and they want the skills by which to do that.

5) Adults are voluntary learners and their choice to return to a learning situation may be goal-oriented, activity-oriented, learning-oriented, or self-directed learner oriented (Hiemstra, 1976). Goal-oriented learners have a particular goal in mind when choosing a learning situation, activity-oriented learners choose to learn because they enjoy the activity, learning-oriented learners like to learn for the sake of learning, and self-directed oriented learners are independent in their learning.

In addition to Knowles' theories, Kidd (1959) and Draves (1984) express the importance of the physiological needs of adults. In consideration of the more mature learner, attention may need to be paid to the lighting of the room, the speed of delivery of the presentation, tone of voice used, and the physical setting of the classroom itself.

In his description of the adult learner, Knowles does not account for the "reluctant" learner, the person for whom returning to school is mandatory. This would include those who are required to attend job training courses in order to keep their jobs or those who enroll in a college upgrading program because their sponsoring agency demands it. The attitude of these people will be different from that of the voluntary learner; however, the instructor's task is to provide a positive learning atmosphere, and these reluctant learners can

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choose their response. Generally speaking, although Knowles tends towards idealism in his description of the adult learner, he does provide a framework within which to work when preparing learning situations for them.

Learning Styles

Although the concept of learning styles has been in the literature since 1892 (Keefe, 1982), it has only been in the latter part of the twentieth century that more attention has been paid to them. During this time, many definitions have arisen that describe learning styles, and many inventories have been developed to describe how these styles manifest themselves in learners. Cornett (1983, p. 9) describes learning styles as "... a consistent pattern of behavior but with a certain range of individual variability ... Styles then are overall patterns that give general direction to learning behavior". Gregoric (1982, p. 5) further simplifies the definition in terms of how "... people's styles reveal how they identify, judge, substantiate, confirm, and validate truth". Therefore, the concept of learning styles embodies the way in which individual adults learn. Biological as well as environmental factors influence these styles (Dunn et al., 1989, Kolb, 1984) and generally, people tend to operate primarily within one style and secondarily in another (Dunn et al., 1989). Descriptions of styles also has a dialectic nature; they are defined in terms of two diametrically opposing terms, forming a continuum along which people fit (Keefe, 1982).

By developing models of learning and studying the processes that adults undergo while learning, researchers have produced some basic elements of

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learning styles. Although the terminology used to describe the processes may differ, learning styles may be categorized into the cognitive, affective, and physiological domains. From an acknowledgement of the need for descriptors of these processes, learning style inventories have been developed to assist in explaining style strengths and weaknesses in individual learners. Learning style inventories based on the three domains have been prevalent over the years; however, in later years, inventories by Myers-Briggs and David Kolb have also integrated psychological as well as developmental factors into their descriptions (Partridge, 1983).

Cognitive learning styles focus on the information processing basis of behavior: how a learner decodes, encodes, processes information, stores, and retrieves it (Cornett, 1983). This style is linked to the hemispherical functioning of the brain: the right hemisphere deals with information more randomly, the left, more sequentially. In his overview of learning styles and learning style inventories, Keefe (1982) discusses some of the terminology that describes the ways in which learners learn: visually, verbally, kinesthetically (a "whole body experience" such as a field trip), and through the auditory and tactile senses. Learners may differ in how they perceive information, either concretely or abstractly and how they organize information, either randomly or sequentially. They may be field dependent or independent (global or analytical in their perceptions), impulsive or reflective (quick responses as opposed to slower responses), preceptive or receptive (the tendency to gather information by assimilation or by regarding information as discrete unrelated chunks) or

systematic or intuitive (the tendency to develop ideas sequentially as opposed to intuitively (Partridge, 1983).

The affective domain encompasses aspects of learning such as personality, emotions, valuing (Keefe, 1982), motivation (whether it be internal or external), attention, responsibility, and locus of control (whether people see themselves as affecting the environment or see the environment affecting them) (Cornett, 1983). Learning style inventories for this domain use descriptors such as internal/external motivation, internal/external locus of control (Keefe, 1982), independent/dependent (preference for working alone or in groups), collaborative/competitive (work cooperatively or competitively), participant/avoidance (describes the degree of interaction in classroom activities) (Partridge, 1983), rigid/flexible, reality/fantasy, conformist/individualist, objective/subjective, or practical/theoretical (Cornett, 1983).

The third domain, the physiological, describes the physical aspects that enhance learning. Studies by R. Dunn, J. Beaudry, and A. Klavas (1989) have investigated the effects of time of day preferences and the need for mobility as part of the learning style. Other factors involve temperature, lighting, acoustics, and hunger. Keefe (1982) sums it up in his definition: "Physiological styles are biologically based modes of response that are founded on sex-related differences, personal nutrition and health, and reaction to the physical environment" (p. 49). Inventories generally include checklist types of questionnaires where individuals respond to their preferences.

A more comprehensive method of determining learning styles is described

by Partridge (1983) as the "Integrated Models of Learning Styles" (p. 247). These models consider the roles that learning theory, personality, and development play in the acquisition of a learning style. The Myers-Briggs Model (1967) assesses learning along the following dimensions: extrovert/introvert, sensation/intuition, thinking/feeling, and judging/perceiving.

A second type of model has been developed by David Kolb (1984) wherein he bases his investigation of learning styles on the definition of learning as experiential as opposed to behavioristic as espoused by Dewey, Lewin, and Piaget. He also adheres to the personality theory of Carl Jung to guide his development of his learning styles inventory. Within this context, he describes four types of learning styles:

1) convergent - this learner relies on abstract conceptualization and active experimentation. Problem solving, decision making, and practical application of ideas within a non-social environment are this person's strengths.

2) divergent - this style emphasizes concrete experience and reflective observation. The learner has a well developed imagination, thus is proficient at generating ideas, organizes information into the "whole picture" by observation, and tends to be very social and emotional.

3) assimilation - a preference is shown for abstract conceptualization and reflective observation. Strength is displayed in inductive reasoning and theoretical development. The practicality of the theory is not considered important and interaction with others is low.

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4) accommodative - the learner primarily uses concrete experience and active experimentation while learning. S/He enjoys doing things, carrying out plans and tasks, risk taking, and encountering new experiences. S/He is highly adaptive, solves problems by trial and error, and relies on others for information rather that self. These learners are generally at ease with people but may be perceived as slightly aggressive.

The K.A.M.I

More recently, Richard Rancourt (1988) has developed the Epistemic Orientation Model of Knowing which focuses on the interaction of the total person with his/her environment regardless of culture, race, etc. Rancourt suggests that learning or knowing is "a certain openness, the ability to acquire the attributes of a being other than oneself (object, person, image or abstraction)" (Rancourt, 1991, p. 3). This process can occur in three ways or by three modes: by the senses (empirical mode), by thought or reasoning (rational mode), or by intuition (noetic mode). Each mode embraces a unique way of knowing: the empirical mode (E) emphasizes a hands on data based, observation way of knowing, the rational mode (R) depends on mental processes, verbalization and the formation of ideas, and the noetic mode (N) gathers information via intuition, subjective experience and "gut feelings" (Rancourt, 1988).

Based upon this definition and these processes of knowing, Rancourt has

developed the Knowledge Accessing Modes Inventory (K.A.M.I.) that assesses the manner in which people come to know. The inventory provides adults with a learning style description indicating their major mode of knowing which is utilized the most, their associate mode which is used secondarily and in flex with the major, and their minor mode which is used the least. The degree of flex is determined by the relative strengths and weaknesses of the individual modes. The major, associate, and minor modes can be combined resulting in six different profiles that can be used to describe the manner in which people come to know: ENR, ERN, NER, NRE, REN, RNE. This profile helps students assess learning strengths and weaknesses which can then be applied in learning situations.

Conclusion

Cornett (1983) mentions briefly that everyone should know his/her style but does not delve into this thought too deeply. There are also conflicting research results concerning the relationship between providing cognitive style map information to students and academic achievement (Fourier, 1983, 1984). One study found the relationship to be significant and the other study did not. This lack of concrete information prompts one to think it necessary to address learning styles from the perspective of the student more fully: provide them with the tools to investigate and apply their learning styles more effectively.

Hiemstra (1976) uses the phrase "self-directed learning potential" (p. 39) when referring to adult learners, therefore, it must follow that as educators, we

are bound to assist students in their growth towards Knowles' (1970) ideal of the self-directed learner. If educators want this self-directedness to flourish, they must provide students with some viable tools that they can use to accomplish this end. If the purpose of education includes better equipping adult learners for the multitude of learning situations in which they find themselves and to provide them with a means of adapting to these situations, then we must be ready to help them help themselves in the process. Making learners more aware of their learning styles, the impact that that knowledge can have on learning, and how to make the best of this knowledge can be one of the many ways that educators assist the evolution of more reflective, motivated, satisfied, self-directed adult learners.

CHAPTER THREE

METHODOLOGY

As expected, the methodology of any project is determined by the purpose. The purpose provides the "why" of a project; the methodology delineates "how" the intentions of the purpose are fulfilled. The threefold nature of the purpose in this project lent itself to a three part methodology, each section addressing a particular intention as specified in Chapter One. For the sake of convenience, each intention has been restated, followed by the description of the methodology.

1. *To prepare instructional materials that would enable students to identify their learning style; to organize and adapt incoming information according to their preferred style; and to maximize learning effectiveness in any setting through an awareness of other styles and function at least marginally within them.*

Curriculum for the workshops was developed in the fall of 1994 and

consisted of two components; the instrument used to measure learning style profiles and instructional materials that explained the results of the instrument and how these findings might be used in the classroom.

Instrument

Richard Rancourt's Knowledge Accessing Modes Inventory (K.A.M.I., 1988) was used to indicate learning styles. This instrument was chosen due to its relative simplicity of question presentation and score calculation. The inventory also provided a learning profile for the student indicating major modes as well as associate and minor modes which provided a more comprehensive picture of the learning style of the individual.

The inventory is a twenty question forced choice instrument designed to measure the degree of knowledge accessing in each of the three modes as outlined in Rancourt's Epistemic Orientation Model. The K.A.M.I has displayed test-retest reliability of 0.87 for the noetic mode, 0.71 for the empirical mode and 0.81 for the rational mode. Internal consistency, as shown by using two constructed halves of the original test, indicates correlation coefficients of 0.82 for the noetic mode, 0.78 for the empirical mode and 0.79 for the rational mode at the significance level of $P<0.001$ (Rancourt, 1991).

