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Critical Thinking Dispositions: The Need for a Balanced Curriculum in Collegiate Critical Thinking Courses

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CRITICAL THINKING DISPOSITIONS: THE NEED FOR A BALANCED
CURRICULUM IN COLLEGIATE CRITICAL THINKING COURSES

A Synthesis Project Presented

by

BASYE E. HENDRIX

Submitted to the Office of Graduate Studies, University of Massachusetts Boston,
in partial fulfillment of the requirements for the degree of

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June 1999

Critical and Creative Thinking Program

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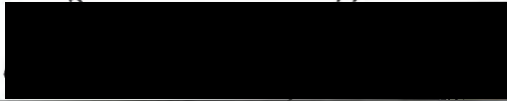BASYE E. HENDRIX

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ABSTRACT

CRITICAL THINKING DISPOSITIONS: THE NEED FOR A BALANCED
CURRICULUM IN COLLEGIATE CRITICAL THINKING COURSES

June 1999

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Directed by Associate Professor Arthur Millman

The aim of this synthesis is to argue that students cannot become effective

thinkers simply by being taught the analytical skills of critical reading, writing, and

thinking. Without learning the necessary dispositions of critical thinking students will

not develop into well-rounded, effective thinkers. The study is focused on an already

existing course at Mass Bay Community College. The present curriculum is based on the

fundamental skills of determining the soundness and validity of an argument. Assisting

and encouraging the obtainment of critical thinking dispositions will inspire students to

become more aware of the role their listening and communicating skills and behaviors

have on their ability to think effectively. As Kirby and Goodpaster assert, "We have

become what we have thought about and who we will become is limited by how and what

we think"(5).

Dispositions are "inclinations and habits of mind that benefit productive

thinking"(Tishman, Perkins, and Jay 1995, 37). Being open-minded, deferring judgment,

listening to multiple perspectives, and having intellectual humility and intellectual

curiosity are a few thinking dispositions that are presented in the discussion as well as in

the proposed curriculum. Ennis, Paul, Tishman et al, all support the incorporation of thinking dispositions into critical thinking course curriculums.

The curriculum presented in this synthesis is designed to engage students in thoughtful exploratory activities to help foster and cultivate dispositions required for effective thinking. The lesson plans are created with the intention of reinforcing students' tendencies to transfer knowledge, utilize metacognitive strategies, and practice applying thinking dispositions in various scenarios and exercises. The curriculum utilizes critical thinking dispositions and incorporates the enhancement of listening, communicating, and behavioral skills. Each lesson includes a description of dispositions to be explored; an activity to encourage the fostering of those dispositions; goals and objectives; and attention to mental management and transfer of skills. The objective of incorporating nineteen dispositions into a pre-existing critical thinking curriculum is to help freshman college students become reasonable, reflective, and focused thinkers and decision-makers.

TABLE OF CONTENTS

FIGURES

No matter who or what made
you what you have become,
that doesn't release you from
the responsibility of making
yourself over into what you
ought to be.

Ashley Montagu (Conny 1992, 46)

CHAPTER 1

ABILITIES, SKILLS, AND DISPOSITIONS

A pupil from whom nothing is ever demanded which he cannot do,
never does all he can
John Stuart Mill (Millman 1992, 14)

Introduction

In this application, abilities are being defined as our innate natural talents. An

ability "is the quality of being able to do something: physical [and/or] mental..." (Morris

1981, 380). Skills are potential abilities that need to be taught or somehow learned to

become part of our natural repertoire of abilities. Dispositions are "tendencies or

inclinations, especially when habitual" (Morris 1981, 380). Dispositions address areas of

people's temperament, character, personality, and nature. For example, some babies are

described as having happy or timid dispositions. A fragile glass can have the tendency to

break easily. A person can be inclined to loyalty when a important issue arises. There

are also different classifications of dispositions. Some of these are competitive

dispositions, moral dispositions, and thinking dispositions. Tishman, Jay, and Perkins,

authorities on critical thinking at the Harvard Graduate School of Education and leaders

of Project Zero, specifically define the thinking dispositions. They claim that, "thinking

dispositions are abiding tendencies toward distinct patterns of thinking behaviors"

(Tishman et al. 1995, 39). Dispositions are similar to skills because they can be

alteration in one's character.

Cross Training: Abilities, Skills, and Dispositions

In sports, athletes utilize cross training methods to help them develop in other areas, results which could not be obtained from competing in a specialized sport. As a certified professional tennis instructor and top ranked competitor for over eighteen years, I am well informed of the complexity and arduous task of becoming an elite player. Tennis, for example, is predominately an anaerobic sport. The problem for many players is that the match can last anywhere from one to five hours. Hence, one of the imperatives for these professional athletes is to develop a strong aerobic foundation. This aerobic foundation will build up the necessary cardiovascular capacity allowing them to maintain peak performance for a longer period of time. Merely playing tennis matches will not adequately build up the necessary aerobic foundation. That is where cross training comes into play. Running, swimming, and/or biking forty-five minutes, three to five times a week are types of physical cross training methods utilized by tennis professionals. These athletes know that to obtain optimal performance they need to gain control of other faculties besides innate talent and finely tuned technical skills. Likewise, enhancing other disciplines such as one's mental and/or emotional competence proves to be the key factor in a lot of players' success (Loehr 1986). For example, professional tennis players might become involved in meditation, imagery and/or visualization, martial arts, or yoga as a way of cross training to enhance their mental dispositions and skills. All of these activities improve a player's ability to stay focused and to clear excessive and unwanted thoughts. These types of cross training can help cultivate the dispositions of mental

perseverance, discipline, and resilience.

Teaching only the analytical skills of critical thinking is analogous to teaching a tennis student only the technical skills of stroke production. Without developing the necessary mental and emotional skills and dispositions involved in competition, especially for adverse situations, students will not be able to reach an optimal performance level. The problematic concerns come into focus when we are faced with the issue of deciding what to believe or not to believe based on evidence. Merely learning how to objectively evaluate the soundness and validity of an argument is not enough.

I claim that becoming an effective thinker is like becoming a professional athlete. It is unlikely for an athlete, even a gifted, innately talented athlete to learn only the technical skills, and not need to improve upon the mental and emotional factors involved in competition. On the contrary, it is the professional athletes who practice the hardest and longest and draw upon many areas to improve their performance. These athletes know the value and need of continued, focused, and diverse practice. They operate under a system of: learn, incorporate, make it your own, practice to keep it, and cross train. When first learning a new skill, you might be able to execute the appropriate skill, but this does not imply that you own the skill. Owning a tennis skill means the skill becomes logged into a person's muscle memory and you no longer have to think to make the skill happen properly. However, even though the skill is now logged in, a player must continue to practice the skill to keep it functioning at a high performance level. Moreover, at this high performance level owning the skill itself is not enough.

Cross training and enhancing other areas besides mechanics are necessary for

peak performance. To further illustrate the notion of abilities, skills, and dispositions it is important to recognize the work of the well-known psychologist Abraham Maslow. His conception of the learning process depicts a natural progression people will go through during the transformation of learning a new skill (see figure 1). Maslow contends that the learning process begins with people being unaware of the abilities and skills they lack. Once becoming engaged in the learning process, the next stage of learning will advance them to a heightened level of awareness. This typically can be an unpleasant stage. In this stage people become cognizant of the skills and knowledge they are lacking. The famous adage "ignorance is bliss," is appropriate in this situation. You might not have been doing something well before, but you might have been happier not knowing what was wrong. Entering into the stage of awareness does not improve the problem, but enables you to be alerted to the issue so you can proceed to improve upon whatever the concern may be. It is not always pleasant to be consciously aware of what you lack in skills or do not know. Many people when they reach this stage prefer to go back to their old, less effective ways, just to avoid the anguish. However, for some this awareness stage can be the motivating factor to encourage them to pursue further instruction.

Another critical factor at this stage is the style of instruction. Since people are vulnerable in this stage, it is important for teachers to create a safe learning environment and adapt to the needs of the various learning styles. (This will be discussed in more detail in chapter four.) It is at this stage that suitable dispositions need to be developed along with the technical skills. Skills can fall by the wayside if the appropriate dispositions have not also been developed. For example, if a person is not inclined to persevere in adverse situations, when he gives up mentally, this will have a negative

effect on the performance of his skills. It is hard to execute a technically great forehand when you have mentally, physically, or emotionally given up.

The third stage can be just as arduous as the second, but for different reasons. This is the stage of conscious competence. Even though on the plus side you have become competent at the new skills or new use of knowledge, it still requires constant mental attention. Many people dislike this stage because it feels forced, fake, and unnatural. Moreover, a change or loss in focus can nullify a person's competence at this level. This is also a vulnerable stage because the skill or knowledge is not locked in and can be lost or at least have a set back. Again, dispositions such as perseverance, humility, compassion, and acceptance can help people prevail in adverse situations.

Maslow's final stage represents the essence of true learning. Here people are unconsciously competent at what they are doing. It is similar to the first stage in that it all relies on instinctive responses. The big difference is those responses are greatly improved. There still exists a caveat to this stage -- disempowering dispositions can inhibit and interfere with a person's performance even if the skills have become automatic. Great athletes and coaches can all recall examples of seeing a player of great skills and natural talents fail due to disempowering mental or emotional dispositions. This is why the cultivation of effective, empowering dispositions is so crucial to the learning of new skills and knowledge.

UNCONSCIOUSLY NOT COMPETENT	CONSCIOUSLY NOT COMPETENT
DON'T EVEN KNOW WHAT I DON'T KNOW HOW TO DO	AWARE I DON'T KNOW HOW TO DO IT
CONSCIOUSLY COMPETENT	UNCONSCIOUSLY COMPETENT
AWARE OF HOW TO DO IT, THINKING ABOUT IT STEP BY STEP	DO IT "AUTOMATICALLY", WITHOUT HAVING TO THINK ABOUT IT

Figure 1 Maslow's Learning Process

Most athletes, coaches, and parents agree -- successful tennis players are determined by their skills, abilities, and competitive dispositions. If a player lacks a necessary ability/talent the skill can be learned through effective teaching and training. However, if a player has a block or even lacks a necessary competitive disposition then this becomes a determining factor for the player's success. Unfortunately, most athletes, coaches, and parents also agree that peoples' dispositions are unchangeable. Ergo, the cultivation of mental and emotional dispositions is generally ignored. There are also too many problems associated with attempting to cultivate more effective dispositions. First, people may not be aware of strategies to develop them. Second, utilizing strategies to develop dispositions is time-consuming and takes away from teaching stroke development. Third, there is no guarantee that the time spent cultivating dispositions will pay off.

Too many times I have heard comments like, "Bobby's always been judgmental and makes quick decisions that are not thought out, but that's just who he is." Comments like the one above support a philosophy known as determinism. The belief of this

philosophy is as follows -- you are determined by your genes, race, culture, nationality, and society in which you are raised and you do not have free will to change who you are, or who you are to become. Those innate attitudes and dispositions are unchangeable. For example, being raised in "The South" are you fated to be closed-minded and prejudiced against other nationalities because of the heritage passed on by southerners and not capable of developing the disposition of open-mindedness? Likewise, are astrologers correct in diagnosing a person to be stubborn for the rest of his life because of the way the stars and planets were lined-up when he was born? However, this type of labeling and stereotyping may sound outrageous to some and believable to others. But could a large number of people born in the same month or born in the same cultural background possess the same positive or negative dispositions?

The philosophical views of the Rationalist, Existentialist, Libertarian, and the adherent of Western Religions argue against the views of Determinism (Velasquez 1997, 73-296). They believe we have free will. Having free will would enable moody or close-minded people to alter and/or adapt more effective dispositions if they wanted to change. The issue here is not whether a person could alter and/or adapt more effective dispositions, but how could a person develop improved dispositions?

If we do have free will then people lacking effective thinking dispositions are like people lacking certain skills. Equivalent to skills, dispositions can be developed if they are not already a natural ability. The techniques of developing skills and dispositions are different. Skills can be taught directly, where dispositions must be cultivated through experiential activities. But the results are the same. Referring back to Maslow's chart of the "Learning Process," once a skill or disposition reaches the fourth stage of learning it

has become a natural talent -- an ability.

Tishman, Perkins, and Jay, likewise support this claim by stating, "abilities and skills alone cannot fully account for human performance. Simply having an ability does not guarantee that one will use it and use it well" (1995, 37). "Human performance," Tishman, Perkins, and Jay explain, "is comprised of abilities plus dispositions" (1995, 38). Top athletes normally possess similar abilities and skills. The elite professional athletes who are the most successful also possess the necessary dispositions to perform at a level above that of the others. Regardless of whether these dispositions are innate or have been acquired through training, sports psychologists like Jim Loehr would agree that it is the dispositions of a player that make the greatest difference. Loehr, whose expertise is predominantly focused on training professional golf and tennis competitors to be mentally tough, addresses several thinking dispositions in Mental Toughness Training For Sports. These dispositions include being mentally focused, disciplined, resilient, patient, and self-aware.

To become an effective thinker requires a similar cross training. Cross training occurs when you incorporate skills and dispositions other than the analytical skills of critical thinking to broaden and balance your effective thinking capabilities. The skills of learning to be an effective listener and communicator are also key components in becoming an effective thinker. (This point is reviewed in more detail in chapter four.) "Balance" in this application refers to the ability to maintain mental and emotional equilibrium. The terminology of "dispositions" is adapted from leading authorities in critical thinking. Tishman et al., posit, "in general, dispositions represent a person's tendency to use his or her abilities in particular ways and directions" (1995, 38). They go

beyond that to describe dispositions as "inclinations and habit of mind that benefit productive thinking [and] ...abiding tendencies in thinking behavior exhibited over time across diverse thinking situations"(1995, 37). Robert Ennis, author and professor of Critical Thinking at the University of Illinois, goes so far as to suggest, "you might also call them [dispositions] virtues" (1996, xviii). Likewise, in comparison to human performance Tishman et al, hold that "thinking is a human endeavor that involves abilities and dispositions [and] ...simply having the ability to think does not mean that one will do it well, or even do it much at all" (1995, 38). Just as a professional athlete would need dispositions to be proficient, an effective thinker must likewise cultivate instrumental thinking dispositions. Being open-minded, deferring judgment, listening to multiple perspectives, having intellectual humility and intellectual curiosity are a few of the favorable thinking dispositions that can enhance students' thinking capabilities. This notion is also supported by Ennis. He contends, "even if you develop all sorts of high-powered skills and abilities, if you do not care about this, then your prowess will probably be wasted. When facing a real situation you must combine these abilities and dispositions..." (1996, xviii).

These views support my theory that simply being adept at the analytical thinking skills is not enough to guarantee effective thinking and can even throw you off balance. Likewise, only cultivating analytical thinking dispositions can limit students' thinking capabilities. For instance, becoming too objective and skeptical can hinder a student's full comprehension of a situation. Even though these are good thinking dispositions students should also include compassionate thinking dispositions, like intellectual empathy, intellectual humility, and fair-mindedness. These dispositions can help a

student fully grasp not only the logical part of an argument, but also the human emotional component of caring and understanding. Unfortunately, as Tishman et al., conclude,

> Most efforts to teach thinking aim at cultivating thinking skills. Students are taught strategies designed to boost the abilities side of thinking. Unfortunately, students often fail to use the thinking skills they are taught. What can be done to develop the inclination and habit of using thinking skills effectively? One way is through an approach to teaching thinking that stresses the dispositional as well as the abilities side of thinking (1995, 38).

Overview of Synthesis

What is needed is a course designed to help monitor, challenge, and improve students' ability to be deeply involved with and use their learning, thinking, behaving, and communicating skills. A comprehensive course in critical thinking that fosters the cultivation of critical thinking skills and dispositions can meet these needs. The course can be engineered to help students learn to steer away from impulsive attempts to make decisions and jump to quick conclusions. Students can engage in thoughtful exploratory activities to help them develop dispositions required for effective thinking. Developing natural tendencies to defer judgment, transfer knowledge, consider multiple perspectives, understand biases, and conceptual frames of reference will help freshman college students to become reasonable, reflective, focused thinkers and decision-makers.

For added clarification a thorough description of critical thinking and what it means to become a critical thinker are some of the highlights presented in chapter two. A review of why students would benefit from taking a course in critical thinking along with the problems associated with teaching and learning critical thinking are also discussed in this chapter. The chapter concludes with an exploration of the relationship existing between critical thinking, autonomy, and philosophical thinking.

Chapter three introduces the theories and applications of thinking dispositions in the curriculum and the classroom. This chapter also presents explanations of mental management/metacognition and teaching for transfer and why these factors help cultivate thinking dispositions. The focus of chapter four is structured around the concepts and theories of effective learning and thinking, along with factors that hinder students' learning and thinking capabilities. Three lessons are presented in chapter five to help the readers and teachers gain a better grasp of how lesson plans can be designed to further a student's acquisition of thinking dispositions.

A discussion of the synthesis along with an exploration of the future implications of incorporating new lesson plans to be included in a pre-existing critical thinking curriculum is summarized in chapter six. The discussion will conclude with the assertion that Freshmen College students deserve more than rote information. They should be entitled to learn and think about knowledge and information in a way that maximize their ability to transfer and connect to information so it would be applicable to their lives. Finally, future implications of incorporating these concepts and theories into a pre-existing critical thinking course will be evaluated. For added clarification appendices composed of a glossary of terms, learning style surveys, additional lesson plans, and curriculum handouts will help those who desire further information.

