

**Perceptions of
Critical Thinking, Problem Solving and Learning to Learn:**

**A Study of Four Female
Adult and Continuing Education Administrators**

by

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Abstract

The purpose of this qualitative study was to examine ways in which adult education administrators define and apply critical thinking, problem solving, and learning to learn to their practices as well as in other areas of their lives. Participants included four female administrators in adult education programs at community college and state university settings. These individuals have advanced university degrees and experience with both teaching and administration. Data were collected by interview. An interview protocol was developed, designed to discover themes specifically related to participant's understanding and perceptions of: a) manifestations of critical thinking, problem solving, and learning to learn; b) similar concepts and processes by highly effective administrators; and c) similar concepts and processes as manifested by ineffective administrators. Their personal and professional backgrounds were also explored. Data were analyzed according to questions, which served as categories. Transcripts of the interviews were coded, then analyzed for themes within category. Themes that emerged from Category 1: Personal background, included educational background, daily work, career path, and understanding of themselves as adult learners. Themes within Category 2: Perceptions of critical thinking, problem solving, and learning to learn, in nonspecific terms, were organized by each of those components. Themes that emerged from both Category 3: Toward effective administration, and Category 4: Toward ineffective administration were parallel. These included overall impression, use of critical thinking, application of problem solving, learning to learn, and beliefs toward lifelong learning. One major area of concern that became evident in the data was respondents' inconsistent perception of the meaning or application of the concept of learning to learn; yet two areas of proficiency were identified by the respondents - communication and problem posing/problem solving. Problem posing involves critical thinking and communication. Effective problem solving is facilitated by knowledge and practice of these skills and are needed to be well developed in the effective administrator.

Introduction

Administrators of adult and continuing education (ACE) programs play a key role in development of educational environments for adults that facilitate achievement of program goals and objectives. Thinking skills that include critical thinking, problem solving, and learning to learn support the administrator's abilities to manage and make "tough decisions" (McDade, 1987, p. 13) required of education leaders. McDade continues that wise, effective decision making involves working within the context of current reality while maintaining awareness of factors required to lay the foundation for future realities. The individual who has not learned these skills depends upon opinions of others when making crucial decisions and often makes these decisions without sufficient information. Kurfiss (1988) asserts that reasoning is impossible without critical thinking. This thought corresponds with Robert Ennis' critical thinking taxonomy which indicates that "(b)ackground knowledge is absolutely essential for critical thinking" (Illinois Critical Thinking Project).

Several different models of critical thinking exist, each with its own foci (Eisenberg & Johnson, 1996; Ennis, 1992; Kim, 1993; Norris, 1992). Despite Ennis' straightforward definition that has driven critical thinking research and practice for decades, the term "critical thinking" debate continues among scholars of divergent viewpoints regarding definition, meaning, and effective teaching methodology (Norris, 1992). Currently, the term is used to refer to many types of thinking, while used interchangeably with these terms including information literacy (Eisenberg & Johnson, 1996) thinking skills, higher order thinking (O'Tuel & Bullard, 1993), metacognition (Center for Critical Thinking and Moral Development, Sonoma State University, 1990a), clear thinking, good thinking, problem solving, and Bloom's Taxonomy (O'Tuel & Bullard, 1993). Vockell and van Deusen (1989) explore the notion of three broad overlapping categories of higher-order thinking skills: metacognitive skills, critical and creative thinking, and thinking processes, suggesting that these skills are distinct rather than different names for the same thinking process. Others discuss critical thinking within the context of process skills which include problem solving, learning to learn (Dirkx, 1995).

In his book, *Freedom to Learn* (1969), Carl Rogers outlined principles relating to facilitation of adult learning, the most useful of which, he asserted, was “learning the process of learning, a continuing openness to experience and incorporation into oneself of the process of change” (cited in Boyer, 1986). In light of technological and social change, Boyer continues, the adult who knows how to learn will develop new ways to adapt to rapid change. Some researchers (Blodgett-McDeavitt, 1995; Kim, 1993; Vockell & van Deusen, 1989) combine elements of creative thinking with critical thinking. Creativity, although a process apart from critical thinking, is described as the learner's ability to take the facts derived from critical thinking and apply them in new situations, including learning to learn. Kim further suggests that critical thinking is of limited value without a creative element to apply critical thinking across contexts.

Purpose of the Study

The purpose of this study was to examine the ways in which adult education administrators define and apply critical thinking, problem solving, and learning to learn to their practices as well as in other areas of their lives.

Participants

Participants included administrators in adult education programs at community college and state university settings. These individuals have advanced university degrees and experience with both teaching and administration. Professional descriptions included: Assistant Vice President for Lifelong Learning; Assistant Director of Adult Programs and Continuing Services; Interim Dean, College of Continuing Studies; and Director, Department of Conferences and Institutes.