Materials

Instructional materials were developed based on the information provided by Rancourt's Epistemic Orientation Model and presented in an informal setting

by discussion format. Instructional strategies included lecture, small and large group discussion and active student participation. Four teaching sessions and one evaluation session were used to impart the information and gather feedback on the presentation. The following paragraphs provide a general outline of the sessions: a more detailed look at these comprise Chapter Four.

Session One - "How Do I Learn?"- Determining Learning Profile

This session was geared towards introducing students to each other, their learning styles, and the nature of Rancourt's theory of style in a comfortable, non-threatening atmosphere. We participated in a "mixer" activity first, then each student took the inventory and calculated the results, thus determining his/her major, associate, and minor modes. The nature of the inventory and Rancourt's theory of knowledge accessing were described to them. This information served as a knowledge base for the following sessions in that it provided a familiarity with the accessing modes.

Once students felt they understood the theory and its definitions of learning style, they were grouped according to their major modes and asked to write on the board what they were comfortable with in the classroom in terms of subject matter delivery, assignments, etc. This helped reinforce their style and the realization that others learn the same way. It also served to show how other styles had different perceptions of an effective teacher or classroom style. These issues were discussed in the larger group. Following this discussion, students were exposed to the characteristic elements of the six different profiles.

Session Two - "When Conflicts Arise" - Adaptation of Style

The material in this session attempted to address how students could organize and adapt incoming information to preferred style. Because they will not always encounter learning situations conducted in their major mode, it was necessary to provide some tools for adaptation.

The first step, "know thyself" was achieved in the first session. Secondly, it seemed reasonable for students to be able to identify the operating modes of their instructors. This was achieved by looking at teaching styles characterized by the different learning profiles, impressing upon students that teachers do not always teach in a manner compatible to their learning style. Certain identifying features of the style of the instructor such as course outlines, common phrases, classroom management techniques and assignment descriptions were discussed by using profile information and actual examples of outlines and assignments .

The students then identified instructors displaying the various modes and, in small groups, discussed the discomfort experienced when in a classroom where the instruction occurred in the minor mode of the individual.

The group reassembled, debriefed, and provided some ideas on possible adaptation schemes.

Session Three- "Making it Work for Me" - Maximizing Learning Effectiveness

The focus of material in the third session was to maximize learning effectiveness in any setting through an awareness of other styles and an ability

to function, at least marginally, within them. This effectiveness was defined as being better equipped to learn in a mode different from the major one. Because our natural tendency is to primarily use our major mode in knowledge accessing (Dunn et. al. , 1989), this session provided an opportunity to introduce students to accessing information in their associate and minor modes. This task could also be seen as a means of eliminating the excuse that students use of being unable to learn because of a teaching style that is different from their major learning mode. Hopefully, flexibility on the part of the student is encouraged, thus enhancing personal responsibility for the learning process.

To begin the session, students were presented with a problem to solve and asked to keep track of their thought processes as they found the solution. Upon completion, student shared and clarified these thoughts so that others would understand the different approaches to solving a problem. Then, placed in mixed profile groups students were given an assignment and asked to interpret and describe how they would handle it based on their style. Again, results were discussed in the larger group in order to enhance comprehension of the different modes. Finally, in mixed profile groups, students were asked how they could do an assignment in their major mode, associate mode and then minor mode. These results were also shared afterwards. Mixed profile groups for the last two activities were used so that the different modes represented could help one another out.

Session Four - "How Do I Apply This" - Making it Practical

Students were to bring actual class assignments to this session. As a group, we would help each other adjust the assignment to the major mode of the student or assist the student in completing the assignment in a mode different form his/her major mode. This session was included to allow some practical use of the information dealt with in the previous three sessions.

Session Five - "How Did It Go? - Final Evaluation

In an informal setting, students would be asked to fill in and submit a final questionnaire. Time was provided for discussion of these results.

2. To pilot the materials as part of a voluntary workshop.

Subjects

Twelve upgrading students, currently enrolled in courses at Lethbridge Community College, were personally contacted to participate in the piloting of the instructional materials prepared for the purpose of the project. The following two criteria were used in choosing students: level of overt commitment to the learning process (observed study habits and attendance and experience in teaching them previously), and the completion of at least one semester of upgrading (to provide familiarity with the routines of school and an awareness of their learning patterns). Students were chosen specifically from the upgrading program because of their history of failure in the public system

and their need for assistance in order to succeed in a learning environment. I also chose them for personal reasons because these are the students I dealt with on a day to day basis and for whom I had the most concern.

Of the twelve asked, seven committed themselves to the project. Illness and life schedules prevented them all from attending all sessions.

Ethical Considerations

Each participant was asked to sign a consent form which outlined the intent of the project, ensured confidentiality, and stipulated their right to withdraw at any time without prejudice. Permission was obtained from the chair of the upgrading program to solicit volunteers and present the materials on campus. A copy of the consent form can be found in Appendix A.

Procedure

Presentation of the materials occurred within the context of a voluntary workshop consisting of four-two hour sessions held at the college January 16, 23, February 6, and March 6, 1995. The original plan of five sessions was discarded because of student schedules. The fourth session was optional in that students could come individually for assistance if necessary. Each of the first three sessions ended with a time of guided journal writing. The final session involved handing in the summative questionnaire and discussing the pilot project with the participants.

3. To determine through participant feedback the effectiveness of the materials and presentation.

Participant feedback was crucial to providing answers to the questions outlined in Chapter One: Were the materials beneficial to the students? Was the presentation format appropriate? Could this information inspire increased personal responsibility in the learning process? Were the materials, timeline, and group work sufficient means for achieving the final goal?

Answers to these questions were gleaned by three methods:

1. Guided journal writing, in the form of answering specific questions, was distributed and then gathered after each session (see Appendix B for actual questions). The questions were designed to stimulate further thought about the presentation, to provide some practical application, and an opportunity to express personal opinions regarding anything related to the session. Questions were chosen that centered on particular aspects of the presentation and materials that I wanted to explore in relation to the overall goal of the project. This format was chosen because of personal preference. I felt it more beneficial to have students express their responses in writing rather than to have them rate the materials and presentation along a scale. The writing occurred at the end of each session to ensure an immediate response and a 100% return rate.

2. A final questionnaire was developed and was used for the last session, "Making Sense" - Final Feedback (this may be seen in Appendix C). The questionnaire consisted of six statements regarding the effectiveness of the

materials and presentation that were to be completed by the participants. Again this format was chosen due to personal preference, its simplicity, and the opportunity it gave students to express their own views. The questionnaire was given to the participants before the final session and then we met over pizza (a way to thank them for participating) and discussed the responses.

3. Appendix D consists of personal reflections which include my perceptions of what occurred during the implementation of the project. After each session, I took time to write how I felt about them. These notations covered any frustrations, insights, limitations, necessary changes, or improvements that came to mind while reflecting upon what had just occurred. The style was more a stream of consciousness than a planned evaluation.

As much as possible this methodology reflected the needs of the students that participated. Because they had already started the semester, the two hour weekly sessions provided the optimum time frame. Naturally the materials and their presentation reflected my teaching/learning style. However, being aware of this, I tried to combine teaching strategies in order to appeal to all the accessing modes.

CHAPTER FOUR

MATERIALS

The primary focus of the project was to develop materials that would give students a tool to use while actively participating in the learning process. The rationale was that if we as adult educators want students to become more responsible for learning then we must provide them with a means of doing so. Upgrading students, still operating in the concrete developmental stage, respond best to materials that are highly practical and applicable in their school life. Also, because upgrading students are relatively insecure about learning, due to negative schooling experiences in the past, materials needed to be presented in a non-threatening, relaxed atmosphere.

The development of the materials followed a logical sequence that began with familiarizing students with their learning profiles based on Rancourt's K.A.M.I. (1988) and the philosophy behind the description of these styles. Once the foundation was laid, students were ready to make the information meaningful. Therefore, the following sessions focused on practical uses of this

knowledge in the classroom: how to adapt to different teachers, how to function in modes different than the major one, and how to apply this to actual assignments.

The following pages include the materials that were produced and presented for the pilot portion of the project.

SESSION ONE

HOW DO I LEARN?

Determining Learning Profile

Objectives: a) to determine student learning style profile

b) to explain Rancourt's theory of knowledge accessing

c) to explain learning and teaching in terms of the different profiles

Activities: a) administer the K.A.M.I.

b) lecture - knowledge accessing, definitions of major, associate, and minor modes, learning and teaching particular to each profile

c) group work - discussion in same profile groups

Materials: consent forms, K.A.M.I, Transparencies 1.1 and 1.2, journal questions, guiding questions for group work

Journal: a) How did I feel upon discovering my style? Do I feel it describes me accurately?

b) Do I agree with the strengths and weaknesses indicated?

c) Did anything surprise me?

d) How might this information be helpful in the classroom?

ACTIVITIES EXPANDED

1. Welcome students and thank them for participating in the workshop. Explain the objectives of the workshop: to identify learning style, to organize and adapt incoming information according to the preferred style, and to maximize learning effectiveness in a variety of situations. Fill out consent forms.

2. Get to know you activities - use the name circle starting with self, say my name, the next person says my name and then theirs and so on around the circle. Repeat using names and one recreational activity.

3. Administer the K.A.M.I. Determine and define the major, associate, and minor modes (learning profile) for each student.

4. Explain what learning styles are - the way in which people learn. Can be classified into three domains: cognitive (information processing; random/sequential, concrete/abstract, slow response/quick response, inductive/deductive reasoning, systematic/intuitive), affective (locus of control, internal/external motivation, collaborative/competitive, objecive/subjective, practical/theoretical) and physiological (time of day, need for mobility, temperature, lighting, acoustics, hunger). Recently, inventories have been developed which combine these domains and

consider the roles that learning theory, personality, and development play in the acquisition of a learning style.