CHAPTER 2

CRITICAL THINKING: CONCEPTS AND THEORIES

The important thing is this:
To be ready at any moment to sacrifice what you are
for what you could become
Charles Dubois (Millman 1991, 1)

Introduction

The ideas presented in this chapter focus on the concepts and theories of critical

thinking. The highlights of this section include a comprehensive examination of the

meaning of critical thinking, the difference between analytical thinking skills and thinking

dispositions, and the art of becoming a critical thinker. Additionally, evidence is provided

to support the need for courses in critical thinking, along with the problems of only

teaching the technical skills of critical thinking. Finally, philosophical thinking theories are

reviewed as well as the relationship between critical thinking and autonomy.

Becoming a Critical Thinker

There is a difference between teaching students critical thinking skills and teaching

students to become critical thinkers. Stephen Norris and Robert Ennis sum it up best

when they posit,

> To become a critical thinker implies a transformation of character
> that falls clearly within the ideals of Western education: critical thinkers are
> autonomous decision-makers, open-minded to the fallibility of their own
> views and to the value of other's views and creative in the formulation of
> ideas (1989, 176).

Norris and Ennis are both university professors, authors and seminar speakers on critical and creative thinking. Even though they state that a transformation of character happens when you become a critical thinker, both of their texts are primarily based on teaching only the analytical reasoning skills. I firmly support the view that skill development is essential in developing a critical thinker. However, my argument is that teaching only skills and abilities will not produce a major character change (Tishman et al. 1995; Paul, 1993). Instead, it is the combination of abilities, skills, and dispositions that will foster a major character change (Tishman et al., 1995; Paul, 1993). Well-rounded students need to develop not only in the area of improving their reasoning abilities, but also in the "explicit discussion of and reflection on their own dispositions" (Tishman, et al. 1995, 40). Education should not be based on developing dispassionate, unthinking adults. A well-rounded thinker needs to be capable of effective thinking, feeling, and acting.

What is Critical Thinking?

According to Ennis, critical thinking is "reasonable and reflective thinking that is focused upon deciding what to believe or do" (1996, 396). In Evaluating Critical Thinking Norris and Ennis go a step further and clarify their terms by defining "reasonable" as the action of using "good reasons in reaching conclusions" (Norris & Ennis 1989, 3). "Reflective" is defined as an "examination of the reasonableness of your own and others' thoughts" (Norris & Ennis 1989, 3). Basically, this implies that students need to learn to be aware and conscious of the intent behind what they and others are saying and believing. Norris and Ennis also define the word "focused" to refer to the

person's ability to stay on track, so his reasons continue to provide support for his conclusion. "Reasons" in this context refers to evidence a person presents to support his conclusion. Evidence can be presented in the form of statistical knowledge from a research study, an appeal to an authority, an analogy, a personal observation, testimony, or intuition. It is vital to note that not all evidence is good. It is common to find fallacies (errors in reasoning) and irrelevant reasons included in an argument or a persuasive speech. According to Norris and Ennis, by utilizing the thinking skills of being reasonable, reflective, and focused a person will be able to make well-informed decisions.

A section of Richard Paul's definition of critical thinking emphasizes the role of dispositions as part of what it means to be a critical thinker. Paul, being an international leader in the Critical Thinking Movement and Director of the Center for Critical Thinking provides advanced knowledge in this field. He claims, critical thinking is "a unique kind of purposeful thinking in which the thinker systematically and habitually actively develops traits such as intellectual integrity, intellectual humility, fair-mindedness, intellectual empathy, and intellectual courage" (1993, 21).

Who Are Critical Thinkers?

"Good thinkers are disposed to explore, to question, to probe new areas, to seek clarity, to think critically and carefully, to consider different perspectives, to organize their thinking and so on" (Tishman et al. 1995, 40). Similarly, Richard Paul contends that critical thinkers are

> ...able to consider the strengths and weaknesses of opposing points
> of view; to imaginatively put ourselves in the place of others in order to
> genuinely understand them; to overcome our egocentric tendency to

person's ability to stay on track, so his reasons continue to provide support for his conclusion. "Reasons" in this context refers to evidence a person presents to support his conclusion. Evidence can be presented in the form of statistical knowledge from a research study, an appeal to an authority, an analogy, a personal observation, testimony, or intuition. It is vital to note that not all evidence is good. It is common to find fallacies (errors in reasoning) and irrelevant reasons included in an argument or a persuasive speech. According to Norris and Ennis, by utilizing the thinking skills of being reasonable, reflective, and focused a person will be able to make well-informed decisions.

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> ...able to consider the strengths and weaknesses of opposing points of view; to imaginatively put ourselves in the place of others in order to genuinely understand them; to overcome our egocentric tendency to

identify truth with our immediate perceptions or long-standing thought or belief (1993, 404).

Paul states, "understanding oneself is the first step toward self-control and self-improvement. This self-understanding requires that we understand our feelings and emotions in relation to our thoughts, ideas, and interpretations of the world" (1993, 406). Paul also suggests,

> Critical thinkers are people who are involved with the purpose of their thinking; they analyze the precise question that they are trying to answer; they understand the conceptual framework their thinking is based on; they are aware of the interpretations created in their minds with regard to the information they receive; they are cautious about assumptions and implications they are drawing; and finally they are concerned with the consequences of their thoughts and actions (1993, 22).

Why Students Need a Course in Critical Thinking

There would be no complexity to applying these skills if reasons and conclusions were based on solid, universal, unchanging facts. However, the need for critical thinking exists because the majority of conclusions are merely based on evidence. Another problem is that we have to contend with emotions, habits, and unanalyzed thoughts. Paul suggests, "we have to recognize, as every sociologist since William Graham Sumner has pointed out, that most human behavior is a result of unanalyzed habit and routine based on unconsciously held standards and values" (1993, 311). Walters contributes additional support for structuring a course in critical thinking to include thinking dispositions as well as the analytical skills of critical thinking. He asserts,

> Instruction in thinking skills should do not only improve a student's ability to fairly and reasonably investigate knowledge claims and arguments. It should also provide the student with strategies for personal emancipation from biases and predispositions that blinker her thinking. It should encourage in her a sense of wonderment and curiosity that prompts her to explore both her own fundamental beliefs and the (often opposing)

fundamental beliefs of others. And it should serve, in some small way, as a vehicle for her personal enlightenment (1994, 177).

Furthermore, to complicate the simple learning of logic there is the problem of everyone having their own conceptual frame of reference. Warren defines this frame of reference as, "...a set of basic beliefs, values, attitudes, and assumptions which explain, shape, and reflect our view of ourselves and our world" (Warren, K. 1994, 156). She further clarifies by stating, "...these frameworks are influenced by such factors as sex/gender, class, race/ethnicity, age, affectional preference, and nationality" (Warren, K. 1994, 156). Unfortunately, these frames of reference keep people from being unbiased. To be unbiased is impossible. People cannot help but see the world and hear information based on their own background knowledge. Therefore, it is important even as critical thinkers to conceptualize the realm of bias in our life and understand how our biased frames of reference affect the way we think and affect the way we view the world. Psychologists Arthur Freeman and Rose DeWolf conclude, "we grow up believing that our own particular schema is correct and 'the way things are,' but just because you believe something does not mean it's true" (1992, 16). Ellen Langer, Psychology Professor at Harvard University likewise concurs with DeWolf. She surmises, "People get stuck in the mind set of ideas like, "That's just how I am," "That's just how it is," "There's nothing I can do about it." To show how complex the issues of thinking, acting, and listening are, Langer posits, "if something is presented as an accepted truth, alternative ways of thinking do not even come up for consideration" (Langer 1989, 35). She takes this concept further by saying, "if we think we know how to handle a situation, we don't feel a need to pay attention" (1989, 34).

Other thinking problems are recognized by Tishman et al., in their classification of three thinking pitfalls (1995, 68-69). The "before thinking" pitfall is where students lack adequate mental preparation. Encouraging and developing a disposition that Paul refers to as intellectual discipline could rectify this difficulty. Developing a habit to clear other thoughts that would diffuse or distract students' ability to stay focused in the present could eliminate this thinking pitfall. The second pitfall, referred to as the "during thinking" pitfall occurs when students need to "monitor how their thinking is going." The ideal thinking state is not easy to maintain. Zoning (also referred to as the flow state) is the optimal state for thinking but it requires total immersion into a project and the slightest external thought or interference can banish the natural flow of thoughts. Typically, a good thinker realizes the ups and downs of concentration and has established suitable dispositions to manage the inconsistencies of focused thinking. Intellectual perseverance is an important disposition that Paul recommends. He describes intellectual perseverance as a "willingness and consciousness of the need to pursue intellectual insights and truths despite difficulties, obstacles, and frustrations; firm adherence to rational principles despite irrational opposition of others; a sense of the need to struggle with confusion and unsettled questions over an extended period of time in order to achieve deeper understanding or insight" (1993, 472).

Last, the "after thinking" pitfall occurs when students neglect to spend time reflecting on the direction and outcomes of their thinking. More time should be allotted to help cultivate the habit of "reevaluat[ing] the appropriateness of their goals and standards, and thoughtfully reflecting on ways to improve their thinking in the future" (Tishman et al. 1995, 69). As Kirby and Goodpaster claim, "We have become what we

have thought about and who we will become is limited by how and what we think" (1999, 5). This is an interpretation of Wittgenstein's adage, "The limits of my language are the limits of my life." (Kirby & Goodpaster 1999, 5). What is crucial to gain from these authorities is the need to be careful with the thinking habits which students are consciously or subconsciously developing.

The inclusion of both the technical skills as well as the dispositions of a critical thinker can not only improve students' thinking, but can also help them become effective thinkers. Offering students the opportunity to explore divergent questions and engage in discovery learning could optimize academic success for students. For example, students should be encouraged to evaluate whether they need knowledge to think and whether they need to know how to think to be able to understand. Discovering their answers to these types of questions could help give meaning to their educational pursuits. Students would benefit more from college if they acquired a more global picture of what knowledge can and cannot do for them. Then they can become responsible for their decisions, choices, and actions and become more capable of dealing with the consequences. Making good decisions makes us feel good about ourselves. To make good decisions we need to think for ourselves and to feel empowered by our conscious actions.

Analytical Critical Thinking Skills

The technical skills of critical thinking help the minds of students become more objective so they can distinguish between justified claims or beliefs. Below is a detailed description of the critical thinking skills imparted in the pre-existing critical thinking course at Mass Bay Community College.

Evaluating the Accuracy of Statistical Information: This involves questioning the validity of statistics to accurately assess whether the numbers represent knowable information, and questioning whether there is any omitted information, or possible biased information in the statistics.

Credibility of Sources: This requires a critical thinker to analyze authorities' expertise in the field and judge whether the credentials of authorities are sufficient for the claim. It is also vital to examine any possible bias the source might have concerning the issue.

Judging the Quality and Type of Evidence: This involves determining the strength of the evidence based on the type and quality of evidence presented. Types of evidence include research studies, case studies, appeals to authority, analogies, personal observations, testimonies, and intuition. This evidence is to be evaluated to judge the soundness and validity of the information.

Locating Errors in Reasoning: This includes checking for fallacies being masked as sound reasoning.

Clarification of Ambiguous Terms: This involves identifying potential ambiguity in the supporting reasons and in the conclusion where the multiple interpretations of the words or phrases could significantly alter the claim being presented.

Comprehension of Underlying Assumptions: This includes acknowledging the author's descriptive assumptions implying how he views the present situation. Assumptions can also imply value preferences to describe the way the author believes the world should be according to his conclusion/claim.

Examination of Other Possible Conclusions and Rival Causes: This involves recognizing other causes why the author's conclusion or reasons could be true besides the reasons he submitted and investigating other conclusions that could also be supported by the reasons conveyed.

Questioning Possible Omitted Information: This involves carefully examining what information was left out and why it was omitted, whether it was done intentionally to make the argument appear stronger than it actually is.

Supporting Your Point of View: When presenting your own argument towards another person's claim, critical thinkers will utilize the skills listed above to support their conclusion. For example, critical thinkers will challenge another person's argument by disputing the abundance of ambiguous terms, faulty or irrelevant reasoning, fallacies being disguised as sound reasoning, omitted information, rival causes, other possible conclusions, and deceptive statistics.

Problems of Teaching Only the Analytical Skills of Critical Thinking

The primary goal of teaching logical thinking to students is to have them become objective enough so that they can distinguish the difference between justified and unjustified claims or beliefs. However, students deserve more than rote information. Critical thinking teachers need to do more than deliver concepts and information about the necessary skills and strategies of critical thinking. This background knowledge is a major stepping stone for students, but without the cultivation of necessary critical thinking dispositions students will not fully become critical thinkers (Norris & Ennis 1989; Paul 1993; Tishman et al. 1995). Students should be entitled to learn and think

about knowledge and information in a way that maximizes their ability to transfer and connect to information so it would be applicable to a myriad of situations in their lives.

A well-rounded thinker needs to be capable of effective thinking, feeling, and acting. It is the effective application of listening, communicating, decision-making, and behaving that needs to come together to form a well-rounded thinker. Healthy people are mature, balanced, and autonomous because they think, feel, and act (Molton 1993). Those who shut off the functions of thinking and acting and base their life only on feelings tend to be very depressed. On the other hand, when only thinking is shut off and the person acts on feelings without much thought for the consequences of his actions this raises the person's anxiety level. Conversely, to shut off feelings and to only think and act can lead to boredom or depression. Unfortunately, such a person ends up with no emotional investment of his own. Conversely, to shut off acting where a person is left to only feel and think leads to frustration and inner conflict. This person can become immobilized by struggles and a complexity of values (Molton 1993). A viable solution is to teach students in a way that accentuates the three areas of thinking, communicating, and behaving.

The Relationship Between Critical Thinking and Autonomy

Designing a course to fully enhance skills and qualities of being an effective thinker will further students' attainment of autonomy. A college dedicated to the development of a well-rounded student would support students' achievement of autonomy and encourage courses that focused on its advancement. Gaining more autonomy as a learner will strengthen your abilities to learn. Robert M. Smith, author of

Helping Adults Learn How to Learn claims, "Learners gain increased control, confidence, and satisfaction in learning as they come to understand themselves, their learning processes, and the available educational systems" (1983, 1). Offering a course that depicts the important facets of critical thinking dispositions can likewise aid in the student's achievement of autonomy. A comprehensive course in critical thinking will help a student acquire the dispositions necessary to become an autonomous person. By autonomy, I am referring to peoples' ability to think for themselves, to make well-informed decisions, and to take responsibility for his actions and consequences. According to several psychologists in differing fields, autonomy is the key to living a healthy, functional life. The key to autonomy is the balance at being competent thinkers, feelers, and actors. In teaching the full scope of critical thinking we have a unique opportunity to reveal the essence of what it means to become an autonomous person. The key is to be more aware of what is going on and not be biased by your own cultural predispositions and expectations.

The Relationship Between Critical Thinking and Philosophical Thinking and Theories

There is a problem with exclusively teaching the analytical form of critical thinking is the same problem those feminists' voice about rationalist philosophy (Velasquez 1997, 108-113). The issue is this theory is solely reason based. Plato claimed, that one's spirit and appetite must be controlled by reason, whereas the feminists argue that perhaps one's emotions and desires should be given as much attention and respect as what is given to reason. If Plato was correct in his theory that reason alone is the key to attaining knowledge then it would be legitimate to teach only the analytical

skills of critical thinking. Obviously, if objective, logical thinking was the only means of acquiring reason and effective reasoning leads people to a life of ultimate happiness, then we would have to agree with Plato and design our educational curricula around these premises.

However, there is a disadvantage to becoming too much of a rationalist, like Plato, Socrates, and Aristotle and not being able to appreciate, develop, or utilize the qualities of empathy, fair-mindedness, imagination, or connected knowing. Interestingly, feminist Philosophers have argued this point incessantly. Delores Gallo, having received her doctorate degree at Harvard University and chairing the department of Critical and Creative Thinking at the University of Massachusetts Boston is a leading authority in understanding the value of thinking dispositions. She supports the notion that emotions and feelings have a significant place in regard to logical reasoning. She goes a step further to justify this belief by saying, "...the specific emotions, often called the altruistic emotions or empathy, may actually have a positive effect on reasoned judgment in a variety of contexts" (Gallo 1994, 44). There is a significant resemblance between my proposal for including critical thinking dispositions in a course predominately based on logic and reason, and a theory based on some of the philosophical feminists' views. These feminists claim that reason should not be the end all. Instead, there should be an equal and balanced relationship between the faculties of reason, emotions, and desires. They all should form a webbing network to reinforce and strengthen each other. Critical thinking dispositions address issues of emotions and desires. By incorporating these dispositions in a critical thinking course reason would no longer be at the top of the

hierarchy. Instead there would exist an appreciation for the benefits to be gain from the enhancement of reason, emotions, and desires, similar to the notion of the feminists.

Encouraging philosophical thinking is another method of reinforcing dispositions such as open-mindedness, listening to multiple perspectives, developing fair-mindedness, intellectual humility, and intellectual autonomy. Philosophical thinking offers students the opportunities to view and discuss multiple perspectives on an issue that has no right or conclusive answers. Having students explore and become engaged in their own philosophical discoveries can be extremely empowering. This type of thinking can help students to organize their own thoughts and beliefs while promoting the important ingredient of maintaining sound and valid reasoning. Philosophical thinking can encourage students to question their own beliefs and to evaluate the possible inaccuracies of those beliefs. Simple questions can be offered for consideration like: What is man's ultimate achievement or goal in life? What makes life worth living? The responses to these questions will stimulate and reveal a plethora of diverse beliefs, values, and expectations. Once a brainstorming session has been exhausted, the students will take a greater leap in philosophical thinking by utilizing critical thinking questions to activate deeper awareness of the truths of their beliefs, values, and expectations. Questions such as: How do you know? What evidence do you have? Where did the evidence come from? How reliable is the source? What makes it questionable? What makes it acceptable? These are just examples of how appropriate, divergent questions can influence the cultivation of many critical thinking dispositions.