Data Collection

Data were collected by interview. An interview protocol was designed to gradually coax participants to think in detail and express themselves openly on the topics of:

- the participant's own understandings and manifestations of critical thinking, problem solving, and learning to learn;
- the participant's perceptions of similar concepts and processes by highly effective administrators; and
- the participant's perceptions of similar concepts and processes as manifested by ineffective administrators.

Questions began with straightforward demographic background information, but gradually moved to questions that required reflection. Respondents were encouraged to think reflectively about their personal perceptions of the concepts in the beginning of the interview, and were then asked to continue to the more abstract queries about effective and ineffective practice. The sections which probed their perceptions of effective and ineffective practice were structured to relate the concepts to a tangible person(s) as a means intended to assist the subject to answer these questions. Rationale for each of the questions is included in Appendix A. The interview protocol is included in Appendix B.

Data Analysis

Data were analyzed according to questions, which served as categories. Transcripts of the interviews were coded, then analyzed for themes within category. An unanticipated response to the protocol was the frequency with which the subjects tended to ramble or "get off track" while responding. One respondent commented that a reason for this response may be simply that administrators may not often have the opportunity to reflect and talk about themselves and their practice to a willing listener. Another unexpected response to the survey was the number of times the subjects asked if they were on track, giving the right answers. They were reassured that there were no right or wrong answers to the questions, and that their open responses were valued.

Response to the survey was very positive. As a group, participants enjoyed the survey. They all expressed that the questions caused them to think in ways that they are generally not required to do on the job. One participant remarked, "You're asking wonderful things and it's nice to reflect. I don't get to do this very often." Another

expressed that the questions were interesting because of the reflection required for some of the answers.

Category 1: Personal background.

Educational background - The four women had a total of 12 degrees from programs which include: Home Economics Education, Psychology; Counseling/student personnel, Adult Education, Distributive Education, Adult and Continuing Education, Community and Human Resources, Curriculum and Instruction. There was one Master's degree and one Ph.D. in Adult Education. The remainder of the degrees were related to education, administration, and people.

Daily work - Although their titles varied widely - Dean, Director, Assistant Director, Assistant Vice President - the four reported similar responsibilities: director, orchestrator, supervisor, financial manager, personnel management, program development, administrator, nontraditional, academic, credit, non-credit, professional development, and business operations. They all work under at least one level of administrative hierarchy, and three manage staff of up to 36 people.

Career path - All four women have each experienced many jobs before finding their current positions in adult education. All have been, or are currently, teachers in higher education with experiences in off-campus settings. Only one of the administrators had decided that she "wanted to work with adults" but her position in administration was not a goal at the outset of her nontraditional educational career. She pursued her adult education degree after determining that she did not want to work in the K-12 environment. Two stated directly that they came to adult education through a "back or side door" or "by accident," indicating that they had held a variety of positions before finding a fit in adult education administration. One administrator spoke of the "many interesting chapters in her life" and the use of transferrable skills throughout her career to help her to achieve her goals. Specific job descriptions included student development, teacher, supervisor, program development, associate dean, and entrepreneur. All have been actively involved in their professional development, believing continuing education to be a high priority.

Adult learner - The respondents describe themselves as adult learners as “ever-reaching,” “quick study,” “informal,” “continuous, lifelong learner,” and “actively involved.” Learning is a high priority and is viewed by all as a vital component of their administrative roles. Three indicated that they read extensively, both within their field and outside.

One respondent, describing herself as a “quick study,” referred to the nature of the transfer of information which best applies to her program development role. She indicated that she must learn about many unrelated topics, so she does not explore a single topic extensively. She expressed that “the person who wants to do a thorough study is not able to do broad-based program development very well” but is better suited to offer continuing education in a specific area.

Category 2: Perceptions of critical thinking, problem solving, and learning to learn.

Critical thinking - Critical thinking is perceived as a process, a broad concept, with two general components: reflective and analytical. Respondents discussed the analytical component in terms of the “ability to do very complex reasoning...an ability to think about things from different perspectives,” “going beyond just talking and going back and forth to really, thinking in complex terms,” “a process by which we utilize all the resources that we have available to brain storm all the possible alternatives of action that we have.” One said, “I think of it as analytical.” Another continued, “it goes beyond problem solving...we are constantly taking in new information and reworking it through the process. Correlating critical thinking with the Bloom’s taxonomy, one administrator said, “I would see the application level of that as what some people would call problem solving. I see critical thinking as moving into the higher order skills and going on to analysis of the evaluation. Examining of what you’re doing all the time.”