5. Rancourt has defined knowing as the ability to acquire the attributes of a being or object other than oneself. We do this through an interaction of three means or modes: through the senses with a hands on kind of approach, through subjective experience or intuition, and by reasoning, logic, or mental processing. The first mode is called the empiricial mode (symbolized by the letter E), the second, the noetic mode (symbolized by the letter N) and the third, the rational mode (symbolized by the letter R).

TRANSPARENCY 1.1

Extra information to go along with transparency 1.1:

Empirical generally relates to the subject matter in biology, geography, and physics.

Inductive reasoning moves from the parts (specifics) to the whole (general).

Rational generally relates to the subject matter in math, chemistry, economics, and business.

Deductive reasoning moves from the whole (general) to the parts (specifics).

Noetic generally relates to the subject matter in literature, visual arts, music, drama, fine arts.

6. Group the students according to same major modes. Have them brainstorm, categorizing and recording things that they really like and dislike in a classroom. Have these lists put on the board. Earmark the ones that they all agree upon within the group and mark the ones that they do not all agree upon.

Some guiding questions:

1) How do you like a classroom to run?

2) What are you most comfortable with? (eg. discussions, lectures, labs)

3) What kinds of assignments do you prefer?

Record these list for further sessions.

TRANSPARENCY 1.2

Extra information to go along with transparency 1.2:

Empirical is based on common sense, sticks to facts, and the results of research.

Rational uses the following phrases, "it stands to reason, if you look at it logically, there's a problem with that logic."

Noetic expressions include, "I've got this hunch, my gut reaction is". They often solve problems by flashes of insight. They are divergent, moving from the common point and often going off in a different direction.

7. Note individual differences regarding classroom preferences as

determined by the accessing modes. This can be attributed by the PROFILE of the individuals which has people working in different associate modes. Rancourt's inventory, the Knowledge Accessing Modes Inventory, determines the learning profile of a learner indicating his/her major, asssociate, and minor modes of learning. This provides a description for six possible types of learners or learning styles with the designations ENR, ERN, NER, NRE, REN, and RNE. In the larger group discuss responses from above. Explain the various profiles (be sure to include a discussion associate mode) and the learning particular to them.

From the K.A.M.I. consultant manual go over the traits that tend to characterize the six styles focusing on the styles represented in the group. Emphasize that style descriptions are not meant to rigidly define the way a person can learn but act to increase the understanding of our learning strengths and weaknesses in order to assist adaptation of learning style as becomes necessary. How do these descriptions relate to how they think they learn?

Also emphasize that no one way is better than the other.

EMPIRICAL

1. Knowing through the senses - hands-on experiences, collection of

   data and facts serve as the basis for knowledge

2. Considers as real only the physical and observable attributes of

   the object

3. Inductive reasoning (bottom up)

RATIONAL

1. Knowing through thinking - by using mental processes or ideas,

   knowledge is aquired by the match between what is experienced

   and what we believe to be true

2. Concepts and their symbols are the only real attributes of an

   object

3. Deductive reasoning (bottom down)

NOETIC

1. Knowing through feeling - intuition, subjective (personal)

   experience, "gut " feelings provide the basis for knowledge

2. Aspects of an object that are real are related to the subjective,

   existential, and metaphorical

3. Abductive reasoning (analogical/experiential/lateral)

EMPIRICAL

People whose major (dominant) mode is empirical tend to deal with the concrete, are analytical, reflective, introverted, conservative, and cautious. They seek acceptance, are prepared to consult and compromise, and tend to center on the present. When approaching a task they are objective and results oriented and interested in orderly change and progress. When solving problems, they tend to analyze data, require that information is at hand and use common sense.

RATIONAL

People whose major (dominant) mode is rational tend to deal well with the abstract, enjoy the theoretical and conceptual, and are sober, reserved, tenacious, and tough minded. They provide stability, are aloof, respectful, and authoritarian and tend to focus on the past and future. When approaching a task they seek the "one" best way and strive toward the logical and structured. When solving problems, they tend towards strategy, focusing on theory and method.

NOETIC

People whose major (dominant) mode is noetic tend to be subjective, intuitive, holistic, expressive, impulsive, spontaneous, emotional, and extroverted. They are helpful, friendly, permissive and generally focus on the present and future. When approaching a task they become emotionally involved, are person centered, process based and innovative. When solving problems they can be highly creative, insightful and unstructured.

SESSION TWO

WHEN CONFLICTS ARISE

Adaptation of Style

Objectives: a) given course outlines, teaching situations, and assignment

descriptions, determine the style of the teacher

b) to identify some ways to adapt to situations where the teaching

is performed in a different major mode than that of the learners

Activities: a) large group discussion

b) small group discussion

Materials: Transparencies 2.1 and 2.2, sample course outlines.

Journal: a) What makes me feel most uncomfortable in the classroom?

What kind of teacher do I get along with the best? the worst?

b) What useful information did I glean from the discussions in this

session? How may this help me in classrooms that I feel most

uncomfortable?

c) How do I adapt to new situations? Do I find change difficult?

d) Is it possible that conflicts between an instructor and student are

due to differences in style? How does this help me in these

learning situations?

ACTIVITIES EXPANDED

1. Session One dealt with our learning styles - how about the teaching styles that we will encounter. What can we expect from different instructors and how do we react?

2. Teaching styles - some things to look for.

   Transparency 2.1

   Noetics - most likely in the arts, english, etc. - concerned about feelings

   Empirical - most likely in the sciences - concerned about doing

   Rational - most likely in philosophy, mathematics - concerned about thinking

3. Differences in the assignment description. The assignment is related to whether or not a dam should be built on the Old Man River.

Noetic Teacher

"Earth and water, if not blatantly abused, can be made to produce again and again for the benefit of all mankind. The key is wise stewardship."

Stewart L. Udall

Describe your reaction to this quote. What do you think it is saying about the preservation of our natural resources? How might this relate to the building of a dam on the Old Man River?

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Empirical Teacher

Determine the varieties and numbers of birds and mammals that inhabit the area that will be dammed. Search the surrounding area. Is there a place where these animals can resettle and still have the environ in which to survive? Interview people who have been affected by a previous dam site. Have coffee with an environmentalist.

Rational Teacher

Research the pros and cons of building a dam on the Old Man River (develop arguments in favor of and not in favor of). Make a decision for whether you would or would not support this venture and provide sound arguments for your choice.

As these types are described you can probably relate to teachers that you have had that follow a pattern that has been described. Acknowledge the conflict and then resolve it. There are two options: adapt information and assignments to your style or learn to work more in your associate or minor mode. This week we concentrate on adaptation, next week on working in a different mode.

4. In same profile groups have students identify teachers and describe assignments that fit into these categories and which type of teacher and assignment they prefer. Link their favorite teachers with the list from Session One regarding their learning style. Discuss the discomfort

experienced when a student has a teacher who teaches or assigns work in the student's minor mode. How can this make me feel so miserable in a classroom? Large group discussion about the conclusions found by small groups.

5. How can we as students adapt to the different teachers that we encounter in our learning experience? Do they have some ideas about how to adapt information - this is done in the large group so that the different major modes can share information.

Examples of Adaptation Schemes

Some general comments will be made concerning adaptation before describing more specific methods. Students should approach their instructors and express their need for help with or clarification of the presentation of class material. Secondly, be aware that some content lends itself to be taught in a specific mode so anticipate the need for adaptation and prepare yourself for it. Conversely, some courses such as English allow more flexibility: many different approaches to one topic will produce similar results.

FOR THE NOETIC...

Because you are not too concerned about details, you may not always take extensive notes. Adaptation in an empirically or rationally taught course will require you to write all details down even if they seem tedious and you already have the "big" picture.

During a discussion, listen carefully to the arguments and try to eliminate your emotions focusing on the facts or logic presented.

FOR THE EMPIRICAL...

If you struggle with English, especially composition writing, write one sentence and then at least two others that help describe what you just said. Write the bare sentence first, then add adjectives, adverbs, etc. Or ask questions that will help you add more - Why? How? What needs to be

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further explained?

During discussions, try to put yourself in the place of others and exercise patience with anyone arguing from an emotional base.

If in a noetically taught class make order from what you perceive to be chaos, putting information being presented into categories, organizing them according to your understanding. Force the practical - ask the instructor for a practical application or do it yourself. Make abstract concepts concrete by forming a mental image of them (for example, in Chemistry, picture the atom as a small ball and then add information to that image as you receive it).

FOR THE RATIONAL...

Try to relate materials to previously learned theories.

Read over materials before class, tape the class, try to find "tags" (topics) that you can put into lists. Organize notes once class is over.

Dr. I. M. Empirical
Course Outline

PREREQUISITE:
There are no formal prerequisites for this course.

COURSE DESCRIPTION:
The principles, methods and underlying rationale for needs assessment and program evaluation will be emphasized. The various aspects of the process of assessment/evaluation and the applicability to education and training will be studied. Specific theories will be covered generally, and constructs and principles directly applicable to the process of evaluating a program will be discussed and applied. Through adaptation, application will be made to Adult and Higher Education Programs within institutions and organizations.

COURSE OBJECTIVES:
In addition to the generalization stated above, the following objectives apply to this course.
1. The student will understand the basic types of assessment/evaluation that are generally used in an educational setting.
2. The student will develop an understanding of the general principles and procedures which are useful in considering various strategies for needs assessment and program evaluation.
3. The student will be able to apply the various principles and strategies of needs assessment and program evaluation towards a part of an educational program.

TEXT:

EVALUATION:
#1 - Article Summary and Critique	10%
#2 - Article Summary and Critique	10%
#3 - Case Preparations and Discussions	20%
#4 - Term Paper	35%
#5 - Evaluation Project Proposal	25%

COURSE SCHEDULE

BIBLIOGRAPHY

Identifying features: clear, concise, definite objectives, practical application and content.

Dr. I. M. Noetic
Course Outline

Course Content:

There are two very broad goals for this course. The first and probably foremost is to explore and become familiar with teaching strategies appropriate to the education of adults. The bulk of the course will be directed to that end with particular emphasis on examining the variety of methods available, discussing their utility, and demonstrating their practice. The course is fundamentally, in the last half of the class, a teaching laboratory so our emphasis will be on the practice of various strategies.