CHAPTER 3

THINKING DISPOSITIONS

The real voyage of discovery consists not in seeking new landscapes,
but in having new eyes.
Marcel Proust (Millman 1991, 53)

Introduction

This chapter proceeds to describe the actual dispositions to be cultivated in the

curriculum as well as in the classroom. It is followed up by empirical support for the

incorporation of these thinking dispositions into an already existing collegiate critical

thinking course. A further discussion is presented of the importance and methods of

incorporating thinking dispositions into the curriculum. In addition, there is an

examination of why metacognition and teaching for transfer are paramount factors in the

cultivation of critical thinking dispositions.

Critical Thinking Dispositions

There are several thinking dispositions that have not been included in this list,

which does not minimize their virtues. However, I chose these dispositions because of

their applications to students' academic and personal lives. Likewise, for the sake of

brevity these are the dispositions most utilized in the proposed curriculum. The first

twelve dispositions have been obtain from Richard Paul (1993, 470-473).

Intellectual Autonomy: "Having rational control of ones' beliefs, values, and inferences."

Intellectual Civility: A process of "honoring others' views and their capacity to reason" as opposed to "verbally attacking others, dismissing them, or stereotyping their views

Intellectual Courage: "The willingness to face and fairly assess ideas, beliefs, or viewpoints to which we have not given a serious hearing, regardless of our strong negative reactions to them" (Paul 1993, 470).

Intellectual Curiosity: "A strong desire to deeply understand, to figure things out, to propose and assess useful and plausible hypotheses and explanations, to learn, to find out" (Paul 1993, 471).

Intellectual Discipline: "The trait of thinking in accordance with intellectual standards, intellectual rigor, carefulness, order, conscious control" (Paul 1993, 471).

Intellectual Empathy: "Understanding the need to imaginatively put oneself in the place of other to genuinely understand them." "...The ability to accurately reconstruct the viewpoints and reasoning of others and to reason from premises, assumptions, and ideas other than our own" (Paul 1993, 471).

Intellectual Humility: "Awareness of the limits of one's knowledge... Intellectual humility is based on the recognition that no one should claim more than he or she actually knows." It is the practice of eliminating "pretentiousness, boastfulness, or conceit" (Paul 1993, 471).

Intellectual Integrity: "Recognition of the need to be true to one's own thinking, to be consistent in the intellectual standards one applies, to hold oneself to the same rigorous standards of evidence and proof to which one holds one's antagonists, to practice what one advocates for others, and to honestly admit discrepancies and inconsistencies in one's own thought and action" (Paul 1993, 472).

Intellectual Perseverance: "Willingness and consciousness of the need to pursue intellectual insights and truths despite difficulties, obstacles, and frustrations; firm adherence to rational principles despite irrational opposition of others; a sense of the need to struggle with confusion and unsettled questions over an extended period of time in order to achieve deeper understanding or insight" (Paul 1993, 472).

Intellectual Responsibility: Having the inclination "to achieve a high degree of precision and accuracy in his or her reasoning, is deeply committed to gathering complete, relevant, adequate evidence, etc." (Paul 1993, 472).

Intellectual Sense of Justice: "Willingness and consciousness of the need to entertain all viewpoints sympathetically and to assess them with the same intellectual standards, without reference to one's own feelings or vested interests, or the feelings or vested interests of one's friends, community, or nation; implies adherence to intellectual standards without reference to one's own advantage or the advantage of one's group" (Paul 1993, 472).

Fair-mindedness:

1. A respect for people whose ethnicity's and traditions are different from our own,

2. A willingness to hear and understand other viewpoints, and

3. An openness to change when new information or insights warrants that change (Diestler 1998, 356-357).

The next three dispositions were obtained from Ennis (1987, 12).

Be open-minded:

      a. Consider seriously other points of view than one's own.

      b. Reason from premises with which one disagrees--without letting the
         disagreement interfere with one's own reasoning.

      c. Withhold judgment when the evidence and reasons are insufficient.

Take a position (and change a position) when the evidence and reasons are sufficient to do so.

Skeptical thinking: This style of thinking involves questioning the soundness and validity of claims, assumptions, and reasons.

Philosophical thinking: This type of thinking refers to having the inclination to search for deeper knowledge and wisdom

Awareness of bias: Consciousness of the conceptual framework our thoughts and beliefs are based on.

Desire for clarification: Is the inclination to hold back agreeing or disagreeing with a claim until an understanding of terminology is obtained. It also relates to being inclined to articulate clearly and specifically to avoid using ambiguous terms.

Empirical Support for Incorporating Dispositions into a Critical Thinking Curriculum

      Blythe McVicker Clinchy and Delores Gallo support the importance of teaching critical thinking dispositions. Clinchy, a professor of psychology at Wellesley College, stresses the notion of connected knowing to encourage understanding and believing as a method of analyzing an argument. She says that, "the connected knower believes that in order to understand what a person is saying one must adopt the person's own terms and

refrain from judgment" (Clinchy 1994, 39). In the technical style of argument analysis students are trained to look for what is wrong and to doubt what is being said instead of trying to understand the author's point of view. Gallo's position on encouraging empathy is another useful tool that fits well with Clinchy's theory. "Empathy," according to Gallo, "does not intensify emotional response; it broadens it" (Gallo 1994, 46). Her point is that in the beginning we should try to picture ourselves in the other person's situation, based on the other person's conceptual framework, and genuinely try to understand him. This should be followed by appropriate active listening techniques where we train the students to clarify what was being said to make sure that what they heard or read was what the speaker actually meant. By deferring your own opinions and clearing possible defensive thoughts regarding another person's claim, a person can hear information in a more open-minded manner. It is easier to hear information when you are trying to believe and understand than when you are attempting to defend against a claim.

Thomas Warren adds a new proposal in his belief that, "...the development of the capacity for true thinking, and not merely reasoning, is profoundly important and may even be the crucial condition for the development of individual moral consciousness" (1994, 221). His best summary states, "Reasoning is bent on measuring; thinking is a quest for meaning" (Warren, T 1994, 222). Incorporating lesson plans that generate the discovery and advancement of critical thinking dispositions can prompt a student's crusade and search for meaning.

Dispositions in the Curriculum

Dispositions can possibly be developed on one's own initiative but this can be a slow and tedious journey. As a tennis professional, I have concluded that the most advantageous way to learn is through trial and success. Trial and error only demonstrates what you should not do. Teachers who predominately focus on what their students did wrong or what they did not know are not as productive as those who are more positive in their approach. Students will enter a critical thinking course with an already established repertoire of habitual dispositions. Some of these dispositions will hinder the effectiveness of students' ability to think critically. Tishman et al., recommend the following advice.

> One way to combat existing dispositions is to get students' thinking dispositions, positive and negative, out on the table. Explicit discussion of and reflection on their own dispositions will help students take stock of their thinking. Rather than expecting students to adopt a new disposition whole-heartedly, it is helpful to first begin by getting students to experience the feeling of doing things in a way that is opposite their natural tendency. Then you can discuss the differences with them (1995, 62-64).

Critical thinking dispositions can help students learn to put aside their own thoughts, beliefs, and biases long enough to accept and truly hear what another person is saying. Moreover, these dispositions can aid in opening up other peoples' worlds to those who are accustomed to believing and seeing things in their own perspective. Dispositions can help produce a balance between the desire to be open and believing and the need to be skeptical and disbelieving. Being open-minded is a positive trait, but without balancing it with thoughtful questions and clarifications a student can turn into a chameleon with no well-informed thoughts of his own. Likewise, being inclined to only react in a skeptical and questioning manner can turn a person into a captious, self-

involved thinker. Furthermore, gaining awareness of potential bias and how it affects a person's thinking will also help students connect to the reasons why the limits of their knowledge can interfere with their thinking capabilities.

To improve the thinking dispositions of students, a change or alteration of character will most likely have to happen. In Introducing NLP Neuro-Linguistic Programming, O'Conner and Seymour introduce Robert Dilts's theory of six categories that affect the change of a person's character. The six categories are listed below in order of strength of the possible impact that change and learning can have.

1. Why am I here, what is my purpose?

2. Who am I, gaining a more accurate sense of self.

3. Analyzing beliefs and ideas we think are true.

4. Evaluating our capabilities in the general skills and strategies that we use in life.

5. Identifying the specific behavioral actions we carry out regardless of our capabilities.

6. Awareness of our responses and reactions to other people, situations, and the surrounding environment (O'Conner & Seymour 1993, 77-82).

By creating a change in category number one there will be a significant change in all of the categories, while a change in number six will not make a notable impact on changing a person's character. To design a curriculum to cultivate thinking dispositions this information should be recognized. The optimal goal would be to foster the awareness and change of students' purpose in life and in their personal identity.

Why Are Thinking Dispositions Important?

In considering whether to include dispositions in a pre-existing critical thinking course it is valuable to show their worth.

1. Dispositions are essential to putting good thinking into practice.

2. Teaching thinking dispositions will make students more aware of their own thinking patterns. Poor thinking habits, such as mindlessness or laziness, will override any specific thinking skills that are taught.

3. Teaching thinking dispositions will give students a better understanding of what good thinking is.

4. Teaching thinking dispositions will cultivate ongoing habits of good thinking in students (Tishman et al. 1995, 42-43).

Methods of Incorporating Thinking Dispositions into the Curriculum and the Classroom

Besides understanding the value and benefits of dispositions it is just as important to properly foster the acquisition of thinking dispositions. Below is a list of strategies that enable the teacher to further enhance students' attainment of thinking dispositions.

1. Model thinking dispositions

    a. Who are others who portray these dispositions?

    b. What changes would you have to make to portray these dispositions?

    c. What could be created to help students remember to utilize these dispositions?

2. Explain thinking dispositions, how they benefit thinking and when they come into play.

3. Encourage interaction.

4. Give feedback that is supportive of good thinking dispositions.

5. Encourage transfer of thinking dispositions (Tishman et al. 1995, 44).

Why is Mental Management/Metacognition Important For Developing Dispositions?

First, it is crucial to gain a clear understanding of what is meant by the terms mental management and metacognition. "Mental management is the activity of reflecting on and evaluating one's own thinking processes. Sometimes called metacognition, it is a key component of good thinking..." (Tishman et al.1995, 67). "Metacognition," according to Haller, Child, and Walberg "is generally used to refer to the awareness, monitoring and regulating of one's cognitive processes" (1988, 5).

Metacognition has also been defined (Reeve and Brown 1985; Brown et al. 1983; Flavell 1985) as the "awareness of one's own knowledge and the ability to understand, control and manipulate individual cognitive processes" (83). Finally, Osborn, Jones, and Stein have described metacognition as "individuals' knowledge of, and control over their own thinking and learning" (1985, 11). Below is a list of reasons for incorporating mental management into the curriculum (Tishman et al. 1995, 70).

1. Mental management cultivates cognitive resourcefulness. "What can I think of to do here?"

2. Mental management promotes responsible and independent thinkers, who acquire the inclination to set productive goals and standards through well-informed critical thinking.

3. Mental management fosters strategic thinking and planfulness. As educators know all too well, students are not automatically planful and strategic. It takes a special mental effort for students to think ahead and strategically plan how to tackle a thinking

challenge. Practicing mental management teaches students how and when to make this move.

4. Mental management is a learnable aspect of intelligence. "What research on intelligence shows is this: (Binet & Simon, 1950; Sternberg, 1985) How intelligently you think and act has a lot to do with how well you are able to monitor and reflect on your own thinking". They goes on to say "...metacognitive ability can be increased. Insofar as mental management is teachable, intelligence is learnable" (Tishman et al. 1995, 70).

Dispositions such as intellectual curiosity, intellectual discipline, intellectual integrity, fair-mindedness, philosophical thinking, awareness of bias, and being able to take a position and change a position is strongly involved with metacognition. Each of these dispositions requires the student to think about how he is thinking. For example, to be actively engaged in intellectual curiosity, students would try to deeply understand and to attempt to figure things out. Students would not only be involved with thinking about new ideas, but would also be absorbed in monitoring their past thoughts and knowledge, and making adjustments and adaptations as they processed new input.

Why is Teaching for Transfer Meaningful for the Cultivation of Dispositions?

Tishman explains the art of transfer from three different theories. First, "Transfer occurs whenever we carry over knowledge, skills, strategies, or dispositions from one context to another" (1995, 156). Tishman, Jay, and Perkins' notion of transfer derives from the work of psychologists Salomon and Perkins (1989). They spoke of transfer in the terms of "near transfer" and "far transfer." Tishman paraphrases that, "near transfer occurs when people apply what they have learned to a context rather similar to the

context of learning." Whereas "far transfer, in contrast, involves connecting up contexts that intuitively seem quite remote from one another" (1995, 158). Regardless of the type of transfer, any transfer is beneficial to heighten the connection and quality meaning-making for the student. Teaching mental management is just as indispensable as teaching for transfer.

Creating experiential activities to develop thinking dispositions will be enhanced when students employ the skills of transfer. Not only will it help them apply different dispositions to varied situations, it will also allow them extra practice using the dispositions. One key element in cultivating dispositions or any skill is continuous and focused practice. Like Maslow's learning process chart shows -- for anything to become part of peoples' natural repertoire they would have to get to the stage where the skill or disposition occurred instinctively, with no thought. Continuous and focused practice is the only method to guarantee the actualization of this final stage. Further understanding of the concepts and theories of learning will support the idea of cultivating thinking dispositions through awareness training, group participation, and experiential, reflective discovery.

CHAPTER 4

LEARNING AND THINKING: CONCEPTS AND THEORIES

There is a learner within you, able and confident,
waiting to function freely, usefully, and joyfully.
Marilyn Ferguson (Gross 1991, 37)

Introduction

The purpose of this chapter is to recognize what leading authorities in educational

psychology have discovered in the field of learning. Empirical support is reviewed and

emphasis is placed on students' learning styles, risks involved with learning, and the

importance of safe learning environments. The second section focuses on the factors that

hinder effective thinking. Lastly, the third section addresses problems college students

experience when faced with adverse learning situations. A comparison is made between

students who lack self-regulatory strategies and students who lack effective thinking

dispositions.

The Essence of True Learning

In the course "The Adult Learner" at the University of Massachusetts Boston,

Canice McGarry discussed the four key barriers to learning: dispositions, communications,

institutions, and situations. The institutional barriers revolve around policies, procedures,

and practices, while the situational barriers deal with factors surrounding a person's

lifestyle. These two potential barriers represent factors that offset a student's learning

capacity. For example, if a student needs day care to be provided for her child but it is not

the policy of the college to offer this service then her attention can end up being more

her child but it is not the policy of the college to offer this service then her attention can end up being more focused on the problems she has with the school's policy, instead of being focused on her schoolwork. Even though these are important learning barriers to address, I am limiting this discussion to the first two barriers, dispositions and communication. As mentioned earlier, students' lack of critical thinking dispositions can jeopardize their learning.

In addition, poor communication skills can inhibit students' learning and thinking capabilities. Paul argues that for true learning to occur the classroom should be structured "so that students explicate, understand, and critique their own deepest prejudices, biases, and misconceptions, thereby allowing students to discover and contest their own egocentric and sociocentric tendencies" (1993, 347). He also postulates that students need "to argue both for and against every point of view and each basic belief or conclusion that they are to take seriously" (1993, 347).

Regardless of what you are teaching it is important to be aware of the theory that significant learning only happens when someone is ready and engaged. Gross contends,

> Adults who take command of their own learning master more things and master them better more than those who rely on being taught. They tend to have greater zest in the learning process, retain more of what they have learned, and make better use of it in their lives (1991, 10).

Students' education is something they must tailor to themselves; be in control of how, what, where, and when to learn. Learning is present every second of the day. It is the individuals' choice to accept the present learning and the process, or keep and defend what they already know. It would be difficult for anyone to learn if they were plagued with feelings of shame, anxiety, confusion, doubt, and/or incompetence. "When

expectancy for success is low, learners tend to protect their psychological well-being by remaining withdrawn or negative" (Wlodkowski 1993, 98). The time and place for the appropriate learning environment are extremely important. However, it involves more than just a suitable location; it also relates to how someone feels about himself in his present situation and how he feels about those around him.