The second goal is more reflective in that I hope as we pursue the technical aspects of teaching methods, we also take time to consider the conceptual questions of what teaching is and why we do it the way we do. So, in a sense, the course, while expecting you to become familiar with a variety of techniques, will also provide you an opportunity to reflect upon your own practice as an adult educator with respect to why you teach the way you do and what you think you are accomplishing.

Course Activities:

Assignment One - your first written assignment is to reflect upon what you think teaching is. Your first draft of this is due January 17 and will form part of the basis for our initial discussion. It should be one page only, singly spaced and should address your beliefs about adult learners, the aims of teaching, the nature of subject matter, and what you think about the teaching-learning transaction and your role as teacher in it. A second draft will be due on the last class night and will form the basis for our final discussions.

Assignment Two - each student will attend an adult learning event and prepare a critique of the instructional methods employed. This is due March 7 and should be approximately 5-8 pages . Questions to consider during the event and to address in your critique:

*Briefly describe the event. What was the context, institutional setting, purpose of the educational event? How was the event promoted? Was it mandatory, required?
*What instructional methods were used? Was it clearly evident which methods were being used? That is, did you spend little time in determining the methods? Why? If the methods were identified by the instructor(s), the written materials, or both, were they defined correctly? (i.e., if the event was promoted as a seminar, was it really a seminar according to the definition from the literature?) Overall, did it make any difference whether or not the methods were correctly identified?
*Were the methods used appropriately? Did it appear to "fit" the subject matter,

objectives, length of the event, resources available, etc.? Why or why not? Did the instructors use the method correctly?

*How did you perceive the reception of the participants? Did they seem to participate readily in the methods?

*What impressed you the most about the event with respect to adult teaching? What impressed you the least? Explain.

*In what ways are you able to integrate your observations with the course readings and class discussions?

Assignment Three - because of the laboratory nature of this course, class participants will find a partner and make a major presentation utilizing one or more of the instructional methods suggested for adult teaching. This is the major requirement of the course. More explicit instructions are appended to the end of this syllabus. Instructional presentations are scheduled for March 14 (two per class) to the end of the course.

Assignment Four - a written description of your decision making in developing your presentation is the major course project. This is your opportunity to explain your rationale for what you did during your presentation and conduct a self-analysis of your activities. This paper is due at the last class. More explicit expectations are appended to the end of this syllabus.

Criteria for evaluation will be based on addressing the assignment/task as it is outlined, scope and comprehensiveness of understanding, logic and organization of thought/writing, and writing/presentation style.

Required Text

Selected Readings

Identifying features: use of the term reflect, wordiness, the "broad" goals, descriptions of the assignments.

Dr. I. M. Rational
Course Outline

Summary

This course is a graduate level course offered through the Department of Rational Thinking as a component of the courses offered concerning studies related to Adult Education. Specifically, this course is concerned with aspects of developmental psychology, human development, theories of learning, and learning in human beings from the time of late adolescence through the remainder of the life span. The term development includes the study of physiological, psychological, social, moral, cognitive, intellectual and social attributes of development peculiar to the adult human being. Similarly, the term learning includes the study of the nature, history, philosophy and intended goals of learning as they relate to adults.

Required Text

Recommended Supplemental Text

Evaluation

Assessment in this course will consist of two examinations, a research paper, and a class presentation. The distribution of marks is as follows:

*Midterm Exam, worth 30% of the final grade. The examination will consist of approximately 40 multiple choice questions on specific information covered by the textbook, lectures and discussions, 3-5 short answer questions, and one longer essay question. The written questions will be selected by each student from a larger selection offered.

*Research paper and class presentation, worth 30% of the final grade. The purpose of these assignments is to assist with the clarification and the consolidation of the subject matter of the course. Each student is required to prepare a short research paper (no more than 10-15 typewritten, double spaced pages with one inch margins, excluding references) on an approved topic relevant to the subject matter covered in this course. It is expected that the research paper will be prepared by consulting books, scholarly journals, research reports and independent studies.

While preparing the paper, it is expected that each student will also prepare a concise summary of the research topic, findings, and questions for discussion (all of this should be fitted onto a single page and prepared for distribution to the class). Most of the ultimate class date, and part of the penultimate class date, will be used to permit each class member to make a presentation of no longer than 20 minutes in length. The presentation itself will not be graded.

The research paper may be handed in any time after reading week, but no later than the last class period.

*Final Exam, worth 40% of the total grade. This examination will be similar in format to the midterm examination. The final examination will examine the material covered in the classes, textbook and presentations since the midterm.

The final grade assigned will be ascertained from a weighted summation of the grades obtained in the various components of the course. The result will then be applied to the scale used by the institution.

References

Identifying features: stress on theories, developmental information, research, organized.

NER journal writing, lots of choices, minimal guidelines, less structure, move freely around room, good motivators, individualized learning, process of learning more important than the content in practical activities, use anecdotal and biographical to introduce a lesson.

NRE "what if......", "what's your opinion or guess?", "why" questions, "how did you do this?", stimulate imagination and hypothesis generation, attentive to the big picture, development of concepts and relationships, student centered but in total control

ENR activity based (experiments), deal with facts, specifics to general, observation, democratic environment, discussion on the putting together of the whole, reward "doing" activities to "thinking activities", practical information and concrete skills.

ERN task oriented, scientific thinking, method rather than content (lab steps), emphasize facts and principles in learning, team teaching

REN theory based, order, control, critical thinking skills, lecture, quality of thinking important, favor the teaching of concepts, principles, generalizations, operate from the front of the class; lecture, telling, and use of experts.

RNE teacher centered, teacher as source of knowledge, questioning and testing, general to specific, motivate using emotions, reward "thinking" activities rather than "doing" activities.

SESSION THREE

MAKING IT WORK FOR ME

Maximizing Learning Effectiveness

Objectives: a) to identify the different mode strengths through problem solving

b) to use modes other than the major one to solve problems

Activities: a) small group discussion

b) large group discussion

Materials: Puzzle, problems to solve.

Journal: a) Did any process in the group frustrate me? Why? Did my method of solving problems frustrate anyone?

b) How did I feel when trying to solve a problem in my associate and minor modes?

c) Do I feel better equipped to cope with different learning situations after this session?

ACTIVITIES EXPANDED

1. Obtain a copy of Puzzle 3.1. Cut along the solid lines thus producing 5 pieces. The objective is to create a rectangular shape using the pieces

provided. On their own have students do the "puzzle" and jot down how they are solving it.

2. In mixed profile groups assign the following question: study the physiology of sound. Provide the following guiding questions: How do you interpret this question? How would you go about doing this assignment? Have students discuss the different ways that they would do this.

   Discuss the results in the larger group.

3. In mixed profile groups give the following problem: There are five American spies in Moscow. They meet at a park bench in Gorky Park to share important information but can only meet two at a time in order not to appear suspicious. All the spies must know all the information that the others have. What is the minimum number of meetings necessary in order for all the spies to gather the information? Again, have them share how they would go about solving this problem.
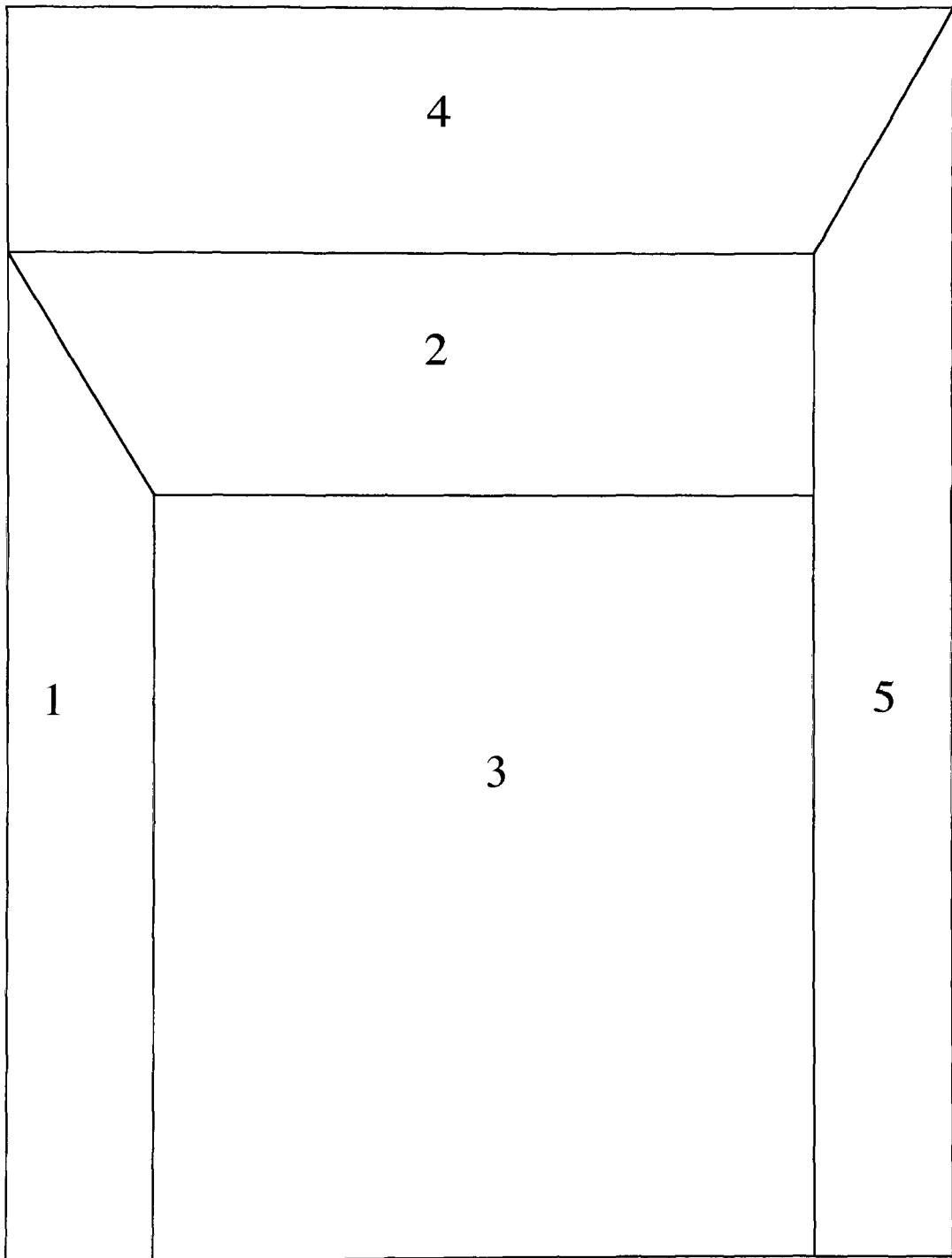
   Discuss the results in the larger group.

4. In same profile groups, have students plan a lesson on the Periodic Table in the modes that are not their major one.

Alternative Problems

a) In a jungle parade the elephant was behind the lion. The elephant was in front of the monkey. Which animal was first and which one was last?

b) A square plot has a perimeter of 12 m. What is its area? If a post is placed every metre, how many posts are needed to fence the plot?

c) You are to write an article for the local newspaper selected from one of the following topics: trends, issues, places or new developments/updates. What "angle" would you take and how would you go about gathering data?

PUZZLE 3.1

4

2

1

3

5

SESSION FOUR

HOW DO I APPLY THIS?

Making It Practical

Objective: a) to assist students in adapting an actual assignment to their

major mode of accessing

b) to assist students in completing an assignment in their

associate or minor modes of accessing

Activities: a) small group discussions

Materials: assignments that students are currently working on in class

Journal: a) How was this process helpful in completing or giving direction

to my assignment?

b) What others ideas could this session have included?

ACTIVITIES EXPANDED

1. Place students in same profile groups and have them discuss how their

particular assignment could be adapted to their major mode.

2. Place students in mixed profile groups and have each major mode

describe how he/she would approach the assignment.

SESSION FIVE

HOW DID IT GO?

Final Evaluation

Objectives: a) to evaluate the materials and the presentation style.

Activities: a) fill out the questionnaire

b) eat pizza

Materials: a) a "complete the statement" questionnaire

ACTIVITIES EXPANDED

1. Meet in an informal setting to fill out the questionnaire and to discuss any aspect of the project that needed discussion.

CHAPTER FIVE

RESULTS AND DISCUSSION

Because the focus of the project was twofold - the materials and their presentation - the results and discussion will follow suit. The materials will be discussed in terms of what was chosen and why, student response, and my response in each of the sessions. The presentation will be discussed generally in terms of format, timelines and methods of evaluation.

MATERIALS

Session One

Richard Rancourt's K.A.M.I. (1988) was the primary source of materials for Session One. It was chosen because of its relative simplicity and the ease with which scores could be determined and for its coherent descriptions of its learning profiles. At the beginning of the session, we spent some time getting to know each other to reduce any tension students might be feeling. Then students were given the inventory. After administering the inventory, it was

determined that of the seven participants that comprised the pilot group, two scored as REN learner profiles, three displayed the ERN profile, one the ENR profile and one the NER Profile. Statistically, one would expect approximately 45% of the sample to operate in the empirical dominant mode, 30% in the noetic dominant mode, and 25 % in the rational dominant mode (Rancourt, 1991). In this sample, 57% were dominantly empirical, 29% rational, and 14% noetic. Even though the sample was small, it was still representative of the greater population. There were no complaints about the inventory with relation to difficulty or level of accuracy. In fact, some students remarked on their surprise when discovering how well the inventory described them with comments such as: "kind of goes with my character", "my dominant mode was rational, it totally described me and how I function on an everyday basis", "I felt that it described me but as I could probably describe myself", and "I felt that the majority of my style was just like me" (see Appendix E). Conversely, once they understood the terms of Rancourt's learning style theory, the results of the inventory acted as confirmation of what they intuitively knew about themselves. It provided a description of what they had already discerned about their learning habits and their personality: "it has cleared up some things about how I interact with people close to me, I was surprised to know how my dominant mode reflected much of my personality, I was surprised to hear someone discuss how I am and how I respond to many situations" (see Appendix E). This suggests that people have a general idea of how they prefer to learn and the inventory provided a means of defining it.

The noetic participant noted that in school she focused more on using her associate mode (empirical) which can be confirmed by research stating that "... years of schooling and practice within a particular discipline encourage them to defer to one specific mode of accessing knowledge" (Noble and Rancourt, 1988, p. 597). It could also be a reflection of the spread between her dominant and associate mode; if the difference between the scores of each mode was small, she could find flexing between them relatively easy (Rancourt, 1988). However, this still raised the question of how much our institutions favor the empirical and rational modes and in doing so, stifle the noetic. Have students actually "learned" not to be noetic at school? Is there some process that strips these people of their "noeticness" at a young age?

The K.A.M.I. comprised the materials used in the first session. Transparencies and discussions were based on the content of the inventory. And, as noted, the inventory was successful in providing the students with an adequate description of their learning styles.

Students, for the most part, reacted positively to the instrument and the overhead transparencies that were used to further describe their learning profiles: "the initial test was very interesting (made me think), the overheads were very informative" (see Appendix E). And as mentioned above, most felt that the instrument accurately described their style and that this description even included their personality. The journal entries suggested that learning style knowledge could contribute to more responsibility in learning: recognizing and adapting to a different major mode instructor, adjusting

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learning or converting instruction to what best suits them, talking more with instructors about the obstacles they are facing in that particular classroom and not blaming the instructor, instead recognizing struggles can arise by differences in style, not personality. In fact, answering journal questions from Session One acted as a springboard for the following sessions. Students realized that they needed to be more flexible in dealing with difficult situations and the following sessions addressed that.

I found the session to be quite rewarding. In teaching it, I found more examples where the differences in the modes lie (see Appendix D). And I felt the materials adequately addressed the information necessary to provide a basic understanding of learning styles, particularly in terms of Rancourt's theory.

<center>Session Two</center>

Having established the profile of the students, the next step was to enable them to identify at least the dominant mode of their instructors. This information was basic to having them adapt to learning situations. An overhead was used to describe the different teaching styles and to outline key identifying features of each style. Some practical examples were given to illustrate the different styles: descriptions of the same assignment in the three different modes and possible course outlines indicative of a particular major mode. Following this, they had the opportunity to apply this information and tried to determine what modes some of their teachers were using. They discussed the discomfort they

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felt in a classroom being conducted in a mode different from their major one. This helped them see they were not alone in their struggles and also pointed out the need for some form of adaptation to the situation.

As a larger group we discussed this discomfort and then shared ideas from the perspectives of the different major modes of how adaptation might occur.

Students were ready for a discussion on adaptation, having been prepared in the previous session. In addition, their responses to the journal question, "How do I adapt to new situations?" indicated that adaptation, even though it took time, was not a huge stumbling block (see Appendix E). According to the journals, the material presented in Session Two confirmed the need for adaptation and provided some possible methods of doing so: "how I can take my learning style and apply it so that I can do good in class, I learned what to be aware of when I listen, that I may be able to adjust my learning style and see if I can work within the bounds of any instructor that may conflict with my study and learning habits" (see Appendix E).

Overall, I felt the sessions achieved its goal. Unfortunately, more time was spent on the former portion of the materials (that of identifying teaching styles) than the latter (coming up with strategies of adaptation). When the students were asked to propose some adaptation techniques, time was limited. Hence, they received the list I had prepared at the close of the session as concrete examples of adaptation. Although students did not comment on this in their evaluations, I would try to even up the time spent on each portion in future sessions.

The most interesting response I found from student journals in this session was their concern that instructors show they care about their students. The participants seemed willing to work out style differences as long as they felt that the instructor actually cared about them as people. Does this suggest that style may not be as much of an issue as the perceived helpfulness of the teacher? Maybe they go hand in hand; the more the instructors know about style, the more helpful they can be. This reinforces the idea that teachers as well as students could benefit from a deeper understanding of learning styles.

Session Three

Here students were challenged to think in their associate and minor modes: a way of using their learning style information to maximize their effectiveness in different learning situations. At the beginning of class they were each given a puzzle to solve keeping track of the thought processes they used in coming to the final solution. Any techniques they used were verbalized to illustrate to others how problem solving processes occurred in the minds of people with different modes. The purpose behind this activity and the next one (discussing how to approach a specific assignment in mixed profile groups) was to start participants thinking in an alternate mode. As they gained an understanding of the process used by their peers, it would make it easier when called upon to perform themselves. Then to apply this, they were asked to design a lesson on the Periodic Table in each of the three modes.

Rancourt suggests that operating in the different modes may be more or less

difficult depending on the range between the modes that comprise the profile (Rancourt, 1988). Also, it is reasonable to expect people to easily flex between the major and associate modes and to function only minimally in the minor mode. Student responses confirmed this: " it takes an effort to think in another realm, I felt uneasy, uncomfortable (especially with the noetic thinking), it felt totally different because I had to take more time which I found frustrating, uncomfortable in my minor mode, O.K. in my associate, it was difficult because I haven't applied myself in those modes" (see Appendix E). As they began exploring their associate and minor modes they struggled with their lack of experience working in these modes. Those who didn't struggle as much had modes closer together on the scale. One student noted that "it is like discovering a new learning style from scratch" (Appendix E), which opens up several possibilities for learning for that student. Another indicated that "I want to think that my major mode is the only way to think" (see Appendix E), suggesting an awareness of the conflicts that can be present within a learning situation.

I found this session to be disappointing and frustrating. However, as I thought more about it, I realized these feelings were probably evoked more by my expectations. I made the assumption that once students learned about the modes, they would naturally be able to think in them (this is reflection of my own style, a very close ERN, which enables me to access in the three modes relatively easily). In reality, I found that they were not functioning as well as expected. Initially, I blamed this reaction on the materials, but realized it only

confirmed that working in the minor mode is difficult and confusing for people so it requires more time and practice.

After speaking with one of the participants I realized that the group needed to be "taught" to think in the different modes. This was also a recurrent theme in the journal and questionnaire responses: they wished they could have had more practice in learning to think in modes that were not dominant for them. As a result of this discussion and the suggestions in the evaluations, I prepared some exercises that would promote thinking in the different modes and placed them in Appendix G. Unfortunately, my students did not get a chance to use them, but future participants will.