To help facilitate a student's learning his needs should first be ascertained. For starters, utilizing Abraham Maslow's hierarchy of physical and emotional needs, a proper assessment of students' needs would be beneficial. This documented hierarchy of needs' chart is a well-known practical theory of motivation (see table 2). Basically, Maslow claims that if a person is experiencing psychological or deficiency needs involving his safety or security, these needs will override his growth needs for love (the need to love, to be loved, the need to belong, and friendship), self-esteem (the need to feel worthy), and self-actualization (the need for personal fulfillment).
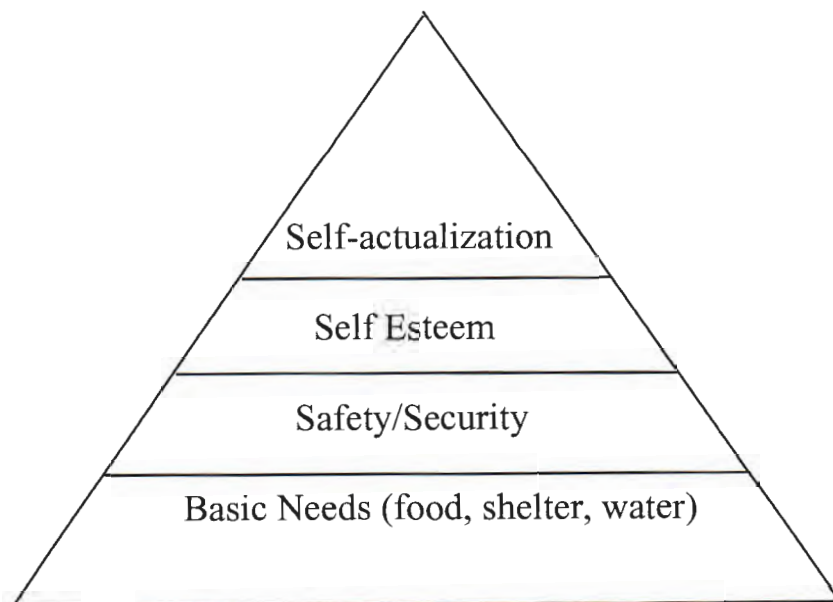
Figure 2. Maslow's Hierarchy of Needs

After addressing those needs, the facilitator should help his students identify their personal learning styles. For example, students should determine if they need more structure or freedom, more hands-on involvement or lecture style instruction, more concrete or abstract information. Three learning style handouts are included in the appendix that will help a student assess his on learning style preferences (see appendix C). One handout entitled "Grouper or Stringer" was obtained from Ronald Gross and is highly oriented toward how, where, and when students learn the best. A second handout designed by David Kolb includes a learning style inventory survey along with an explanation of four different learning style characteristics. The third handout is Howard Gardner's Multiple Intelligence Test. This test is helpful in pointing out and determining other types of intelligence students might be utilizing in their educational pursuits. Whatever their learning style turns out to be, students should discover what they need in order to learn more effectively.

Learning anything new is a risk. Becoming involved in the process can promote personal growth, but the student has to be ready to receive the ideas and information and be willing to become actively engaged in the process. College students need hands-on, practical application and experience in coping with the challenges of life without being dependent on others. This requires the attainment of autonomy. Tessina, defines autonomy as, "accepting the responsibility, and taking care of our own lives [and] ...learning effective skills for coping with challenge (being able to deal with disappointment, confusion, risk, and failure), without being dependent on others"(1991, 74). Moreover, she specifically outlines three skills of autonomy, which are risk taking, problem solving, and coping with disappointment and failure. "Successful risk taking

requires learning to evaluate risk before acting, weighing the advantages of success against the disadvantages of failure"(Tessina 1991, 74). Mindlessness, helplessness, and hopelessness are the three attitudes of dependency. Our self-esteem, self-confidence, and self-reliance depend on our ability to become autonomous adults. Most children who grow up with dysfunctional parents do not obtain the necessary autonomy to become healthy adults. In fact, even the children who are lucky enough to grow up with healthy, autonomous parents as role models do not always become healthy autonomous adults themselves.

Autonomous students would not have to depend on the teacher to be guaranteed a high level of excellence in their learning experiences. This is not to say that the quality of the professors is not important, but to emphasize that students need to be responsible for taking care of their own educational pursuits. Gaining more autonomy as learners will strengthen their abilities to learn. "Learners gain increased control, confidence, and satisfaction in learning as they come to understand themselves, their learning process, and the available educational systems" (Smith 1983, 1). Students need to become responsible for their decisions, choices, and actions and become more capable of dealing with the consequences. Making good decisions makes us feel good about ourselves. To make good decisions we need to think for ourselves and to feel empowered by our conscious actions. "People are empowered by being aware of and able to control their thinking, and this is associated with increased motivation, willingness to take risks, enhanced self-esteem and independence" (Smith 1983, 4). Cognitive psychologists support the theory that, "thinking is the gateway to our emotions -- and our emotions are the gateway to our actions" (Freeman and DeWolf 1992, xx). If this is true, then more emphasis on

improving students' thinking skills will improve their ability to become effective problem-solvers and decision-makers. One way of accomplishing this goal is to become more aware of your own conceptual frame of reference and to understand how information becomes transformed in your brain. Emotions, feelings, and values determine all our decisions, choices, and courses of action. Hence we should study and learn about these factors in a safe controlled environment. To enhance a person's growth you must first minimize his needs for safety and fear of growth while maximizing the rewards for growth. Maslow theorizes,

> All those psychological and social factors that increase fear will cut our impulse to know; all factors that permit courage, freedom and boldness will thereby also free our need to know (1968, 67).

In addition, Maslow states, "We grow forward when the delights of growth and anxieties of safety are greater than the anxieties of growth and the delights of safety" (1968, 47). It is also important to consider the notion that if a person's perception can change a feeling, then it can likewise alter and change his values, choices, and decisions. Students need to become aware of the advantages and consequences of learning, thinking, and communicating. If language can shape our thoughts, then students have a right to know how information will affect them. To truly benefit from the education offered at college students need to be equipped to think for themselves.

Factors That Hinder Effective Thinking

An abundance of factors can hinder anyone's ability to think clearly. Without awareness, understanding, and the commitment to improve other related skills, thinking

can still be ineffective even if a student has the analytical knowledge of how to think critically. Tishman, Perkins, and Jay insightfully concur,

> Many obstacles to good thinking occur in the form of fearful or negative emotions -- such as the feeling of impulsivity, feelings of confusion or bewilderment, a fear of failure, a fear of looking foolish, the feeling of being overwhelmed [along with] closed-mindedness, one-dimensional thinking, and disorganized thinking (1995, 87).

Even people knowledgeable in the art of critical thinking must be cautious of the aspects that can hinder their thinking. Utilizing Maslow's hierarchy of needs' chart is one approach. This chart can be put to use to explain problem areas of a person's ability to think effectively. In the pyramid chart, each need has to be met to allow a person to rise to the next level. When students' physical needs are not being met it is difficult for them to care and be involved with critical thinking. Their concern is about satisfying their basic needs and not about analyzing their thinking process. Moore, McCann, and McCann elaborate further on more specific needs that coincide with Maslow's hierarchy of Social and Self-esteem needs. These include the following: affection, group acceptance, approval, autonomy, achievement, prestige, service to others, conformity to conscience, and self-growth (Soccio and Barry 1992, 38). Within these hierarchies of needs, reactions and responses to these needs occur, hindering our ability to think clearly. The way we respond and make decisions reflects the way we are thinking. Moreover, how we perceive our situation also affects and alters our ability to think effectively. Sometimes people jump to quick decisions because they did not take the time to understand all the possible perspectives and their decisions were limited to their own beliefs and biases. For example, when some people are deciding and making judgments about moral issues such as abortion, euthanasia, and the death penalty, they tend to

become closed-minded and only able to listen to information that agrees with their own beliefs.

Stress, guilt, fear, love, patterned habits, and lack of knowledge are examples of other factors that affect our thinking, communicating, and decision-making skills. In the initial stages of falling in love, people report similar feelings of not being able to concentrate; they are not even able to speak in coherent sentences; and they do not care about the everyday decisions that need to be made. Encountering a fearful situation negatively affects many people. Typically, in a fearful situation, a person's mind can seem to go blank; her vocal cords tighten up and she cannot scream out for help; and she stands motionless, incapable of deciding and prompting herself to run for help.

Kirby and Goodpaster go even further to describe a mental activity, "cognitive dissonance" where "our need for compatible thoughts and behaviors actually leads to altered thinking" (1999, 38). Basically, this is a case of people needing to justify their decisions to help them accept the conditions and consequences of their thoughts and actions. For example, a person who believes that adultery is morally wrong but commits the sin anyway cannot function with these incompatible thoughts. Therefore, the adulterer will alter his thinking about the morality of adultery to make his thoughts compatible to his behaviors. Additionally, defense mechanisms like scapegoating, projection, introjection, denial, rationalizing, prejudging, and stereotyping contribute to ineffective thinking. Kirby suggests another problem. He surmises,

> What we think depends both on our ability to remember and on the content of that remembering. Therefore, poor or distorted memory makes it difficult for us to think successfully (1999, 65).

Finally, there can be a problem if a student is lacking in the area of self-efficacy. According to Bandura, self-efficacy is your own estimation of what you can achieve according to your perception and beliefs of your abilities. "It's your confidence in your ability to learn, make good decisions, and think effectively" (Tice 1997, 57). Without a strong inclination towards self-efficacy a student's thought process can get caught up with doubts and other negative thoughts that can diffuse her ability to think in a reasonable, reflective, and focused manner. Of course, logically we might argue that being more effective with one's thinking process might take care of these problems, but as an effective thinker it is just as important to be empathic to your own struggles and the struggles of others.

Educational Psychology Concepts and Theories

Research concludes, one third of the college population is composed of students that fall under the label of state-oriented students (Menec, Perry, and Struthers 1996). State-oriented students lack self-regulatory strategies. Menec, Perry, and Struthers describe six factors that define self-regulated strategies. I have included this section because these strategies are similar to critical thinking dispositions. Moreover, according to the empirical support laid out in this synthesis I see a beneficial correlation between the cultivation of students' critical thinking skills and dispositions and an advancement of self-regulatory strategies that are lacking in state-oriented students. Six self-regulated strategies were defined by Menec et al., for further clarification. The essential strategies they contend are paramount for academic success are as follows. First, is the ability to stay focused in the present. This requires a maintenance and regulation of the student's

concentration. This also entails the inclination of keeping one's focus on "achievement-related tasks." Next, is the habit of maintaining "an internal locus of control." This they define as a student's ability to inhibit negative thinking that could hinder their ability to think effectively and to stay focused. They define this as "thoughts about more desirable activities or ruminations related to some negative experience" (Menec et al. 1996, 282). Correspondingly, the third strategy is maintaining an "external locus of control." This represents the ability to manage external distractions such as: a noisy classroom, friends interrupting while you are studying, or a monotone, unenthusiastic professor. Fourth, is the students' ability to selectively attend to relevant information. "A further strategy is the control of emotions, which involves inhibiting emotions, such as depression or worry, that might interfere with enacting an intention" (Menec et al. 1996, 282). Last, is the ability to "enact their intentions without being distracted by task-irrelevant thoughts about past or future events" (Menec et al. 1996, 282).

There is a plethora of research documenting learning problems that occur when college students lack self-regulatory strategies. This deficiency has a strong correlation with students' academic success (Kuhl & Kazen 1994; Menec, Perry, & Struthers 1996; Pintrich & De Groot 1990; Zimmerman & Pons 1988). Menec, Perry, & Struthers, conducted research on the effects of adverse learning conditions on freshman college students. By utilizing Kuhl's method of categorizing people as either action-oriented (they keep their focus in the present and make action plans) or as state-oriented (who are too consumed ruminating about past or future adversarial situations, immobilizing them to plan a course of action for the present). Menec's team created a similar survey to categorize college students. Their hypothesis was confirmed; those students defined as

state-oriented had substantial difficulties with the stresses and pressures of academic life. Mental distractions, emotional stresses, monotone-teaching styles were some of the adverse conditions troubling these students. Additionally, any environmental situation that lessens the individuals' perceived control style will bring about unwanted internal and external distractions. For example, not being involved with choosing their own goals, learning activities, not being allowed to think for themselves and/or learn in accordance to their own style can produce internal and external distractions. Feelings and perceptions of not knowing how to approach a difficult task, misperceiving information and the course assignment, and lacking the intelligence to comprehend the subject matter can become harmful mental and emotional distractions (Kuhl & Kazen 1994). Listening skills can become diminished due to reactions of defending or protecting one's beliefs, behaviors, and/or inadequacies.

John McPeck, Professor of Education at the University of Western Ontario, suggests that a critical thinking course should take on a "...remedial role for those whose education has been otherwise so inadequate that they are seriously deficient in any kind of autonomous thinking" (1994, 113). Regardless of whether these are real or merely perceived situations the results will be the same -- a decline in students' academic achievement. Menec et al., assert that this will also lead to a decline in the students' motivation, effort, and willingness to strive for academic success (1996, 283). For example, consider a well-intentioned, even competent student who has failed at achieving something according to his fundamental goals or expectations. Regardless of his desire and motivation, not being able to control his mental activities, attention, and disempowering emotions will impair his performance (Menec, et al. 1996, 283). The

cure is to improve his control over his abilities to think in a reasonable, reflective, and focused manner.

One of my purposes in developing a comprehensive critical thinking curriculum in the community college setting is to help these state-oriented students. To have a significant impact on these students I contend that beliefs, attitudes, perceptions, and behaviors must be recognized, questioned, and transformed. Likewise, learning how to let go of possible defensive and protective thinking and reacting could greatly improve the individuals' ability to use the necessary cognitive and metacognitive skills needed for academic achievement. Even though these students might not have had the proper training, role models, dispositions, and/or social background needed to be of action orientation, I believe that their past does not doom their future. I conclude that students engaged in the metacognitive discovery of critical thinking dispositions along with learning technical analytical skills of critical thinking will greatly impact the self-regulated strategies of state-oriented students.

Not being able to contend with difficulties in school could lead to unwanted responses and negative habits that will continue to exist in the future for that individual. Learning how to use self-regulatory strategies by developing sound and consistent use of critical thinking dispositions could not only improve students' academic success, but could also improve their chance for success in their future careers, relationships, and their personal well-being.

Students who can exercise control over their cognitive, metacognitive, and behavioral functions are more competent learners and achievers (Kuhl, & Kazen 1994; Menec, Perry, & Struthers 1996; Pintrich & De Groot 1990; Zimmerman & Pons 1988).

These students are typically classified as assertive, independent, self-confident, accepting of diversity, and willing to question and explore alternative ways of thinking and acting (Menec, Perry, Struthers 1996). Interestingly, these are also the goals of becoming a critical thinker. In sum, in adverse conditions, state-oriented students exhibit the dispositions of a non-critical thinker, (see Appendix B) while action-oriented students display more of the dispositions of a critical thinker. A course designed to encourage awareness, active participation, and continued, focused, reflection and practice will aid in the cultivation of thinking dispositions. State-oriented students and students of differing learning styles and intelligence will all benefit more from a well-rounded course in critical thinking that includes exercises to foster thinking dispositions.

CHAPTER FIVE

THE OVERVIEW OF THE CURRICULUM

A great teacher never strives to explain her vision;

she simply invites you to stand beside her and see for yourself.

The Rev. R. Inman (Millman 1991, 62)

Introduction

Remodeling an existing critical thinking course to enhance the development of

thinking dispositions requires knowledge and experience of what promotes learning. The

concepts and theories presented so far in this paper have illustrated the importance of

discovery learning and transferring knowledge so it has personal meaning. In creating the

following lesson plans careful thought has been considered about incorporating effective

learning strategies. Mental management, transfer of skills, brainstorming, and cooperative

learning are essential elements found in all of the lessons. Cooperative learning in small

groups helps to promote and maximize students' comprehension of new material

(Wlodkowski 1993). Arthur Costa also advocates cooperative learning. He believes,

"students working cooperatively in groups used more higher-level reasoning strategies and

greater critical thinking competencies than students working in competitive and

individualistic learning situations" (1991, 199). The combination of these learning

strategies along with the continuous practice of utilizing thinking dispositions will help

initiate a student's journey to becoming a critical thinker.

LESSON ONE: Listening and Communicating

Background knowledge

There are many forms of listening that enhance or hinder the dispensing of

knowledge from one person to another. In the same regard, there are effective and

ineffective approaches to communication. Awareness of these factors can greatly

improve students' academic reasoning, dialogical thinking, and everyday interpersonal

interactions. Different listening skills will be presented along with Bolton's twelve

roadblocks to communication. Both of these handouts are included in appendix D.

Thinking Dispositions:

Students Will Experience and Engage in These Dispositions During the Class Activity

Intellectual Civility, Intellectual Courage, Intellectual Curiosity, Intellectual

Empathy, Intellectual Sense of Justice, Fair-mindedness, Open-mindedness, and the

Desire for Clarification.

Goals and Objectives

The objective is to help students discover that effective listening can be more

mentally challenging than speaking. Organizing and clarifying another person's

thoughts, without inserting too many of our own thoughts is an arduous task. One goal of

this lesson is to enlighten students about the thinking dispositions that are naturally a part

of effective thinking. The class activity is created to demonstrate the problems that occur

in listening and communicating when students lack the necessary dispositions to promote

effective discourse. Another goal is to produce greater acknowledgment of the different styles of listening. Students will be placed in a situation that helps them experience what it is like being on the receiving end of a bad listener who lacks helpful listening and communicating skills and dispositions. Students will also have the opportunity to practice developing more appropriate dispositions to enhance the necessary listening and communicating skills. The final goal is to influence students to contemplate modifying their unproductive behavioral responses and updating them with more productive ones.

Materials

Handouts: Listening and Communicating Scenario, Listening Skills, Communication Roadblocks, Thinking Dispositions Terminology and Chart (see Appendix D)

Activity

To start this activity, distribute the first handout that describes the following scenario. Your friend's sister Jan, who is fifteen years old, has asked advice from you about her desire to have sex with her boyfriend. You have encouraged her to delay this until she has graduated from high school. To cover all bases you also urged her to use some form of birth control and a condom for protection. Two months later, Jan is distressed and tells you she disregarded your advice and had unprotected sex anyway. The problem is she just found out that she is pregnant. What do you say? You have five minutes to write your response.

Next, distribute copies of "the twelve roadblocks of communication" handout. After reading the explanation on the handout, students are to pair up and switch their write-up of the scenario with their partner. Each student will circle any response that happens to resemble one of the communication roadblocks. Within the circle the students will identify the number that corresponds with the roadblock that they discovered.

Next, distribute the "listening" handout. The students will read about the different types of listening and ten minutes will be allotted to discuss which listening skills would be more beneficial to help Jan in her time of distress. Students will then regroup with their original partner and work together to formulate more beneficial responses. After ten minutes, pairs will join another pair and, one at a time; they will orally present their revised response. Finally, as a whole class activity, each group of four will share what types of revisions were most effective along with a brief explanation and example.