One student remarked on the discomfort of thinking noetically. However, I think it is most difficult to "teach" noeticness. Because it is based more on subjective experience and insight, it seems to be part of a person's nature as opposed to something that can be learned. The best way I have found to increase noeticness is to associate with noetic people and observe how they interact with their environment.

Session Four

The presentation originally contained a fourth session where students were to bring actual class assignments and either complete them in their major mode or adjust their approach to an associate or minor mode. This session was deleted during the pilot program because the students' schedules were becoming too hectic and attending the sessions was becoming more and more

difficult. It was left up to the students to come and see me individually but none of them did. The inclusion of this fourth session would have given them a better understanding of the practical application of what they were learning about styles. They expressed some concern in their journals over the lack of practice; this session would have alleviated some of that feeling.

Session Five

The final session was very informal. The participants had been given the questionnaire previously and brought it with them. We had pizza together and discussed the project as a whole. Unfortunately, attendance was low, students being sick or forgetting the session (more will be discussed regarding timeline in the next section).

Summary

Student journals and personal reflections indicated that the materials developed were sufficient for the purpose of this project. Students confirmed their learning style description as outlined by the K.A.M.I. and found the discovery process valuable. As well as the inventory, they preferred practical materials involving lots of exercises with the opportunity to explore the different modes: "we were all involved and got a hands on approach to the exercise, made clear by the presentations of overheads and examples and relating it to us" (Appendix F). Handouts (for future reference), overheads, and concrete examples were favored items. Proposed additional materials were a series of

questions aimed at stimulating the thought processes of each mode and a final test that could check a person's improvement in thinking in the different modes. As the majority of the pilot group were empirical and rational learners this would contribute significantly to the favored materials: these types of learners would require logical and practical materials in their learning endeavors.

Based upon student responses the goal of providing them with information regarding their learning style was indeed beneficial. Students indicated that the material had the potential to be helpful in their learning situation. They asserted that the information could be useful in their present situation and in further educational pursuits. One noted that it would be helpful in organizing notes and studying, while several indicated that it would be useful in dealing with teachers who teach in a different major mode. The general concensus was that this kind of information was not only helpful, but that all students should be exposed to it as they engage in the learning process.

PRESENTATION

The presentation of the materials was the second aspect under consideration in this project. Piloting the materials provided feedback on the effectiveness of the presentation, focusing on three areas; format, timeline, and evaluation.

Format

The sessions included a variety of techniques: lecture, small and large group discussions and some individual work. The nature of the objective determined the technique implemented. For example, to dispense information about the inventory a lecture format was chosen. I acted as facilitator during the discussion times. This was not my usual teaching style as I am more content/lecture oriented (my "E" mode). However, discovering this about myself has enabled me to become more comfortable in trying new techniques (the size of the group contributed to this ease as well). Different strategies were necessary to ensure that all learning styles were being addressed at least some of the time during the sessions.

Comments varied on the structure and presentation of the sessions. The greater portion of participants concurred that the informality ("relaxed atmosphere and open discussion, got to voice your opinion as well as hear others, see Appendix F) was a positive feature. Two conflicting responses - one student wished there had more discussion whereas another voiced the desire for more structure - reflected the different styles that were represented in

the group. The comment regarding more discussion could reflect a noetic or rational mode, the desire for more structure, the empirical or rational mode. Because of this interplay between the presenter's style and the student style, one must recognize that evaluative comments will have their particular biases. It also confirmed that presenters need to be aware of this interplay and be prepared, that is, include activities that reflect all styles.

Generally, the presentation was received positively with students remarking on the organization of the sessions, usefulness of the discussions, and the ease with which they shared points of view with one another.

Timeline

The nature of the upgrading student is an important factor in the piloting and future planning for the implementation of these materials. These people have survived all kinds of negative past experiences, many of which involved school. Often they are struggling to juggle home, children, school, a job and, in many cases, doing so as a single parent. Time management skills are underdeveloped and school is not always a priority. The intent of the student at the beginning of the semester is good, however, as time passes and pressures mount, schedules became tighter and levels of commitment waned. These characteristics became a stumbling block as the piloting progressed.

As student schedules got busier this kind of workshop received minimal priority; one student mentioned that, as the time between sessions went by, he

became less and less aware of what he had learned. Therefore, it is reasonable to conclude that a workshop of this nature be done early in the semester and be as condensed as possible (this was commented on several times in the final questionnaire, see Appendix F). A weekend or two consecutive days of training before classes start would suffice. Or, as one student mentioned, integration of this information in existing courses such as College Success 101 or Reading 035 may be the proper arena for supplying this type of material. These courses are designed to improve reading and study skills and thus prepare students for post secondary programs. Participants also would have preferred a different time of day (we were meeting at 4:00 p.m. every Monday).

Student illness and schedules interfered with perfect attendance at all the sessions. The third session had to be rescheduled for a week later due to these reasons and the final session had only 50% in attendance. Reading Week fell in between the third and last session which also served to decrease momentum. The solution mentioned above (having the workshop over a shorter period of time) would better suit the needs and schedules of these people.

Interestingly, some students indicated that they wished they had had more time to investigate the potential of the information they had received. I think the fourth session would have addressed that need and in future that portion of the workshop would not be omitted.

Evaluation

It was decided to use three means of evaluation for the materials and presentation: journal writing (for questions and responses see Appendix E), a questionnaire (see Appendix F), and my personal reflections on the process (Appendix D). The journal questions were based on the effectiveness and practicality of the materials, the questionnaire was designed to provide an overall evaluation of the project: its structure, the materials, their presentation, areas for improvement, and a basic "wish list" for future sessions. My reflections were an indicator of how I felt during the process: strength and weaknesses of the materials and presentation and reactions to the sessions as they occurred.

The guided journal writing (Appendix B) occurred at the end of each session to ensure a perfect return rate and to have students record immediate responses. There may have been a rushed feeling while writing the answers to the questions when given at this time. Time became a factor in Session Two so the journal questions were sent home with the students to return at the next meeting. Unfortunately, the return rate was not 100%; so do we rush them in answering or risk not getting the responses? The final questionnaire was handed out the week before the last meeting in order to provide participants the chance to respond under less pressure, thus giving more thought to their answers. I wrote my responses after each session as well.

I now question the validity of using these evaluation tools solely. Writing would not come easily for the empirical modes; they would want something

more concrete like a rated scale. It would also have been useful to find out how participants felt about the evaluation techniques. No questions were asked about these. Varied strategies, such as taped interviews, may be alternative approaches for gathering feedback concerning the materials and presentation in future meetings. These strategies would need to be chosen in terms of how they reflect the styles of the people represented.

Summary

One cannot discuss the materials and presentation disregarding the important role and impact that the learning styles of the presenter and participants have on them. There is an underlying tension behind work of this nature: to what extent do styles drive the instruction and to what extent does instruction drive the styles? The responses of students reflected their styles of learning: improvements or suggestions originated from how they best access knowledge. As an instructor, I chose strategies that, even though were different from my usual format, still predominantly reflected my style (one student described it aptly, "casual, yet well thought out", Appendix F). The workshop could be used as another example of the interaction between teaching and learning styles and the need for both parties to be aware of them.

Implications

The implications for this type of workshop need to reflect both teachers and students. From the student perspective, being given more knowledge about his/her learning style may be one tool for increasing self-directed learning. It could also provide a healthier self-assessment of what is actually happening in the learning situation; this is the way I learn and there is nothing right or wrong about it. This gives them a more positive perspective on learning and provides them with an awareness of the possibility of success. Sometimes it is just a relief to find out that learning is part of an overall style and not a reflection of character. It may also help students see that some conflicts between instructors may occur because of the difference in style, not because of their personality.

If not given as a workshop, the presentation could be part of the curriculum of already existing courses such as College Success or Reading. Within this context, styles could be defined and determined, then students could apply this knowledge to the other classes they are taking. Another possibility would be to integrate this information into all courses, thus providing learning style awareness to both students and teachers.

As instructors learn more about these styles they may be better able to handle possible conflicts or the student who just does not seem to "get it". A few pointed questions may indicate the style (at least the dominate mode) and then explaining the problem or assignment could be approached in a manner better suited to the learner. This necessitates the familiarity of teachers with the styles inventory and theory behind it. It would also enable instructors to either

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function within the three modes or seek out appropriate resources. It may even mean styling lessons in different ways so that all modes are being addressed at various times throughout the teaching experience, allowing for a difference in how assignments are handled, how problems are solved and possibly being more open to student ideas about the nature of learning.

Difficulties usually occur when we work within time and curriculum constraints; if we try to teach every lesson using all the dominant modes we would need more time than we have to cover the material necessary. It may be easier to vary teaching and assignment descriptions so that all modes are addressed at least some of the time. Hence, it would be expedient to provide in -service to instructors regarding learning styles and ways in which to identify the various styles in the classroom, adapt lessons for these differences, and to emphasize with and encourage students to function in modes other than their dominant one.

Initiatives and Research

A project of this nature, while answering some questions, tends to raise still more. Related questions that could be studied further are:

1. Is there a process in schools that de-emphasizes the noetic modes? If so, where in the process does it occur? Once recognized, it needs to be curbed and equal emphasis placed on all three of the accessing modes in the learning environment.

2. Comparison study of two groups of students: one group receives the learning style information and then undergoes instruction while the other group receives the instruction without the style information. This kind of study would provide statistical information regarding the effect of obtaining personal learning style information.

3. Comparison study of teaching in the usual way for one class, while in the other class using varying methods involving the modes of knowing. Compare results as well as satisfaction with the learning experience to determine effectiveness of the latter form of teaching. This would involve teachers in understanding the frustrations students encounter learning as the instructors strive to provide lessons focusing on the different modes.

4. Is there a link between the type of student and the success this information will have? Will one type of student do better than the other? Is it gender linked? It would be interesting to determine if a certain style learner would benefit more form this type of information than another. This would also depend on how the material is presented; there may need to be different

formats for the different learning styles.

Conclusions

Results of the project indicated that it was possible to produce and present learning style materials that were beneficial to students' understanding of their learning processes, thus increasing the level of personal responsibility for that learning. Sessions that provided practical exercises and application in the areas of adaptation and accessing within the various modes, were favored by the students in the pilot workshop. Students preferred a structured, less formal, interactive atmosphere. The general concensus was that the material should be presented in a more condensed period of time or integrated with regular course work.

Information of this nature is vital if we as adult educators want our students to take personal responsibility for their learning. From this project alone, seven students felt empowered to grapple with the learning process more effectively. If this information enabled students to learn better, it would also enable teachers to teach better. Therefore, it is imperative that both participants (students and teachers) involved in the learning process acquire and apply these principles throughout the duration of course work. In providing such in-service to students and instructors, we can only improve our effectiveness in post-secondary education.

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APPENDIX A

CONSENT FORM

CONSENT FORM FOR PARTICIPATION

Dear Student:

In fulfilling course requirements at the University of Lethbridge I will be conducting a workshop regarding the personal learning styles of adult students. The purpose of the project is to produce instructional materials that will determine learning style, how to use this knowledge in order to organize and adapt incoming information according to this style and how to maximize learning effectiveness in any setting through an awareness of other styles and function at least marginally within them.

I invite you to be a part of the piloting of this project. As a participant you will asked to attend five-two hour sessions where you will complete a particular learning style inventory (K.A.M.I.), then through group discussions and problem solving determine how you can use your learning style to organize information and adapt to situations that do not include your major learning style. Finally, you will provide feedback on the materials, presentation of these materials, and the continued use of them.

This is a voluntary workshop; all information will be handled with confidentiality and has no impact upon your grades. Names or other identifying information will not be included in the discussion of the results of this project. You have the right to withdraw from the project at any time without prejudice.

If you choose to participate please sign the form below and return it to me. And if you have any questions at any time, please feel free to contact me at my office, AN2759 (320-3392) or at home (320-6268). Also feel free to contact the supervisor of my project, Dr. Cathy Campbell (329-2259), if you wish additional information and/or the chairperson of the Faculty of Education Human Subjects Research Committee, Dr. Rick Hesch (329-2118).

Thank you for your assistance.

Sincerely,

Natalie Worthen, Lethbridge Community College

(Please detach and forward the signed portion)

ADULT LEARNERS: KNOWLEDGE AND USE OF LEARNING STYLES

I agree to participate in this project as outlined above.

Name	Signature

Date

APPENDIX B

QUESTIONS FOR JOURNAL WRITING

APPENDIX B
Questions for Journal Writing

Journal One

a) How did I feel upon discovering my learning style? Do I feel like it describes me accurately?

b) Do I agree with the strengths and weaknesses indicated?

c) Did anything surprise me?

d) How might this information be helpful in the classroom?

Journal Two

a) What makes me feel most uncomfortable in the classroom? What kind of teacher do I get along with the best? the worst?

b) What useful information did I glean from the discussions in this session? How may this help me in classrooms that I feel most uncomfortable?

c) How do I adapt to new situations? Do I find change difficult?

d) Is it possible that conflicts between an instructor and a student are due to differences in style? How does this help me in these learning situations?

Journal Three

a) Did any process in the group frustrate me? Why? Did my method of solving problems frustrate anyone?

b) How did I feel when trying to solve a problem in my associate and minor modes?

c) Do I feel better equiped to cope with different learning situations after this session?

APPENDIX C

FINAL QUESTIONNAIRE

Final Questionnaire

HOW DID IT GO?

Please complete the sentences below.

1. The structure of the sessions was ...

   I wish ...

2. I liked best about the materials ...

   I wish ...

3. I liked best about the presentation format ...

   I wish ...

4. I wish we had done more ...

5. I wish we had done less ...

6. If I had to sum up my feelings about the way this course went, I would say ...

APPENDIX D

PERSONAL REFLECTIONS

APPENDIX D

PERSONAL REFLECTIONS

<u>Session One</u>

I was rather nervous heading into the first session - a lot was weighing on this meeting and it didn't seem to matter that I had taught for almost 10 years and I knew all the students involved. All that considered, the session was exhilarating - the responses from students, watching the comprehension come over their faces when they recognized their style, teaching in a way that is not typical of me. It was making sense to the students and it was making sense to me!

It was interesting to note that even though students with different major modes indicated that they preferred the same technique, their definition/description of the techniques was different. For example:

<u>TECHNIQUE</u>		<u>DEFINITION</u>
Discussion	R	logical arguments
	N	emotional arguments
Lecture	E	facts and figures
	R	ask thought provoking questions
	N	stimulate imagination
Periodic Table	E	parts to the whole
	R	whole to the parts
English	E	grammar to the essay
	R	essay to grammar
	N	essay - forget the grammar

This session was totally stimulating, interaction was positive and the group functioned well together.

Session Two

In the beginning, going over the potential teacher profiles was interesting. Right away they seemed to be able to identify styles in their own teachers. One student even recognized the style of another student by the way she answered the question about her preference in teaching styles. The second half of this session was a bit more difficult. I'm not sure that adaptation was covered as thoroughly as it could have been. We ran out of time so this portion was somewhat rushed. I suppose that one means of adapting is to "know the enemy" so probably that information about teaching styles was a good start for the adaptation process. When asked about personal means of adapting, response from the group was limited - maybe they just needed more time to think it over and they may not have been feeling totally cognizant of the three modes to offer solutions so I ended up giving them examples as opposed to them coming up with their own ideas.

I found it very interesting that of all the traits they said they liked in a teacher, caring was the most important. As long as they knew that the instructor was concerned about their progress, students perceived that instructor in a positive light.

Session Three

This was my most disappointing and frustrating session. Although when I think about what caused these feelings, it fits with what I was trying to do. The objective was to have participants work in their minor modes. They first solved a puzzle and then explained to the others how they went about doing it, with the intent that that would help others understand the thought processes involved. Then they were given assignments to do in all three modes. Of course, it was easy to figure them out in their dominant mode, but not the minor, so the responses were not what I was hoping to get. However, doesn't this just confirm that working in the minor mode is difficult and confusing for people so will take more time and effort to learn how to do it?

I came from there feeling like I had cheated them somehow and I wasn't sure what the missing ingredient was until one student "twigged" it for me; he suggested more practical exercises involving the modes could be developed to give people a more concrete way to practise. This set my brain to work and I wrote down several possible exercises to improve the specific modes (see Appendix G). Unfortunately, the students didn't get to use them, but in future workshops they would be available.

I think it is most difficult to "teach" noeticness. Because it is so based on subjective experience and insight it almost seems to be a part of someone's nature as opposed to something that can be learned. This needs to be taken into consideration. The best way I have found to increase "noeticness" is to associate with noetic people and observe how they view the world putting aside the empirical and rational.

The final session was pretty informal - only three people came; others were sick or forgot. So they handed in their evaluations and we had pizza and basically discussed life.

I would have to agree that the workshop needs to be delivered over a shorter period of time. It was difficult to maintain momentum and I'm not convinced that this level of student (although with very good intentions) is ready for a long term commitment of this sort. An idea would be to have the information sessions at the beginning of the semester and then reinforce what was learned throughout the term in class time. This may have a more lasting impact on them as they are still very dependent on the practical and concrete.

However, on a good note, they were most eager and willing to help and I appreciate the time and input they provided.

APPENDIX   E

STUDENT RESPONSES TO JOURNAL QUESTIONS

APPENDIX E
Student Responses to Journal Questions

Students responded to predetermined questions at the end of each session. Following is the transcript of the responses as written by the students:

JOURNAL ONE

QUESTION:

1. How did I feel upon discovering my learning style? Do I feel like it describes me accurately?

RESPONSES:

- kind of goes with my character;

- I felt comfortable learning about what style of learning I fall under - my dominant mode was rational, it totally described me and how I function on an everyday basis - I was surprised to know how my dominant mode reflecting much of my personality;

- surprised - I expected to see myself more as a noetic actually;

- upon learning my learning style I found it to be quite interesting and wanted to learn more about my style /personality, this is something that I'd like to share with my colleagues;

- I felt that it described me but as I could probably describe myself;

- it has cleared up some things about how I interact with people close to me, many times I have been told by my family I ask too many questions, now I know why;

- I felt that the majority of my style was just like me

QUESTION:

2. Do I agree with the strengths and weaknesses indicated?

RESPONSES:

- disagree with introverted and conservative;

- I agree with my style of learning, I have always been that way and believe I will always be this way;

- yes, definitely a bottom down or top down person, like the big picture first then the parts, theoretically minded;

- no, not really, other than I can be quite shy at times;

- I agree with my style;

- not really;

- some of the professions that empirical people get into were not ones that I think I would be capable of

QUESTION:

3. Did anything surprise you?

RESPONSES:

- not really;

- yes - learning my style;

- I guess what surprised me the most was how close all of my learning modes are and that I was the only dominant Noetic;

- I was surprised to hear someone discuss how I am and how I respond to many situations;

- I agree;

- I agree with most of the stuff learned about my style

QUESTION:

4. How might this information be helpful in the classroom?

RESPONSES:

- may help when the instructor is of a different style than me and thus teaches in that style, I may be able to adjust my learning to theirs or convert their instruction to suit me, i.e., put it in my own "words" so to speak;

- it has already helped me, I apply my learning style on a daily basis the same way for each class, I know I will benefit from this style as well progress in other styles that I am not as dominant in;

- help give direction in how to go about studying, organizing notes, reading habits, etc.;

- this information might help me in the classroom by familiarizing me to who I am and what I like, what works best for me as opposed to what really goes against the grain;

- I would have to hear a bit more before I feel that I would see if I could make any adjustments;

- in my groups in English I will be more understanding to others who think I want too much information;

- how to get through the class if you have to change modes from your dominant to associate or minor, adapt to the way the class is if that subject is hard for you or not

JOURNAL TWO

QUESTION:

1. What makes me feel most uncomfortable in the classroom? What kind of teacher do I get along with the best? the worst?

RESPONSES:

- not being able to approach them, not being able to talk to them, the best teacher is one who is available to help when I need it and can make me understand, make the subject interesting and likeable, the worst teacher is one who cannot get the point across, is unapproachable and unwilling to help;

- when others can't answer a question, then the instructor asks me for the answer, most of the time I can find or answer correctly but those times when I am incorrect makes me feel uncomfortable, instructors that are empirical or rational mainly, most classes I have taken are with courses and instructors have been of the aforementioned;

- noise, a teacher who will answer my question when I want to know why or how they got the answer, a teacher who dislikes explaining what she is teaching also one who talks too fast

QUESTION:

2. What useful information did I glean from the discussion in this session? How may this help me in classrooms that I feel most uncomfortable?