With the remaining time, students will actively reflect on what listening and communicating has to do with effective thinking. While the students are brainstorming, the teacher can be writing their comments on the chalkboard. Further exploration of the correlation between listening, communicating, and thinking will be utilized in the reflective writing in the mental management and transfer section. The final activity is for the students to read through the list of thinking dispositions and place a check mark next to the dispositions they employed during the exercise.

Mental Management

Students are to write a reflective summary of what they thought about during and after the exercise. Students will contemplate their thinking pitfalls during the exercise.

They should also consider what strategies they could apply if someone was sending communication roadblocks when they were speaking. Students can deliberate on strategies such as trying to keep their thoughts focused regardless of the ineffective listening and communicating being rendered by the designated listener. Finally, students should devote some time to contemplating what the intended dispositions have to do with listening, thinking, and communicating.

Transfer

Students will create another scenario similar to the classroom activity, but more applicable to their own life situations. First, they will respond without utilizing effective listening and communicating skills as discussed in class. Then they will write a second response using the more beneficial skills. For additional help in writing the second response, students will review the possible thinking dispositions that could apply to the situation. Students should write a separate paragraph noting which roadblocks they generally have a tendency to use and what strategies they might have for avoiding or eliminating these roadblocks from their style of communicating. Next, students should consider what they could and/or should do in situations where friends, family, or co-workers are utilizing ineffective listening, communicating, and thinking skills. Students can also practice observing effective and ineffective listening and communicating while in a social setting or at work. As observers, students can practice analyzing what strategies they would employ to improve the situation and record the strategies they experience to be beneficial.

Summary

This exercise is created to enlighten students about everyday occurrences that can potentially hinder or enhance the thinking process of a speaker and a listener. Unexamined habits can lead to ineffective thinking and communicating. Awareness exercises are a key to further the development of students' thinking capabilities. The metacognitive reflection will help students become accustomed to practicing and monitoring their style of thinking and listening. Even though this was a simulated role-play exercise, it still can be beneficial in preparing students for intentional and self-directed thinking. Learning how to be a productive listener will likewise help students gain more knowledge and think more clearly. Some of the other lesson plans presented in this synthesis help the students practice using effective skills and dispositions of critical thinking. For instance, the enculturation exercise requires students to argue the opposing side of their belief. In addition, the "thinking dispositions exercise" actively involves students in a discussion about the benefits and obstacles of cultivating thinking dispositions.

LESSON TWO: The Enculturation Exercise

Background Knowledge

Enculturation is the influence and ongoing cultural process of instilling values including religious ideas, sexual mores, and work ethics. This process starts immediately at the beginning of everyone's life.

Students Will Experience and Engage in These Dispositions During the Class Activity

Intellectual Civility, Intellectual Courage, Intellectual Discipline, Intellectual

Humility, Intellectual Sense of Justice, Fair-mindedness, and Open-mindedness.

Goals and Objectives

The goal is to enlarge students' awareness of the effect diversity has on peoples'

beliefs, values, and thoughts. Diversity can be experienced from observing the affect

different factors like culture, race, social and educational backgrounds and religious

preferences have on students' opinions and beliefs. The objective is to organize diverse

groups with differing opinions and have students engage in a discussion about their

cultural beliefs. The teacher is to act as a facilitator to guide students to utilize the

thinking dispositions presented in class to accentuate the students' listening and learning

capabilities. For example, intellectual civility will be encouraged to alleviate potential

problems like verbally attacking other group members' points of view and dismissing or

stereotyping those views. Instead, students are to practice active listening or

constructivist listening learned from the class before to help them use intellectual

empathy to understand the other student's claim. For example, students are to avoid

thinking about their own beliefs while another person is talking so they can give the

speaker their full mental attention. Once the speaker has finished talking the other group

members will practice clarifying what they heard and checking with the speaker to see if

their interpretation is correct. The second stage of the discussion takes place only after

the student presenting his claim feels satisfied that his view has been summarized accurately in clear and neutral language.

At this point, the second handout is provided to the students. This handout is a series of divergent questions designed to stimulate the skills of critical thinking. The listening participants will be allowed to ask the speaker some appropriate questions, not for the purpose of challenge, but to obtain more knowledge. The speaker will also benefit from these questions because he will be required to question his own reasoning for his beliefs and acknowledge the limits of his knowledge backing those beliefs.

Materials

Handouts: Divergent Critical Thinking Questions, Enculturation Questionnaire, Dispositions Terminology and Chart (see Appendix D)

Activity

At the beginning of class the teacher will verbally ask the following five questions. The students will write their responses down by noting either a yes, no, or undecided as their answer.

1. Do you believe that abortion is wrong in most or all cases?

2. Do you believe that capital punishment is justified for mass murders?

3. Do you believe there is a God?

4. Do you believe that one racial group is innately superior to another?

5. Do you believe that America is the best country in the world?

Next, divide the class into groups of four. It is helpful if each group consists of two students that agree with one of the enculturation questions with two that disagree or are undecided about the same enculturation question. Students can choose which question out of the five given they would prefer to discuss. Once the groups are constructed each group will decide which of the two will present their claim first. Once the discussion begins students are instructed to follow the listening guidelines learned from the previous class. I encourage students to re-use the listening handout from the previous class. It is helpful for the teacher to bring extra copies of the "listening handout" for those who might have missed the previous class. Once the two speakers in the group accept that their views have been heard and understood, the teacher will present the "divergent critical thinking" and the "enculturation questionnaire" handouts. Now the listeners will have an opportunity to ask critical thinking questions of the speakers, while sustaining the skills of active listening and utilizing dispositions such as intellectual civility, courage, discipline, humility, sense of justice, fair-mindedness, and open-mindedness. The sub-questions from the "enculturation questionnaire" are also useful to help students acknowledge other questions that are important to know if you want to believe that your claim is well supported. At this point the original speakers will also need to adopt the critical thinking skills and the same thinking dispositions to effectively respond to the questions. The idea is not to have the students become verbally combative or defensive. Instead they need to take their time to reasonably reflect and respond to the soundness and validity of the stated belief. After twenty-five minutes the groups will switch roles to allow the other two participants to present their claim. The exercise will follow the same format. At the end of class, students will refer back to the "thinking

disposition" handout and place a check by each disposition they felt was utilized during the activity.

Mental Management/Metacognition

For homework students will reflect and write on their "before, during, and after thinking pitfalls". If time allows, students can record a quick observation of the positive and negative aspects of their thinking, reasoning, listening, communicating, and behaving skills that were manifested during the class. Students finish writing about the different approaches they might take now that they have more time to prepare their claim. Students are encouraged to review the "divergent question handout" to further explore what factors are vital in order to properly defend one's beliefs.

Transfer

Beyond the metacognitive reflection assignment, students are to present examples of other applications of thinking dispositions covered in class. Moreover, they will examine other prior occasions where they did or did not apply appropriate listening, thinking, communicating, or questioning skills. Looking back on the thinking disposition they checked off for the activity, students can contemplate other situations where they have successfully used these dispositions and times when they did not use the dispositions but wished they had.

Summary

Presenting real-life situations is enjoyable for students and helps them attach meaning to their learning experience. Designing a lesson that revolves around students' personal beliefs and the problems of defending those beliefs or accepting other beliefs is an on-going issue in students' lives. Practicing in a safe, controlled environment, beneficial methods for managing similar situations can enrich students' lives. To challenge the students' even further, lesson plan number six "arguing the opposing side" requires the students to defend the side with which they disagree (see appendix E). This exercise helps them engage in similar development of dispositions such as: intellectual empathy, open-mindedness, intellectual humility and awareness of bias. It also acquaints them with the problems of listening to multiple perspectives. First, they might not want to discover that they maybe wrong. Second, emotionalizing and being too attached to their belief makes defending the opposing side too arduous of a task. Third, they might not want to hear information that could alter their belief, because the consequences could severely damage the foundation that all of their values, beliefs, expectations, and rules for their life are based. Lastly, students might not want to experience a sense of losing, because their ego and self-esteem could be affected.

Lesson Three: The Controversial Situation

Background Knowledge

A solid understanding of the term "conceptual framework" is crucial for this lesson. As mentioned in the review of literature, Warren defines a person's "conceptual

framework" as, "...a set of basic beliefs, values, attitudes, and assumptions which explain, shape, and reflect our view of ourselves and our world." She further clarifies this notion by explaining, "...frameworks are influenced by such factors as sex/gender, class, race/ethnicity, age, affectional preference, and nationality" (Warren, K. 1994, 156). Understanding that your thoughts are all generated within a personal conceptual framework is the focus for this lesson. The phrase "conceptual framework" is also referred to as "frame of reference," and these phrases are interchangeable.

Thinking Dispositions

Students Will Experience and Engage in These Dispositions During the Class Activity

Awareness of Bias, Fair-mindedness, Intellectual Civility, Intellectual Empathy, Intellectual Humility, Open-mindedness, and philosophical thinking

Goals/Objectives

The initial objective is to record authentic reactions and responses from the students concerning a controversial real-life situation. Honest feedback will allow students to become more acquainted with the workings of their own conceptual framework. The goal is to create an environment encouraging students to explore the limitations of their thinking capabilities when their perceptions originate exclusively from one frame of reference. Students will examine how one frame-of-reference can make them biased and being biased affects the way they think. Moreover, being biased affects the way they view the world. The primary consideration is for students to examine how their prescribed thinking dispositions would broaden their thinking potential.

<u>Materials</u>

Handouts: Thinking Dispositions Terminology and Chart (see appendix D)

<u>Activity</u>

Without any explanation of the dispositions the teacher will orally present a controversial situation to the class. Students will verbally brainstorm their reactions and responses based on their own frames-of-reference. The teacher will write these responses on the board and group them in categories of positive, negative, or interesting. Next, students will provide support for each of the different controversial scenarios. For example, a head leader of a country is found culpable of committing adultery with approximately one hundred women. In spite of the fact that his wife is a close friend of yours, you have just recently been informed of these facts, even though the wife has known of these affairs for the past ten years. When you meet with his wife for lunch you tell her that you know of the affairs and the wife asks for your opinion. What do you advise?

After recording these responses on the chalkboard, the teacher will present a twist to the scenario. The class will consider the same scenario but a small alteration will be added. For instance, students will consider whether their response would be different if everyone involved lived in the imaginary country of Cervonian. In this culture men are allowed and even encouraged (by men and women) to have multiple partners. If this was the culture your beliefs were based on would this affect your initial response and if so what would be your new response? The teacher will record the new responses on the board, grouping them in categories of positive, negative, and interesting. Finally, a third

twist is added to the original scenario. Consider if you would have a different reaction if you had only been living in Cervonian for three years, and the country where you lived for sixteen years supported monogamy as the accepted moral law. Would this affect or change your previous answer? Again the teacher will write the new responses on the chalkboard. If one of the categories does not have more than six responses the teacher will encourage a further brainstorming session to have students concentrate on that specific category and develop more ideas. For example, if there were not enough responses in the positive column the teacher can prompt the students to utilize thinking dispositions such as: intellectual humility, civility, and empathy, fair-mindedness, open-mindedness, philosophical thinking, and awareness of bias to further explore the multiple possibilities.

Next, students will divide into groups of four and discuss why their responses changed or did not change. They will discuss what thinking dispositions they did or did apply during their responses for the different scenarios. After five minutes of discussion it is a good idea to interrupt the group activity to explain Warren's notion of how our thoughts and reactions are generated from a conceptual framework that has been developing in each of them since the day they were born.

To end the session, students should check off on the "thinking disposition" handout which dispositions were beneficial for this exercise.

Mental Management

For homework, students are to metacognitively process the consequences of their thinking during the activity. A thinking journal is recommended to invite students to

keep abreast of their before, during, and after thinking. This will activate more metacognitive awareness because they will be charting their thinking problems and successes. Students can think about the consequences of what limitations would be encountered in their thinking if they were not exposed to factors like thinking dispositions and conceptual frame-of-references. For instance, without utilizing the dispositions of intellectual empathy and intellectual humility it might be difficult for students to understand the wife's acceptance of her husband's behaviors.

Transfer

To initiate a learning transfer, students are to think of other examples of how people from different cultures, careers, and/or educational backgrounds would respond to a controversial situation. They are to create their own controversial scenario and write what their initial reactions would be. Then they will offer alternative responses, role-playing people's reactions from other cultures, careers, and educational background. They are to create a chart (similar to a matrix chart) to show the differing factors. To be specific, they will identify at the top of the chart which culture they are role-playing. For example, they will write a brief description of the culture's moral standards that they are role playing. Second, an explanation will be provided detailing which occupational career group they are targeting (i.e., counselors and lawyers can have totally different takes on controversial situations because of their job description). Third, since people from different educational backgrounds tend to express diversified values, rules, and expectations of themselves and others, students should choose one and fully illustrate the mind set this group might tend to represent.

Students can further explore and write about how the dispositions applied in this exercise could help in other areas of their life. Next, they will reflect on strategies they could create to aid in the cultivation of these dispositions into their life and explain why this would be a good idea. It would be helpful if they used imaginative thinking to foresee the problems and difficulties of applying these dispositions and conceive of ways to overcome the obstacles. Finally, they should list and give examples of other times when their conceptual frame-of-reference kept them from using intellectual humility and empathy.

Summary

This exercise is designed to help students realize how much easier it is to respond from their own frame-of-reference instead of spending more time to gain a full perspective of the situation. The purpose of this exercise was to aid in the students' discovery of the importance and application of seven key dispositions. Learning to defer judgment, listen to multiple perspectives, be open-minded, be empathetic, and engage in philosophical thinking are virtuous dispositions to be cultivated. When students realize that all of their opinions, beliefs, and reasoned judgments are compiled from their family, culture, religious leaders, and socio-economic standards they are more likely to question their own possible bias in their responses and reactions. When students participate in thinking beyond their initial biased reactions and view the situation from multiple perspectives, their limited knowledge and experience will be more obvious to them. For example, this experience can help them see the necessity for deferring judgment. By listening to multiple perspectives and deferring judgment students can observe how their

biased reactions might interfere with sound and objective reasoning. Listening to other perspectives, possibly those of other cultures, races, and backgrounds will help broaden their limited beliefs and help students realize that it is hard to have all the correct answers for every person and every situation. Students need to become more cognizant of the arduous task that philosophers, anthropologists, and sociologists struggle with in trying to design universal moral laws that would be applicable for all cultures. Even these experts have not come to many viable conclusions. Hence, it is just as important for college students to become aware of these complexities and acknowledge their own limitations in trying to have the right answers for everyone's situation. Philosophical thinking helps students realize that there are no universal truths in many situations of life. Therefore, being open-minded and not self-righteous is preferred and will help them learn to see more of an entire situation.

I have chosen this teaching method because educational learning specialists have concluded that learning through discovery is a more powerful teaching strategy than merely explaining the definitions of the dispositions and having students memorize those definitions.]

Ronald Gross, author of Peak Learning, asserts,

> Adults who take command of their own learning master more
> things and master them better more than those who rely on being taught.
> They tend to have greater zest in the learning process, retain more of what
> they have learned, and make better use of it in their lives (1991, 10).

In addition, Socrates' famous quotation, "nothing taught by force stays in the soul," also supports the discovery method of learning (Plato 536e). In accord with this theory, the lesson plan was designed to encourage the developing of necessary thinking

dispositions, not by rote force, but by exemplifying a style of learning to promote exploratory, reflective thinking. Studying the handouts as a homework assignment would have little impact on the students' personal discovery of dispositions. Experiencing the multiple perspectives and frames-of-reference in class is what can have a more lasting and significant impact on their lives.

With continuous application and practice of thinking dispositions students will be more inclined to use the skills of critical thinking. The theories and concepts presented in this synthesis paper were fundamental in the design of these lesson plans. A further discussion of the implications of remodeling a critical thinking course is presented in chapter six.

CHAPTER 6

DISCUSSION AND IMPLICATIONS

We can't learn anything from experiences we're not having
Louis L'Amour (Vance Deacon 1997, 83)

Summary

The intent of this synthesis paper was to defend the point that students cannot

become effective thinkers by simply being taught the analytical skills of critical reading,

writing, and thinking. Without learning the necessary dispositions of critical thinking

students will not develop into well-rounded, effective thinkers. Besides improving upon

students' analytical critical thinking skills, educators must also focus on improving

students' interpersonal communication and behavior. Assisting and encouraging the

attainment of critical thinking dispositions will hopefully inspire students to become

more aware of the effect their listening and communicating skills and behaviors have on

their ability to think effectively. Moreover, students need to realize that the lack of

critical thinking dispositions shows up in their style of communicating, thinking, and

behaving. As Kirby and Goodpaster assert, "We have become what we have thought

about and who we will become is limited by how and what we think"(1999, 5).

The analytical elements of argument analysis are pertinent when it comes to

presenting and debating the soundness and validity of an argument. The primary goal of

teaching logical thinking is to have the student become objective so that he can

distinguish the difference between justified and unjustified claims or beliefs. However,

teaching practical logic does not develop the necessary dispositions to help students become well-rounded, effective thinkers.

Even though this synthesis concentrated on incorporating critical thinking dispositions into an already existing critical thinking syllabus at Mass Bay Community College, this is not intended to imply that they are the only students in need of this type of course. It is significant to note that not all students who attend a Community College do so because they seriously lack the ability to think critically. There are several reasons why students choose to attend a community college. Being a remedial student may be one of the reasons but it does not apply to all students. A second issue to address is the assumption that students at a four-year college or university already possess effective thinking skills and have no need for a course of this kind in critical thinking. Of course, administrators could argue that if they desired a course in logic they could simply take a philosophy course in formal logic or argumentation and reasoning.