RESPONSES:

- learned the way I learn and what others are like, how to adapt to what certain teachers teach and how I can take my learning style and apply it so that I can do good in that class;

- I learned what to be aware of when I listen, that way I may be able to adjust my learning style and see if I can work within the bounds of any instructor that may conflict with my study and learning habits;

- that the teacher is probably not an ERN and doesn't see things the same way I do, to realize it's not me she is impatient with, it could be because she is a different style - I will not take it so personal

QUESTION:

3. How do I adapt to new situations? Do I find change difficult?

RESPONSES:

- I like change but I take a while to get used to it;

- I usually adapt quite well but it usually takes a bit of time, being in school I find that I must make that adjustment very quickly if I am to learn, at first I find it difficult at times but patience and determination see me through any or most situations;

- it depends, sometimes I'm very adaptable and other times I dislike change, I can not adapt to a noisy classroom

QUESTION:

4. Is it possible that conflicts between an instructor and student are due to differences in style? How does this help me in these learning situations?

RESPONSES:

- yes, conflicts have a great deal to do with a person's style, understand where they are coming from and in turn they'll do the same and adjust so both can benefit;

- many times I have seen conflicts in most instances since it is the student who should be prepared to make the necessary adjustments, in some instances I have seen and heard of compromises to settle conflicts, I learned that before any situation gets out of control that a discussion with the instructor may help the situation;

- yes, like I said I won't take it so personal

JOURNAL THREE

QUESTION:

1. Did any process in the group frustrate me? Why? Did my method of solving problems frustrate anyone?

RESPONSES:

- yes, didn't always agree with what was said, I want to think that my major mode is the only way to think;

- yes, thinking noetically not practical or natural, not that I know of;

- that I had to wait for others and hear their viewpoint especially when they were saying some of the same things that I was but in a different manner. probably that I didn't waste any time and didn't give them their amount of time;

- no, because everyone seemed to think like I do, I don't think so;

- working in my minor mode because I don't use it on a daily basis, it is like discovering a new learning style starting from scratch, yes, because not everyone shares the same dominant mode, they don't understand how I solve problems

QUESTION:

2. How did I feel when trying to solve a problem in my associate and minor modes?

RESPONSES:

- it takes an effort to think in another realm;

- I felt uneasy, uncomfortable (esp. with the noetic thinking);

- it felt totally different because I had to take more time which I found frustrating;

- uncomfortable in my minor mode, O.K. in my associate mode;

- it was difficult because I haven't applied myself in those modes

QUESTION:

3. Do I feel better equipped to cope with different learning situations after this session?

RESPONSES:

- somewhat, if it came more easily to function in the minor mode I would probably do it more, but it's easier to use first mode;

- yes, if I can distinguish between my own modes internally and be more prepared to switch back and forth;

- that I must relax and be patient and not respond so fast so as to interfere with others while they are speaking;

- yes;

- yes, but I feel I will always work in my rational (dominant mode) because that is what I have always been comfortable with, but I can understand the minor and associate modes and feel if an instructor required an assignment in my minor and associate mode I would be able to do it

APPENDIX F

STUDENT RESPONSES TO FINAL QUESTIONNAIRE

Student Responses to Final Questionnaire

HOW DID IT GO?

A questionnaire was given to each participant to be filled out by the last session where the responses were to be discussed. The following is a transcript of the responses as written by the students.

Please complete the sentences below.

STATEMENT:

1. The structure of the sessions was ...

RESPONSES:

- organized, informative and helpful;

- too spaced, should have been back to back or full days;

- good in the way that there was open discussion about things, you got to voice your opinions as well as hear others and discover other ways of doing things, you received enough time to discuss questions within a group, your opinions were valued;

- very informative;

- casual yet well thought out, I felt it was enough to keep us interested;

- excellent, I was very comfortable with the relaxed atmosphere and open discussion.

STATEMENT:

I wish ...

RESPONSES:

- we had more time to examine the different learning styles in more detail i.e., more examples of each;

- there was more time to do this work because it's very important and as a student I would have benefitted more from it;

- it could have been a little more structured so we didn't get off topic so much and could have got more done;

- that the sessions could have been structured so as to fit into a classroom type setting and timed to a class time like schedule;

- we could have had a little more time;

- we could have completed the course in a couple of days, a more concentrated approach would have been more helpful as I tended to lose my focus through the week.

STATEMENT:

2. I liked best about the materials ...

RESPONSES:

- it was interesting to read about the different styles to compare and contrast the differences, also we could read about our minor modes and learn how to adapt to these;

- the questionnaires, group work, discussions;

- they were very helpful to my schooling, easy to relate to, easy to understand;

- that the accuracy of the material which described me almost to a tee;

- I found the materials to be interesting, I liked finding out the characteristics of the learning style I fit into;

-the initial test was very interesting (made me think), the overheads were quite informative and the puzzle was <u>fun</u>

STATEMENT:

I wish ...

RESPONSES:

- there were more questionnaires because I feel we can learn lots about our particular styles learning and why that is;

- we would have received a few more handouts instead of having as much on the board;

- that I could rehash the material at some later date to ingrain into me the ways I could improve the way I work with or without a group;

- I could have been at the last class;

- a final test could be devised (similar to the initial test perhaps) that would check a person's improvement (or lack thereof) in thinking in their minor mode, a series a questions designed to stimulate the thought processes of each mode would be useful in achieving the desired improvement.

STATEMENT:

3. I liked best about the presentation format ...

RESPONSES:

- clear, organized, done on a session to session basis;

- the group work because more ideas were presented and I became aware of how others in their major modes think that are different from mine;

- how we were all involved and got a hands on approach to the exercise, made clear by the presentations of overheads and examples and relating it to us;

- that it was material like not a mechanical presentation that has been done countless numbers of times;

- the casualness of the class, I didn't feel pressured;

-the relaxed, friendly atmosphere in which all the material was presented, for myself, less pressure and less formality equals increased learning and enjoyment.

STATEMENT:

I wish ...

RESPONSES:

- there could have been more discussions among groups because it's valuable to all and to be able to switch our modes around;

- everyone would have had a more equal time to voice opinion;

- that I could have learned about the material upon entering the college like my initial semester, could have benefitted my marks perhaps, maybe this material could have been fitted into College Success 101 or Reading 035?;

- again, a concentrated effort over a couple of days I think would have been preferable.

STATEMENT:

4. I wish we had done more ...

RESPONSES:

- practical examples of conflicts which can occur in classrooms due to clash of learning styles of pupil/teacher;

- work in our minor modes, I think this would have been extremely valuable to each individual, these minor modes need to be practised so we can apply that mode when required because all instructors are different and look for different methods, for example, Chem and English;

- a little more on how to correct our minor mode;

- sessions with a larger group of say approximately 20 persons with 4 or 5 to each group, could have been interesting to hear more people and how we interact;

- of our work on some of our work from school;

- practice in our minor modes, this is something which we can do on our own however.

STATEMENT:

5. I wish we had done less ...

RESPONSES:

- of session one - groups of each style writing on board of what we like/dislike about our classrooms, we didn't seem to get the point of what was supposed to be brought out until we were done, it seemed to be more of a "whining" session on our part;

- I feel this question doesn't apply, the reason being that more time and more sessions were needed;

- in our major mode;

- there can be no less but I sure wish we had more;

- nothing that I can think of;

- no

STATEMENT:

6. If I had to sum up my feelings about the way this course went, I would say ...

RESPONSES:

- needs more time, I now know what we are looking for and how to apply it, the first session was not clear what was expected and how to apply principles;

- I am pleased with the overall sessions, they were informative and helped me to understand more about my particular learning style, I believe that these sessions will be a positive influence to my future post-secondary years, it was an enjoyable experience;

- it went very well, the instructor received what was needed as well as the students. They learned more about themselves good and bad and how to fix the bad;

- I would have been willing to pay up to $10.00 to receive the full package of the sessions, I enjoyed it and I will attempt to implement any recommendations that the presenter feels that may benefit me;

- good luck Natalie, I found this to be insightful and I believe that knowing our own learning style as well as those of our instructors that we can benefit from what and how they expect things to be done;

- I learned something about myself (and others) that I can possibly use to my advantage in the way that I see things and the way in which I learn. This can be a valuable tool in the learning process and in understanding myself as well as others. Very enjoyable and informative - thank you!!

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APPENDIX G

SUPPLEMENTARY EXERCISES FOR SESSION THREE

APPENDIX G

Supplementary Exercises for Session Three

After discussing Session Three with one of the participants, I developed these exercises enabling students to practice thinking in another mode besides their major one.

Exercises to help "think" empirically.

1. List step by step how coffee is made. Then test it out to see if you've missed any steps.

2. The toaster is broken. Take it apart and determine what is wrong.

3. Which of the pictures is different?

4. Find Waldo.

5. Write up a lab procedure to determine the answer to the following three questions:
   How many moles are in one piece of chalk?
   How many molecules of chalk are "squished" when you write your name on the board?
   How many moles are in one sugar cube?
   How many molecules of sugar do you use in a cup of coffee? (if you don't use sugar or drink coffee, assume the use of two cubes in a cup).

6. Learn to knit from the instructions in a book.

Exercises to help "think" rationally.

1. Determine the next number in the series:
   1, 1, 2, 4, 3, 9 ......
   50, 26, 14, 8 ......

2. Use questions from the game "Mindtrap".

3. Bill and Jane, Charlie and Francis, Frank and Carol, and Jim and Mary were all college sweethearts. Bill was engaged to Jane, but ended up with the woman who later became a model. Francis became a computer technician and married a college president who was not her college sweetheart. Who married Carol?

4. Give three reasons why Quebec should not separate and supply logical arguments for these reasons.

Exercises to help "think" noetically.

1. Write three words that mean the same as happy.

2. Write a story about an incident from childhood. Describe the location in which it occurred. What time of year was it? Describe the weather and scenery. How many people were involved? Describe them. What were your feelings during this incident?

3. "The snow fell on the trees." Add adjectives and adverbs to make this a more descriptive sentence.