I contend that just because a student had the grades to be accepted into a four-year university that does not prove he is an effective thinker. Good grades can signify an ability to do well on tests, to be good at memorizing pertinent information, and/or have an effective quick recalling ability for the required information. None of this proves that he has become an effective thinker. Moreover, let us not forget that there is a lot more to being an effective thinker than just the analytical part of thinking. The collegiate educational systems should be careful not to make assumptions about what an undergraduate degree or associate certificate will do for students. Beyond the required scholarly training in the classroom they should likewise formally address the normal functional life-skills in the classroom. To assume providing collegiate athletics, social

events, and activities would be sufficient criteria to advance personal growth and development would be detrimental to the students.

Prior research has shown that having knowledge about cognitive and metacognitive strategies is not enough. Motivation is considered by some authorities to be a vital factor in improving students' metacognitive strategies, management and control of effort, and cognitive strategies (Paris, Lipson, & Wixon 1983; Pintrich 1989; Pintrich, Cross, Kozma, & McKeachie 1986; Pintrich, De Groot 1990). If this were the case, then the main issue would be redirected away from the students and onto the training of teachers. The implied assumption is, if all teachers were motivational in their teaching delivery then all students would be successful learners. However, researchers have concluded, students who are involved in goals of mastery, learning, and challenge will engage in more metacognitive control activity, cognitive strategy use, and effective effort management (Ames & Archer 1988; Dweck & Elliott 1983; Eccles 1983; Pintrich & De Groot 1990). All of these researchers agree, students who can protect their intentions to learn from competing goals or interests, as well as distracting stimuli can stay on track and focus in the present on task accomplishment.

There still remains the controversy about whether critical thinking can be learned by incorporating it into other disciplines (Walters 1994). However, I would surmise from my years of teaching and from the information I obtained from my graduate classes in the Critical and Creative Thinking Program, the necessary attainment of critical thinking dispositions would not be achieved even though the analytical critical thinking skills could be learned.

When you are able to apply all of the dispositions to the way you think, then you can learn to trust yourself. Trusting yourself means that you can feel confident that you are making the best decisions you can on the information that you were given. You can also feel confident that you are clear about what and why you are thinking about what you are thinking. The combination of the analytical skills of critical thinking and the dispositions of critical thinking will help you become a well-rounded effective thinker.

Future Implications

More research is need to understand fully the development or non-development of critical thinking dispositions, possibly starting with the development of babies' dispositions. Investigating how babies natural dispositions help or hinder their future ability to think, communicate, and act as a well-rounded effective thinker could impact the present style of parenting and our educational system. Research should also explore how genetics, parenting, financial backgrounds, educational backgrounds, culture, society, schooling, personality, peers, motivation, self-esteem, and/or autonomy impact a person's development of the necessary critical thinking dispositions.

Do students with high self-esteem, motivation, and/or effective interpersonal skills already possess innate critical thinking abilities and dispositions? If this is true then which comes first? Are all Ivy League students more clear in their thinking than community college students? Do improved thinking and interpersonal improve the quality of students' lives? What does it mean to improve the quality of one's life? Is becoming autonomous the goal? A further examination of these questions would be beneficial.

Continuous participation and active involvement seems necessary to make a profound change in students' thoughts, behaviors, and actions. Would one semester be satisfactory or would some students require further knowledge and practice of the skills. Will the acquisition of critical thinking skills and dispositions improve a student's ability to trust whom he is along with trusting his decisions and choices. Will this type of course encourage global thinking. Will learning to be responsible, knowledgeable, and aware of the way you think, perceive, communicate, and act have a positive effect on how you respond to the world?

Tests should be designed to chart the changes in a student's dispositions throughout their time in college. A follow-up test should likewise be administered every third year for a nine-year period to examine whether these dispositions hold up through different life stages.

In summation, the theories and concepts presented from the varying disciplines of critical thinking, philosophy, cognitive and educational psychology all support the idea of incorporating thinking dispositions into a pre-existing critical thinking college course. The remodeling of the course can be accomplished by incorporating both the analytical techniques of critical reading, writing, and thinking along with the inclusion of effective learning exercises to encourage the cultivation of thinking dispositions. The opportunities and benefits to be gained from this course are extensive. A college education should not only advance a student's technical knowledge but also advance his character. Improving upon students' thinking dispositions will influence and transform who they are. Improving students' thinking abilities by teaching advanced thinking skills and developing better thinking dispositions will improve students' lives. To be able to

make well-informed decisions that you can feel good about is empowering. To accept the consequences of your beliefs and decisions is easier when you are responsible and knowledgeable about them. Listening and communicating effectively is rewarding. Most of all, being in control of your mind, body, and emotions is the key to happiness. This remodeled curriculum is a major stepping stone to a more successful life.

APPENDIX A

GLOSSARY OF TERMS

<u>Anxiety</u>: Is a pervasive, all-consuming, often unfocused sense of fear or panic.

<u>Bias</u>. "A mental leaning or inclination". Paul distinguishes between two types of bias. First, is a neutral bias where "because of one's point of view, one notices some things rather than others, emphasizes some points rather than others, and thinks in one direction rather than others. Second, Paul describes a negative style of bias where "blindness or irrational resistance to weaknesses within one's own point of view" is implied (Paul 1993, 459).

<u>Defense Mechanisms</u>. These are strategies designed to support a favored self-concept despite contradictory fact. Our self-concept consists of the impression we have of the kind of person we are.

<u>Defensiveness</u>. "[This] is the tendency to protect and support our ideas and attitudes against attack by others" ((Pearson and Nelson 1997, 115).

<u>Denial</u>. Psychological denial protects a favored self-concept by refusing to acknowledge the existence or nature of some unpleasant circumstance.

<u>Fair-mindedness</u>. This is "a trait of a critical thinker involving respect for others, willingness to hear and understand different viewpoints on an issue, and an openness to change when new information or insight warrants that change" (Diestler 1998, 432).

<u>Guilt</u>. This is a feeling of discomfort which accompanies a perception of failure to act in accord with our own values.

<u>Introjection</u>. This happens when we internalize the values, beliefs, and experience of others.

Prejudging. This occurs when a conclusion is arrived at prior to pertinent experience or independent of evidence.

Projection. There are two different types of projection. First, Diestler describes projection as, "the process of assuming that what another person means is what we would mean if we had used the same words; this definition of the term is used by people who study communications and semantics and differs from the definition   used in psychology" (1998, 432). Soccio and Barry provide a second definition. They define projection as a defense mechanism observed when people unknowably attribute others with undesirable traits which they find in themselves.

Rationalizing. This is the defense mechanism that presents bogus reasons as justification for a favored conclusion.

Scapegoating. This occurs when an innocent individual or group is singled out to blame for some undesired condition.

Unless otherwise noted the definitions of these terms were adapted from Soccio and Barry ©1992, 83-90.

APPENDIX B

CRITICAL THINKING DESCRIPTIONS

1. Characteristics of Critical and Uncritical Thinkers

2. Empirical Dimension

Characteristics of Critical and Uncritical Thinkers

CRITICAL THINKERS Are honest with themselves, acknowledging what they don't know, recognizing their limitations, and being watchful of their own errors.

Regard problems and controversial issues as exciting challenges.

Strive for understanding, keep curiosity alive, remain patient with complexity and ready to invest time to overcome confusion.

Set aside personal preferences and base judgments on evidence, deferring judgment whenever evidence is insufficient. They revise judgments when new evidence reveals error.

Are interested in other people's ideas, so are willing to read and listen attentively, even when they tend to disagree with the other person.

Recognize that extreme views (whether liberal or conservative) are seldom correct, so they avoid them, practice fair-mindedness, and seek a balanced view.

Practice restraint, controlling their feelings rather than being controlled by them, and thinking before acting.

UNCRITICAL THINKERS Pretend they know more than they do, ignore their limitations, and assume their views are error-free.

Regard problems and controversial issues as nuisances or threats to their ego.

Are impatient with complexity and thus would rather remain confused than make the effort to understand.

Base judgments on first impressions and gut reactions. They are unconcerned about the amount or quality of evidence and cling to earlier views steadfastly.

Are preoccupied with self and their own opinions, and so are unwilling to pay attention to other's views.

Ignore the need for balance and give preference to views that support their established views. Tend to follow their feelings and act impulsively.

Vincent Ryan Ruggiero, Beyond Feelings: A Guide to Critical thinking. © 1998.

Empirical Dimension
(All reasoning is based on data, information, and evidence.)

Fundamental Standards: 1) Clear Evidence, 2) Relevant Information, 3) Fairly Gathered and Reported Evidence, 4) Accurate Data, 5) Adequate evidence 6) Consistently Applied Data

Flawed Empirical Dimension: Unclear, Unfairly or Self-Servingly Gathered, Inaccurate, Insufficient

Principle: Reasoning can only be as sound as the empirical evidence it is based on.

Good Reasoners: assert a claim only when they have sufficient evidence to back it up; can articulate and therefore evaluate the evidence behind their claims; actively search for information against (not just for) their own position.

Bad reasoners assert claims without considering any evidence; don't articulate their evidence even when they have it, and so are less able to subject it to rational scrutiny; gather evidence only when it supports their own point of view.

Good Reasoners: focus on relevant information and disregard information or data that is irrelevant to the question at issue; draw conclusion only to the extent that they are supported by the data; state their evidence clearly and fairly.

Bad reasoners do not carefully distinguish between relevant data and irrelevant data; make inferences that go beyond what the data support; distort the data, or state it inaccurately.

Vincent Ryan Ruggiero's, Beyond Feelings: A Guide to Critical Thinking

APPENDIX C

Learning Styles

1. Learning Style Characteristics

2. Multiple Intelligence Inventory

3. Stringer or Grouper Learning Style

Learning Style Characteristics

TYPE ONE: THE IMAGINATIVE LEARNERS

As learners they perceive information concretely and process it reflectively. They integrate experience with the self. They learn by listening and sharing ideas. They are imaginative thinkers who believe in their own experience. They excel in viewing direct experience from many perspectives. They value insightful thinking. They work for harmony. They need to be personally involved. They seek commitment. They are interested in people and culture. They are thoughtful and enjoy observing others. They absorb reality. They seek meaning and clarity.

As teachers they are interested in facilitating individual growth. They try to help people become more self-aware. They believe curricula should enhance the ability to be authentic. They see knowledge as growth in personal insight and encourage authenticity in their students. They like discussions group work, and realistic feedback about feelings. They are caring people e who seek to engage their students in cooperative efforts. They are aware of social forces that abject human development. They are able to focus on meaningful goals. They tend to become tearful under pressure an sometimes lack daring.

As leaders they thrive on developing good ideas, even though this is very time-consuming. They tackle problems by first reflecting alone and then brainstorming with others. They exercise authority with trust and participation. They work for organizational solidarity. They need staff who are supportive and share their sense of mission.

Strength: Imaginative ideas

Function by: Value clarification

Goals: To be involved in important issues and to bring harmony

Careers: Counseling, teaching, organizational development, humanities and social sciences

Favorite question: Why?

TYPE TWO: ANALYTICAL LEARNERS

As learners they perceive information abstractly and process it reflectively. They devise theories by integrating their observations into what is known. They seek continuity. They need to know what the experts think. They learn by thinking through ideas. They form reality. They value sequential thinking. They need details. They critique information and collect data. They are thorough and industrious. They will re-examine the facts if situations perplex them. They enjoy traditional classrooms. They find ideas fascinating. They prefer to maximize certainty and are uncomfortable with subjective judgments. They seek intellectual competence and personal effectiveness.

As teachers they are interested in transmitting knowledge. They try to be as accurate and knowledgeable as possible. They believe curricula should further understanding of significant information and should be presented systematically. They see knowledge as deepening comprehension. They encourage outstanding students. They like facts and details and organized sequential thinking. They are traditional teachers who seek to imbue a love of knowledge. They believe in the rational use of authority. Sometimes their dominating attitude tends to discourage creativity.

As leaders they thrive on assimilating disparate facts into coherent theories. They tackle problems with rationality and logic. They lead by principles and procedures. They exercise authority with assertive persuasion and by knowing the facts. They work to enhance their organization as an embodiment of tradition and prestige. They need staff who are well organized, write things down with diligence and care, and follow through on agreed decisions.

Strength: Creating concepts and models

Function by: Thinking things through

Goals: Intellectual recognition

Careers: Mathematics, research and planning, natural sciences

Favorite Question: What?

TYPE THREE: THE COMMON SENSE LEARNERS

As learners they perceive information abstractly and process it actively. They integrate theory and practice. They learn by testing theories and applying common sense. They are pragmatists. They believe it works and use it. They are down-to-earth problem-solvers, who resent being given answers. They do not stand on ceremony but get right to the point. They have a limited tolerance for fuzzy ideas. They value strategic thinking. They are skills oriented. They experiment and tinker with things. They need to know how things work. They edit reality, cut right to the heart of things. Sometimes they seem bossy and impersonal. They seek utility and results.

As teachers they are interested in productivity and competence. They try to give students the skills they will need to be economically independent in life. They believe curricula should be geared to this kind of locus. They see knowledge as enabling students to be capable of making their own way. They encourage practical applications. They like technical things and hands-on activities. They are exacting and seek quality and productivity. They believe the best way is determined pragmatically. They use measured rewards. They tend to be inflexible and self-contained and lack teamwork skills.

As leaders they thrive on plans and time lines. They tackle problems by making unilateral decisions. They lead by personal forcefulness, inspiring quality. They exercise authority by reward punishment. (The fewer the rules the better but enforce rigorously the ones you have.) They work hard to make their organization productive and solvent. They need staff who are task-oriented and move quickly.

Strength: Practical application of ideas

Function by: Factual data gathered from hands-on experiences

Goals: To bring their view of the present in line with future security

Careers: Engineering applied sciences, surgeons

Favorite Question: How does this work?

TYPE FOUR: THE DYNAMIC LEARNERS

As learners they perceive information concretely and process it actively. They integrate experience and application. They learn by trial and error. They are believers in self-discovery. They are enthusiastic about new thing. They are adaptable, even relish

change. They excel when flexibility is needed. They often reach accurate conclusions in the absence of logical justification. They are risk takers who are at ease with people. They enrich reality by taking what is and adding something of themselves to it. They are sometimes seen as manipulative and pushy. They seek to influence.

As teachers they are interested in enabling student self-discovery. They try to help people act on their own visions. They believe curricula should be geared to learners' interests. They see knowledge as a tool for improving the larger society. They encourage experiential learning. They like variety in instructional methods. They are dramatic teachers who seek to energize their students. They attempt to create new forms, to stimulate life and to draw new boundaries. They tend to rashness and manipulation.

As leaders they thrive on crisis and challenge. They tackle problems by looking for patterns, scanning possibilities. They lead by energizing people. They exercise authority by holding up a vision of what might be. They work hard to establish their organizations as front runners. They need staff who can follow up and implement details.

Strength: Action and presenting challenges

Function by: Acting, testing and creating new experiences

Goals: To bring action to ideas

Careers: Marketing, sales, entertainment, education, social professions

Favorite Question: What if?

Adult Learner 1998 Department of Instructional Design, Class Notes.

MULTIPLE INTELLIGENCE SURVEY

Rank each statement between the scale of 0-5, 0 signifying no interest or strength, and 5 signifying a strong interest and agreement.

1. _____ I can hear words in my head before I read, speak, or write them down.
2. _____ I get more out of reading a book or a spoken-word cassette than from videos, TV., or films.
3. _____ I enjoy word games like scrabble, anagrams, or password.
4. _____ Other people sometimes have to stop and ask me to explain the meaning of the words I use in my writing and speaking.
5. _____ English and history were easier for me in school than math and science.
6. _____ When I drive down a freeway, I pay more attention to the words written on billboards than to the scenery.
7. _____ My conversation includes frequent references to things that I've read or heard.
8. _____ I've written something recently that I was particularly proud of that earned me recognition from others.
9. _____ Likes to tell jokes or stories.
10. _____ Has a good memory for names, places, dates, or trivia.
11. _____ Can easily compute numbers in his/her head.
12. _____ Math and science were among my favorite subjects in school.
13. _____ I enjoy using logical thinking in playing strategy games or solving brainteasers.
14. _____ My mind searches for patterns, regularities, or logical sequences in things.
15. _____ I'm interested in new developments in science.
16. _____ I believe that almost everything has a rational explanation.
17. _____ I sometimes think in clear, abstract, wordless, imageless concepts.
18. _____ I like finding logical flaws in things that people say and do at home and work.
19. _____ I like to find out how things work.
20. _____ I engage in at least one sport or physical activity on a regular basis.
21. _____ I find it difficult to sit for long periods of time.
22. _____ I like working with my hands at concrete activities.
23. _____ My best ideas often come to me when I am being physically active or on a walk.
24. _____ I often like to spend my free time outdoors.
25. _____ I frequently use body language and hand gestures when I'm talking.
26. _____ I need to touch things in order to learn more about them.
27. _____ I would describe myself as well coordinated.
28. _____ I need to practice a new skill rather than simply reading about it or seeing a video that describes it.
29. _____ Has a dramatic way of expressing herself/himself.
30. _____ I regularly spend time alone reflecting, or thinking about important life questions.
31. _____ I have attended personal growth seminars, and/or counseling sessions to learn more about myself.
32. _____ I have a special interest or hobby that I keep pretty much to myself.

33.____ I have some important goals that I think about on a regular basis.
34.____ I have a realistic view of my strengths and weaknesses.
35.____ Displays a sense of independence or strong will.
36.____ Keeps a journey or some kind of a personal diary to record his/her inner life.
37.____ Is self-employed or has strong thoughts of starting one's own business.
38.____ Marches to the beat of a different drummer in his/her style of living and learning.
39.____ Is self-motivated to study, work, or setting one's on goal
40.____ People like to come to me for advice or counseling.
41.____ I prefer team sports to individual sports.
42.____ I like to seek out another person's help when I am having problems.
43.____ I have a minimum of three close friends.
44.____ I enjoy the challenge of teaching individuals and groups.
45.____ I consider myself a leader (or others refer to me as that).
46.____ I feel comfortable in the mist of a crowd.
47.____ I like being involved in social activities.
48.____ I would rather spend my weekend evenings at a large social gathering than a night alone or with one other.
49.____ Has a good sense of empathy or concern for others.
50.____ Can often see clear visual images/pictures in your mind
51.____ Likes to use a camera or camcorder to record what you see
52.____ Has a good eye for color
53.____ Enjoys visual activities like puzzles and mazes
54.____ Has vivid night dreams
55.____ Can find your way around unknown territory
56.____ Likes to draw or doodle
57.____ Likes learning from movies, slides, or other visual presentation
58.____ Can get more out of pictures than words when reading
59.____ Reads maps, charts and diagrams more easily than a text
60.____ You have a pleasant singing voice
61.____ You can tell when a note is off-key
62.____ You frequently listen to music on the radio, or own a stereo system
63.____ You play a musical instrument
64.____ Your life would be poorer if no music was in it
65.____ Can easily keep time to a piece of music with a simple percussion instrument
66.____ Knows the tunes to many different songs or musical pieces
67.____ You make tapping sounds or sing little melodies while working or studying
68.____ You can fairly accurately remember words and melodies of songs.

High numbers denote strength in that particular intelligence group. Questions 1-9 signify a verbal intelligence; 10-19 mathematical; 20-29 kinesthetic, 30-39 interpersonal, 40-49 intrapersonal; 50-59 spatial; and 60-68 musical intelligence.

Adapted from Thomas Armstrong's, 7 Kinds of Smart: Discovering and Using Your Natural Intelligences. ©1993. Based on Howard Gardner's Multiple Intelligence Theory.

ARE YOU A GROUPER OR A STRINGER

Check the phrase in each pair that corresponds more closely to your preferred approach to learning. There are no right or wrongs ways to complete these statements; they're designed simply to distinguish your preferences.

1. When studying one unfamiliar subject, you

___ (a) prefer to gather information from diverse topic areas.

___ (b) prefer to focus on one topic.

2. You would rather

___ (a) know a little about a great many subjects.

___ (b) become an expert on just one subject.

3. When studying from a textbook, you

___ (a) skip ahead and read chapters of special interest out of sequence.

___ (b) work systematically from one chapter to the next, not moving on until you have understood earlier material.

4. When asking people for information about some subject of interest, you

___ (a) tend to ask broad questions that call for rather general answers.

___ (b) tend to ask narrow questions that demand specific answers.

5. When browsing in a library or bookstore, you

___ (a) roam around looking at books on many different subjects.

___ (b) stay more or less in one place, looking at books on just a couple of subjects.

6. You are best at remembering

___ (a) general principles.

___ (b) specific facts.

7. When performing some tasks, you

__ (a) like to have background information not strictly related to the work.

__ (b) prefer to concentrate on only on strictly relevant information.

8. You think that educators should

__ (a) give students exposure to a wide range of subjects in college.

__ (b) ensure that students mainly acquire in-depth knowledge related to their specialties.

9. When on vacation, you would rather

__ (a) spend a short amount of time in several places.

__ (b) stay in one place the whole time and get to know it well.

10. When learning something, you would rather

__ (a) follow general guidelines.

__ (b) work with a detailed plan of action.

Do you agree that, in addition to specialized knowledge, a person should know some math, art, physics, literature, psychology, politics, languages, biology, history, and medicine? (If you think people should study four or more of these subjects, score an "a" on this question.) Now total all the a and b answers. If you scored six or more a's on the test, you are a grouper; if you scored six or more b's, you are a stringer. If you're a's and b's were close to equal, you find both approaches congenial and can choose the one that better fits the subject at hand. The higher your total of either a's or b's, the more specialized your learning style is. The descriptions below should illustrate your learning methods closely and clarify how you might follow a grouper or a stringer strategy.

Groupers. You prefer to take a broad view of any subject under study. You like to search out general principles rather than meticulous details and to relate one topic to as many other areas of knowledge as possible. You are quick to find relationships and to draw parallels among different areas of study.

Because of this learning style, groupers learn most easily and effectively in unstructured situations and do less well if knowledge is presented according to some rigid plan. Because you are able to bring together a wide range of information, you are likely to prove more successful than stringers when an eclectic approach is used.

Stringers. A systematic, methodical approach best suits you, because you learn most successfully by mastering specific details before moving to more general concepts. Your best approach is to establish a series of clearly defined goals that allow knowledge to be accumulated gradually. Only facts directly related to the topic under study should be considered while less relevant information, no matter how interesting, can temporarily be ignored. Stringers tend to achieve good grades in college, because the highly structured nature of most academic work favors their particular style of learning.

Gross, Ronald. Peak Learning. ©1991.

APPENDIX D

HANDOUTS FOR LESSON PLANS

ONE, TWO, AND THREE

LESSON ONE: Listening and Communicating

    1. Listening and Communicating Scenario

    2. Forms of Listening

    3. Communication Roadblocks

    4. Thinking Dispositions Terminology

    5. Thinking Dispositions Chart

LESSON TWO: Enculturation Exercise

    1. Divergent Critical Thinking Questions

    2. Enculturation Questionnaire

    3. Re-use Thinking Disposition Definitions

    4. Re-use Thinking Dispositions Chart

LESSON THREE: The Controversial Situation

    1. Re-use Thinking Disposition Definitions

    2. Re-use Thinking Dispositions Chart

Listening and Communicating Scenario

Your friend's sister Jan, who is fifteen years old, has asked advice from you about her desire to have sex with her boyfriend. You have encouraged her to delay this idea until she has graduated from high school. To cover all bases you also urged her to use some form of birth control and a condom for protection. Two months later, Jan is distressed and tells you she disregarded your advice and had unprotected sex anyway and she just found out that she is pregnant. What do you say? You have five minutes to write your response.

_____

_____

_____

_____

_____

_____

FORMS OF LISTENING

Julian Weissglass presented the listening skills listed below (1990).

_____ Active Listening: happens when the listener paraphrases and/or interprets what the speaker is saying. This is useful for clarification purposes and to reassure the listener that you understand what he meant.

_____ Passive Listening: "the listener doesn't say anything, but indicates interest and attention by maintaining eye contact and periodically nodding or smiling" (355).

_____ Inattentive Listening: being distracted or doing or paying attention to something else while someone is talking.

_____ Pretend Listening: Pretends to be passively listening while thinking or doing something else.

_____ Conversational Thinking: "the role of the talker and listener alternate -- often frequently, and the person listening is allowed, even expected, to interrupt and express a point of view" (355).

_____ Argumentative Listening: Listener speaks up a lot and typically plays the role of the "devils advocate". It is also a form of active critical analysis, where the listener is listening for errors in reasoning.

_____ Informational Listening: "this occurs when a person wants information that someone else possesses and attempts to make sense of the information that is received" (355).

_____ Constructivist Listening: "the listener encourages the talker to reflect on the meaning of events and ideas; express and work through feelings that are interfering with clearer thinking; construct new meanings; and make decisions" (356). The listener communicates "interest, caring, and acceptance" (356).

Listed below are other listening skills presented by Gerard Egan (1998).

_____ Inadequate Listening: "We get involved in our own thoughts, or we begin to think about what we are going to say in reply" (75).

_____ Evaluative Listening: "We are judging what the other person is saying as good-bad, right-wrong, acceptable-unacceptable, likable-unlikeable, relevant-irrelevant" (75).

_____ Filtered Listening -- An understanding that we are listening within our own conceptual framework. It is impossible to be completely unbiased when we are listening. Moreover, words get transform in our brains as we listen.

_____ Fact Centered Listening -- where you care more about the facts being presented than the person.

_____ Empathic Listening -- listening to "...understand another person's emotional state and point of view"(73). ["Making an effort to get in touch with another's frame of reference sends a message of respect"(98).]

Gerald Egan, Ph.D., The Skilled Helper: A Problem-Management Approach to Helping. ©1998.

Julian Weisglass, "Constructivist Listening for Empowerment and Change," The Educational Forum, ©1990.

COMMUNICATION ROADBLOCKS

1. Criticizing

2. Name-calling   JUDGING

3. Diagnosing

4. Praising Evaluatively

5. Ordering

6. Threatening   SENDING SOLUTIONS

7. Moralizing

8. Excessive/Inappropriate

   Questioning

9. Advising

10. Diverting   AVOIDING THE OTHER'S

11. Logical Argument   CONCERN

12. Reassuring

COMMUNICATION ROADBLOCKS (continued)

Criticizing: Making a negative evaluation of the other person, her actions, or attitudes. You brought it on yourself—you've got nobody else to blame for the mess you are in.

Name-calling: "Putting down" or stereotyping the other person "What a dope!" "Just like a woman...." "Egghead." "You hardhats are all alike." "You are just another insensitive male."

Diagnosing: Analyzing why a person is behaving as she is; playing amateur psychiatrist. "I can read you like a book—you are just doing that to irritate me." "Just because you went to college, you think you are better than I."

Praising Evaluatively: Making a positive judgment of the other person, her actions, or attitudes." Teacher to teenage student: "You are a great poet."

Ordering: Commanding the other person to do what you want to have done. "Do your homework right now." "Why?! Because I said so...."

Threatening: Trying to control the other's actions by warning "Stop that noise right now or I will keep the whole class after school."

Moralizing: Telling another person what she should do. "Preaching" at the other. "You shouldn't get a divorce; think of what will happen to the children." "You ought to tell him you are sorry."

Excessive/Inappropriate Questioning: Closed-ended questions are often barriers in a relationship; these are those that can usually be answered in a few words often with a simple yes or no. "When did it happen?" "Are you sorry that you did it?"

Advising: Giving the other person a solution to her problems. "If I were you, I'd sure tell him off." "That's an easy one to solve. First . . ."

Diverting: Pushing the other's problems aside through distraction. "Don't dwell on it, Sarah. Let's talk about something more pleasant." Or; "Think you've got it bad, let me tell you what happened to me."

COMMUNICATION ROADBLOCKS (continued)

Logical argument: Attempting to convince the other with an appeal to facts or logic, usually without consideration of the emotional factors involved. "Look at the facts; if you hadn't bought that new car, we could have made the down payment on the house."

Reassuring: Trying to stop the other person from feeling the negative emotions she is experiencing. "Don't worry, it is always darkest before the dawn." "It will all work out OK in the end."

THINKING DISPOSITIONS TERMINOLOGY

Intellectual Autonomy: "Having rational control of ones beliefs, values, and inferences"

Intellectual Civility: A process of "honoring others' views and their capacity to reason" as opposed to "verbally attacking others, dismissing them, or stereotyping their views

Intellectual Courage: "The willingness to face and fairly assess ideas, beliefs, or viewpoints to which we have not given a serious hearing, regardless of our strong negative reactions to them" (Paul 1993, 470).

Intellectual Curiosity: "A strong desire to deeply understand, to figure things out, to propose and assess useful and plausible hypotheses and explanations, to learn, to find out" (Paul 1993, 471).

Intellectual Discipline: " The trait of thinking in accordance with intellectual standards, intellectual rigor, carefulness, order, conscious control" (Paul 1993, 471).

Intellectual Empathy: "Understanding the need to imaginatively put oneself in the place of other to genuinely understand them. "...the ability to accurately reconstruct the viewpoints and reasoning of others and to reason from premises, assumptions, and ideas other than our own" (Paul 1993, 471).

Intellectual Humility: "Awareness of the limits of one's knowledge..." "Intellectual humility is based on the recognition that no one should claim more than he or she actually knows." It is the practice of eliminating "pretentiousness, boastfulness, or conceit" (Paul 1993, 471).

Intellectual Integrity: "Recognition of the need to be true to one's own thinking, to be consistent in the intellectual standards one applies, to hold oneself to the same rigorous

standards of evidence and proof to which one holds one's antagonists, to practice what one advocates for others, and to honestly admit discrepancies and inconsistencies in one's own thought and action" (Paul 1993, 472).

Intellectual Perseverance: "Willingness and consciousness of the need to pursue intellectual insights and truths despite difficulties, obstacles, and frustrations; firm adherence to rational principles despite irrational opposition of others; a sense of the need to struggle with confusion and unsettled questions over an extended period of time in order to achieve deeper understanding or insight" (Paul 1993, 472).

Intellectual Responsibility: The inclination "to achieve a high degree of precision and accuracy in his or her reasoning, is deeply committed to gathering complete, relevant, adequate evidence, etc." (Paul 1993, 472).

Intellectual Sense of Justice: "Willingness and consciousness of the need to entertain all viewpoints sympathetically and to assess them with the same intellectual standards, without reference to one's own feelings or vested interests, or the feelings or vested interests of one's friends, community, or nation; implies adherence to intellectual standards without reference to one's own advantage or the advantage of one's group" (Paul 1993, 472).

Intellectual Virtues: "The traits of mind and character necessary for right action and thinking; the traits of mind and character essential for fair-minded rationality; the traits that distinguish the narrow-minded, self-serving critical thinker from the open-minded, truth-seeking critical thinker" (Paul 1993, 473).

Fair-mindedness: Diestler provides a similar account supporting fair-mindedness by addressing three fundamental points for students to consider. First, we should obtain, "A

respect for people whose ethnicity's and traditions are different from our own" (356).

Next we should develop a willingness to hear and understand other viewpoints. His final

point is that we acquire "an openness to change when new information or insights

warrants that change" (357). As critical thinking teachers our aim is to help students

realize that they need to be the most careful when they listen to points of view from

someone they disagree with or dislike.

The following three dispositions were obtained from Ennis (1985, 54).

Be open-minded:

      a. Consider seriously other points of view than one's own.

      b. Reason from premises with which one disagrees--without letting the

         disagreement interfere with one's own reasoning.

      c. Withhold judgment when the evidence and reasons are insufficient.

Take a position (and change a position) when the evidence and reasons are sufficient to

do so.

Skeptical thinking: Questioning the soundness and validity of claims, assumptions, and

reasons.

Philosophical thinking: Searching for deeper knowledge and wisdom

Awareness of bias: Conscious of the conceptual framework our thoughts and beliefs are

based on.

Desire for clarification: Holding back agreeing or disagreeing with a claim until an

understanding of terminology is obtained. Being inclined to articulate in a clear manner

to avoid ambiguous terms.

THINKING DISPOSITIONS' CHECK LIST

	Lesson 1	Lesson 2	Lesson 3
Intellectual Autonomy			
Intellectual Civility			
Intellectual Courage			
Intellectual Curiosity			
Intellectual Discipline			
Intellectual Empathy			
Intellectual Humility			
Intellectual Integrity			
Intellectual Responsibility			
Intellectual Sense of Justice			
Intellectual Virtues			
Fair-mindedness			
Be open-minded			
Take a position or change a position			
Skeptical thinking			
Philosophical thinking			
Awareness of bias			
Desire for clarification			

DIVERGENT CRITICAL THINKING QUESTIONS

Why do you believe this?

_____

What evidence do you have?

_____

Where did the evidence come from?

_____

How reliable is the source?

_____

What other evidence could be helpful?

_____

What evidence supports opposing views?

_____

Is there a reason to question the evidence from the opposing view?

_____

What makes it questionable?

_____

What makes it acceptable?

_____

How do you know your information is correct?

_____

What assumptions are you making from your claim or your reasons?

_____

Do you have reason to think your assumptions are true?

_____

Are any of your reasons fallacies?

_____

ENCULTURATION QUESTIONAIRE HANDOUT

1. Do you believe that abortion is wrong in most or all cases?

   a. Do you know at what moment a human being comes into existence?

   b. If yes, do you have good arguments to support your belief?

   c. Do you know at what moment a developing embryo has human rights?

   d. Do you know at what moment a developing fetus becomes conscious?

   e. Do you know at what moment a developing fetus is capable of experiencing pain?

   f. Can you cite any arguments used by pro-choice advocates to support abortion?

   g. Do you believe that a seed of an apple has the same value as an apple tree?

2. Do you believe that capital punishment is justified for mass murderers?

   a. Do you know that capital punishment is a more expensive way to punish than life imprisonment because of the numerous and very expensive judicial appeals of the former?

   b. Have you seen any statistics that clearly show capital punishment to inhibit murder?

3. Do believe there is a God?

   a. Have you ever heard of an argument against this idea?

   b. Can you present an argument against this idea?

4. Do you believe that one racial group is innately superior to another?

   a. Do you know that Japanese score slightly higher on intelligence tests than whites?

   b. Do you know the extent to which the environment determines intelligence?

   c. Do you know the amount of genetic similarity among racial groups?

5. Do you believe that America is the best country in the world?

    a. Do you know that our infant mortality rate is higher than that of many other modern industrial countries?

    b. Do you know that the United States has one of the highest rates of violent crime in the world?

    c. Do you know that the top 10 percent of the U.S. population hold 67 percent of all wealth in the country, including 90 percent of stocks and bonds?

    If you answered "yes" to the questions above, but "no" to parts a, b, c, etc., it could be that you have merely adopted your position through an enculturation process, that is, picked it up through your acquaintance with your peers, parents, religion, and so on, instead of through careful reflection and the gathering of facts. Sound reasoning and facts might support a "yes" response to many of the questions above. The point is not to determine what is true about the issues above, but to illustrate the lack of both thinking and knowledge that tends to go into these beliefs.

Cited from, Gary R. Kirby, and Jeffery R. Goodpaster, Thinking. ©1995.

APPENDIX E

ABSTRACTS OF ADDITIONAL LESSON PLANS

1. Lesson Four: Poems of Thought

2. Lesson Five: The Stages of Knowing

3. Lesson Six: Arguing the Opposing Side

4. Lesson Seven: The Language of Thinking

5. Lesson Eight: Discussion of Philosophical Statements

6. Lesson Nine: Exploration of Personal Beliefs

7. Lesson Ten: Decision-Making Strategies

8. Lesson Eleven: Factors That Hinder Effective Thinking

9. Lesson Twelve: Examination of Thinking Dispositions

Lesson Four: Poems of Thought

The two poems "The Zen Master" and "The Blind Men and the Elephant" are excellent examples of thought provoking prose. These poems hint at the notion of collaborative learning and prompt students to consider the values of thinking dispositions such as: listening to multiple perspectives, deferring judgment, and intellectual humility. By having the teacher read these poems out loud the students have an opportunity to ponder the possible morals and interpretations of the tales. Once the first poem has been read to the class the teacher will allocate some time for the students to write their responses. Ideally, students will contemplate the issues of listening to multiple perspectives and the concept of open-mindedness. When students have finished writing then the whole class will participate in a group discussion. This enables students to explore their own reactions before being persuaded by others. To capitalize on the opportunity of demonstrating the value of listening to multiple perspective, I require the students to later write a more detailed reflection of the meaning of the poems. Later, I record all of the different responses onto one handout and present a copy to each student to keep.

Lesson Five: The Stages of Knowing

John Chaffee acquired the description of the three stages of knowing from The Thinker's Way. The first stage is the "black and white" stage that denotes peoples' ability to view beliefs and claims as only right or wrong with no in between. These types of thinkers typically believe what others have told them. Stage two is referred to as the "anything goes" stage where people believe whatever they want and tend not to care or

listen to what the opposing side has to say. People in this stage feel everyone has a right to believe what they want and if they cannot agree there is nothing anyone can do to help. The third stage is that of the critical thinker. This stage of knowing displays a person's ability to form his own decisions based on reasonable, reflective, and focused thinking. Through a process of questioning, challenging, and understanding this person can construct well-informed decisions.

The activity for this lesson is to have the students divide into three groups and participate in a role-playing exercise where each group plays the role of one of the stages of knowing. The teacher can choose her own topic to be debated or I recommend having a discussion on "what is the correct role of the teacher and of the student?" The idea is to have students in each group defend their beliefs according to the stage of knowing they are role-playing. This exercise can help students experience the need for thinking dispositions like: open-mindedness, intellectual civility, intellectual courage, intellectual curiosity, and intellectual humility.

Lesson Six: Arguing the Opposing Side

In the preceding class students will be instructed to choose a belief they feel strongly about and come prepared to the next class to defend the opposing side of their belief. Students will pick a partner, explain the conceptual frame of reference supporting their belief, and proceed to support the claims of an opposing belief. The listener will practice listening skills to help further the depth of the discussion. After ten minutes are up the students will switch roles. At the end of the exercise a group discussion of the benefits and problems of defending an opposing belief will be initiated by the teacher.

This exercise will encourage the development of thinking dispositions such as: intellectual empathy, intellectual sense of justice, fair-mindedness, and open-mindedness.

Lesson Seven: The Language of Thinking

The class will begin with a group discussion of whether language shapes our thoughts. Next, students will analyze whether it is easier to conceive of something if we have a word for it? At this point the students will brainstorm types of vocabulary people use in different situations, roles, and jobs. I recommend to have the students discuss Deborah Tannen's claim. "Perhaps a new vocabulary and a new way of talking are tantamount to a new way of looking at the world" (1986, 194). Next, divide the class into groups of four, distribute the "thinking language" handouts to the students, and have them rate according to the format their usage of these words. (see appendix D.) Then each group will discuss the possible advantages of being specific with words. This lesson will produce an awareness of dispositions such as: intellectual discipline, intellectual responsibility, and a desire for clarification.

Lesson Eight: Discussion of Philosophical Statements

In this lesson, students will receive the "Philosophical Statements" handout and will be given time to write a few reflections of their beliefs about these statements. Next, students will gather into groups with four to five people in each group. The group objective is to discuss the differing opinions about these statements. By incorporating philosophical thinking in the exercise students will see well-developed models of contrasting views. Moreover, they will embrace and participate in utilizing thinking

dispositions such as: intellectual civility, intellectual courage, intellectual curiosity, intellectual humility, intellectual sense of justice, and open-mindedness.

Lesson Nine: Exploration of Personal Beliefs

For homework in the preceding class the "Personal Beliefs" and "Moral Beliefs" handouts are distributed to the students. Before the next class, students are to answer the questions on the handouts, and bring it back to the next class. The lesson for this class involves examining the soundness and validity of the students' beliefs. The "Divergent Questions" handout will be distributed and students will work individually to answer the questions about how their beliefs were obtained review the soundness of their reasoning. If more time is available students can join with two others and compare and contrast how sound and valid their reasons seem to be. This lesson will help students experience the thinking dispositions such as: intellectual autonomy, intellectual discipline, intellectual humility, intellectual integrity, intellectual perseverance, intellectual responsibility, and awareness of bias.

Lesson Ten: Decision-Making Strategies

To start the activity the teacher will distribute the "Wilderness Survival" handout and allow ten minutes for the students to answer the questions individually. Next, divide the class into groups of five. For the next fifteen minutes have the groups come to an agreement on the answers. A person from each group writes the group's answer on the board. Then the teacher writes the correct answers on the board. Next, the class as a whole will discuss ideas of why and how people tend to make decisions and what factors

influence them to change their decisions. A further discussion on the benefits and problems of individual and collaborative decision-making will aid in challenging the students' thought process. I also encourage students to later write a reflection of what they experienced in the group and explore what did they learned about themselves and others? This exercise is useful for students to take a deeper look at their decision-making skills. It also helps to reinforce the critical thinking skills of evaluating the soundness of the evidence; exploring how beliefs are formed; acknowledging the presence of bias; and introducing a metacognitive approach to decision-making. The thinking dispositions that will be observed are: intellectual civility, intellectual humility, intellectual virtues, fair-mindedness, awareness of bias, desire for clarification, skeptical thinking, and take a confident position and change a position.

Lesson Eleven: Factors That Hinder Effective Thinking

To begin this lesson, students will brainstorm factors that hinder effective thinking. It is helpful for the teacher to write these ideas on the chalkboard. Next, the teacher will distribute the "Ineffective Thinking Factors" handout. Divide up into small groups and have each group discuss and present examples of when defense mechanisms, cognitive dissonance, and other factors played a negative role in their thinking process. Next, the groups will generate and practice using ideas of how to deal with or avoid these negative-thinking factors. Students will write about what changes they can make to improve upon their thinking abilities. Next, students are to explore what changes they could possibly make to improve their ability to think well on a consistent basis. I recommend for students to categorize the possible changes based on a degree of difficulty

for the change. One idea is to rate the changes on a scale of one to ten. Ten signifies the change would be extremely difficult and one being extremely easy. Students might consider starting with the easier changes as opposed to the more difficult ones. In addition, students will conceptualize a strategy to modify and amend one-three factors presently hindering their thinking. They will also create a chart or matrix to record their progress. This exercise will engage students in the participation of utilizing these dispositions: intellectual perseverance, open-mindedness, skeptical thinking, awareness of bias, and a desire for clarification.

Lesson Twelve: Examination of Thinking Dispositions

At the end of the preceding class the teacher will distribute the "Thinking Dispositions" handout. Students are to read through the handout and be prepared to discuss their experience with the dispositions. They are to consider which dispositions they are typically inclined to use; which dispositions they have practiced utilizing in the class activities; which dispositions they have never used; and which dispositions are difficult to incorporate into their natural thinking process. It is suggested for students to also think about other dispositions that are not on the handout. During class an open discussion of these thinking dispositions will take place. Students will evaluate whether they feel more disposed to using these dispositions and discuss different situations where it might be easy or difficult to utilize some or all of the dispositions. Students will also review past exercises and try to determine which dispositions were beneficial for the activity.

APPENDIX F

HANDOUTS FOR ADDITIONAL LESSON PLANS

1. Poems of Thought

2. Stages of Knowing

3. Language of Thinking

4. Philosophical Statements

5. Personal Beliefs

6. Moral Beliefs

7. Wilderness Survival Worksheet

8. Wilderness Survival Questionnaire

9. Factors That Hinder Effective Thinking

POEMS OF THOUGHT

Nan-in, a Japanese master during the Meiji era (1868-1912), received a university
professor who came to inquire about Zen.
Nan-in served tea. He poured his visitor's cup full, and then kept on pouring.
The professor watched the overflow until he no longer could restrain himself. "It is
overfull. No more will go in."
"Like this cup," Nan-in said, "you are full of your own opinions and speculations. How
can I show you Zen unless you first empty your cup."

BLIND MEN AND THE ELEPHANT

It was six men of Indostan
To learning much inclined
Who went to see the elephant
Though all of them were blind
That each by observation
Might satisfy his mind.

The first approached the elephant
And, happening to fall
Against the broad and sturdy side,
At once began to brawl:
"Why bless me! The elephant
Is very much like a wall.

The second, feeling of the tusk,
Cried: "Ho! What have we here
So very round and smooth and sharp?
To me, 'tis very clear,
This wonder of an elephant
Is very much like a spear!"

The third approached the animal,
And, happening to take
The squirming trunk within his hands
Thus bodly up he spake:
"To feel of the elephant
Is very much like a snake!"

The fourth reached out his eager hand
and felt about the knee
"What most this wonderous beast is like
Is quite plain to me,
This thing you call an elephant
Is very much like a tree!"

The fifth who chanced to touched the ear,
Said: "E'en the blindest man
Can tell what this resembles most -
Deny the fact who can:
This marvel of an elephant
Is very much like a fan!"

The sixth no sooner had begun
About the beast to grope
Than seizing on the swinging tail
That fell within his scope,
"I see, said he, "the elephant
Is very much like a rope!"

And so these men of Indostan
Disputed loud and long,
Each in his own opinion
Exceeding stiff and strong;
Though each was partly in the right,
All were in the wrong.

Adult Learner 1998 Department of Instructional Design, Class Notes.

STAGES OF KNOWING

STAGE ONE: Black & White/ Right & Wrong

    1. "Authorities" tell you what is right & what to believe

    2. Knowledge is absolute & unchanging

    3. Must rely on others to determine "truths" for themselves

PROBLEMS:

    1. What happens to stage 1 thinkers when "authorities" disagree and a multiple

       range of answers, within a scale of right and wrong, are all possible answers?

    2. Who are these "authorities"?

STAGE TWO: Opposite Extreme/Anything Goes

    1. Can't trust what anyone says (in philosophy "such a view is known as

       relativism: the truth is relative to any individual or situation, and there is no

       standard we can use to decide which beliefs make most sense" (Chaffee

       1998, 41).

PROBLEM:

    1. What problems do you see in this type of thinking? What benefits?

       (Problem: " If we truly believe this, than we cannot condemn any belief or

       action, no matter how heinous, and we cannot praise any belief or action, no

       matter how laudatory." (Chaffee 1998, 42)

STAGE THREE: Critical Thinker

    1. (See characterisitcs of a critical thinker in Appendix B.)

Adapted from John Chaffee, The Thinker's Way: 8 Steps to a Richer Life. ©1998.

LANGUAGE OF THINKING

advance	affirm	allege	analyze	appraise
appreciate	apprehend	ascertain	assert	assess
assume	attest	aver	calculate	claim
cognize	comprehend	concede	conclude	confirm
conjecture	consider	construe	contemplate	contend
contradict	contravene	convince	corroborate	criticize
decide	declare	deduce	define	deliberate
demonstrate	deny	derive	detect	determine
discern	disclaim	discover	discredit	discriminate
dispute	dissect	doubt	elucidate	entertain
establish	estimate	evidence	examine	explain
explore	fathom	grasp	guess	hypothesize
imply	infer	inquire	inspect	interpret
intuit	investigate	judge	justify	know
maintain	muse	observe	perceive	ponder
posit	postulate	presume	probe	process
profess	propose	prove	question	realize
reason	rebut	recognize	reflect	research
resolve	review	ruminate	scrutinize	speculate
state	study	submit	suggest	suppose

PHILOSOPHICAL THINKING
WHAT DO YOU BELIEVE?

Give examples regarding your beliefs about these claims.

1. Men are disturbed not by things, but by the view that they take of them -- Epictetus

2. "People can only tell the truth as they experience it" (Tanner 1986, 194).

3. We grow up believing that our own frame of reference is correct and that is the way it is supposed to be. This type of thinking leads to statements like: "That's just how I am,' 'That's just how it is,' 'There's nothing I can do about it" (Freeman 1992, 16).

4. "If we are rude to someone who has annoyed or offended us we don't think this rudeness defines our personality; we think we were rude in that instance. But we think of others' personalities and behaviors as absolute" (Tanner 1986, 183).

5. "People instinctively feel that their way of expressing things and of being polite or rude are natural and logical" (Tanner 1986, 195).

PHILOSOPHICAL BELIEFS

Can you simply choose what you want to believe and become that person?

_____

_____

Do you have free will to become whoever you want to be or are you determined/fated because of your genes, upbringing, race, culture, and innate qualities?

_____

_____

How are beliefs, values, rules, and expectations created? Can they be changed?

_____

_____

What is man's ultimate achievement or goal in life?

_____

_____

What character traits define who you are?

_____

_____

What character traits could you change if you wanted to? Which ones will never change? Explain why.

_____

_____

MORAL BELIEFS

Write one to two sentences about a belief you feel strongly about. You can choose from one of the topics provided below or write one of your own. For example, "I believe all adults have the right to own a gun." Or, "I believe guns should not be allowed in homes that have children 18 years old or younger".

Gun Control	Animal Rights
Violence	Gangs
Drinking	Driving and Driving
Marriage	Pre-maritial Sex
Abortion	Euthanasia
Death Penalty	Parenting
Money	Happiness
Purpose in Life	Education
Career	Drugs
Cigarettes	Legal System
Music	Women's' Rights

WILDERNESS SURVIVAL WORK SHEET

Here are twelve questions concerning personal survival in a wilderness situation. Your first task is individually to select the best of the three alternatives given under each item. Try to imagine yourself in the situation depicted. Assume that you are alone and have a minimum of equipment except where specified. The season is fall. The days are warm and dry, but the nights are cold.

After you have completed this task individually, you will again consider each question as a member of a small group. Your group will have the task of deciding; by consensus, the best alternative for each question. Do not change your individual answers, even if you change your mind in the group discussion. Both the individual and group solutions will later be compared with the "correct" answers provided by a group of naturalists who conduct classes in woodland survival.

1. You have strayed from your party in trackless timber. You have no special signaling equipment. The best way to attempt to contact your friends is to:

    a. call "help" loudly but in a low register.

    b. yell or scream as loud as you can.

    c. whistle loudly and shrilly.

2. You are in "snake country." Your best action to avoid snakes is to:

    a. make a lot of noise with your feet.

    b. walk softly and quietly.

    c. travel at night.

3. You are hungry and lost in wild country. The best rule for determining which plants are safe to eat (those you do not recognize) is to:

    a. try anything you see the birds eat.

    b. eat anything except plants with bright red berries.

    c. put a bit of the plant on your lower lip for five minutes; if it seems all tight,

       try a little.

4. The day becomes dry and hot. You have a full canteen of water (about one liter) with you. You should:

a. ration it out a cupful a day.

    b. not drink until you stop for the night, then drink what you think you need.

    c. drink as much as you think you need when you need it.

5. Your water is gone; you become very thirsty. You finally come to a dried-up watercourse. Your best chance of finding water is to:

    a. dig anywhere in the stream bed.

    b. dig up plant and tree roots near the bank.

    c. dig in the stream bed at the outside of a bend.

6. You decide to walk out of the wild country by following a series of ravines where a water supply is available. Night is coming on. The best place to make camp is:

    a. next to the water supply in the ravine.

    b. high on a ridge.

    c. midway up the slope.

7. Your flashlight glows dimly as you are about to make your way back to your campsite after a brief foraging trip. Darkness comes quickly in the woods and the surroundings seem unfamiliar. You should:

    a. head back at once, keeping the light on, hoping the light will glow enough for

       you to make out landmarks.

    b. put the batteries under your armpits to warm them and then replace them in the

       flashlight.

    c. shine your light for a few seconds, try to get the scene in mind, move out in the

       darkness, and repeat the process.

8. An early snow confines you to your small tent. You doze with your small stove going. There is danger if the flame is:

    a. yellow.

    b. blue.

    c. red.

9. You must ford a river that has a strong current, large rocks, and some white water. After carefully selecting your crossing spot, you should:

    a. leave your boots and pack on.

    b. take your boots and pack off.

    c. take your pack off, but leave your boots on.

10. In waist-deep water with a strong current, when crossing continued should face:

a. upstream.

b. across the stream.

c. downstream

11. You find yourself rimrocked: your only route is up. The way is mossy, slippery rock
You should try it:

a. barefoot.

b. with boots on.

c. in stocking feet.

12. Unarmed and unsuspecting, you surprise a large brown bear prowling around your
campsite. As the bear rears up about ten meters from you should:

a. run.

b. climb the nearest tree.

c. freeze, but be ready to back away slowly.

FACTORS THAT INHIBIT EFFECTIVE THINKING

Anxiety_____

Bias _____

Defense Mechanisms _____

Defensiveness _____

Denial _____

Guilt _____

Introjection _____

Prejudging _____

Projection _____

Rationalizing _____

Scapegoating _____

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