Respondents also reflected on the cognitive component of critical thinking. Reflecting on “why” was an important component of critical thinking for these women.

Generically, someone who thinks critically is the reflective practitioner model...always thinking about what it is you're doing...how well it's working with the situation at hand and how well it fits with everything else you're trying to do and everything else that's going on. Where is this in the bigger scheme of things.

It means...taking the time to get away from what you're doing to look at it and to question the way you're doing, and why you do what you do, and really think about other alternatives.

In practice, the respondents indicated a variety of critical thinking applications. One administrator continued that she doesn't consider that the way she performs her job is the only way, or necessarily even the right way. She stressed that critical thinking facilitated being "able to change how you're doing it and make it better...review and to reflection...how could we do this better." One administrator summarized the beliefs expressed by the respondents:

is what I'm doing right now supporting or not what I see as a bigger role in the relationship (of the organization) that I help and maintain. It's the idea that it's not in isolation. You see relationships and you think about consequences of an action on any number of actions and people so you don't treat much of anything as a series of this problem and this problem and this problem, and this situation and this one.

Problem solving - Problem solving can be a difficult process, depending on style or philosophy. The respondents share the belief that problem solving requires a creative, proactive approach. "Problem solving is a very creative process of resolving situations...not as an emergency, but as more of emerging and seeing the challenge that lies ahead, and then working through in a creative process to resolve it."

The identification process is seen as critical. "When you say problem solving, the first thing that comes to mind is the identification of a problem and how you go about resolving it," one indicated. "(T)rying to figure out what's accurate," "identifying if we

are analyzing the right problem” is “probably the single most difficult thing to do.” “Problem solving involves a lot of interpretation and decision making on how you’re going to do it...analyzing what it is we’re trying to do before we leap to the solution,” another administrator added.

Participants identified two approaches which differ in philosophy and temperament, which can create tension when both are involved in the same problem solving situation. “Problem solving can be a dangerous word for me,” one said. “I don’t know how good a problem solver I am. I’m a very good problem poser.” Problem poser is the role of the administrator while in the process of identifying a problem. She continued, “where I found the greatest conflict is the tension with individuals who have a high need for closure...when, for me, we’re just opening it up and making sure we’re talking about the same thing before we go any farther.” In this collaborative situation, participants in the process “have to work hard to work together” because “the perception of the problem is very different from each set of eyes.”

During the course of the interviews, the respondents developed the notion that there is a distinct difference between problem solving and crisis management: problem solving is a reflective process emphasizing correct identification of the problem before focusing on developing a solution, and crisis management means “do what needs to be done and do it quickly.” “I’m a little leery of the term,” one said. “When some people say I’m a good problem solver, they mean I’m a good crisis manager.” “A really good problem solver doesn’t find him or herself in crisis situations very often, because they anticipate them.”

Problem solving is a process which all of the respondents do as an integral part of their jobs. The four share common understanding of the variations of the processes, but apply or modify the process to differing scenarios. One focused on being a problem poser and her involvement with conflict management, not conflict resolution, she stressed. Another focused on correct interpretation of events, policies, and meanings. Another utilized problem solving extensively when working with nontraditional students

who reentering higher education. A fourth referred to using different problem solving techniques with problems that “walk in the door.”

Learning to learn - The respondents had differing understandings of the concept of learning to learn. Responses tended to be more general in scope than others in the survey, and two indicated being unsure of the meaning of learning to learn. Their comments flowed along three directions: a) learning to learn begins in childhood as a result of family values and attitudes toward learning; b) learning to learn as an open, active process; and c) learning to learn as a process by which individuals learn to make meaning of information.

The notion that learning to learn as an imbedded trait was expressed by the administrators, who said, “I learned how to read very young, and learned how to sing before I could talk. I learned how to learn because I come from a family that really valued that and that’s how they did things... I don’t remember not being that way...it’s like having brown hair,” and “a whole individual notion of just about how you live your life.”

Learning to learn as a proactive process was described as “active, open, and continuous,” and “being open to new experiences and new information - seeking them - not waiting for them to fall from someplace else.” Another commented, “I’m open to new experiences...learning to learn is proactive... always seeking skills, knowledge, information...to be a better person , do a better job...it’s a continuous process, fluid... always growing.”

A third direction of learning to learn as a process by which individuals learn to make meaning of information was expressed with comments such as, “It’s not what you don’t know that gets you; It’s what you don’t know that you don’t know that gets you;” and “learning to learn to me it’s pretty basic, it’s almost like I want to parrot the same words back to you. I am learning to learn more.”

Learning to learn was also described as a means to re-frame attitudes and stereotypes. An administrator described the traditional K-12 classroom as a place where

stereotyped thought patterns, such as girls not being good in math, were introduced. The role of learning to learn is to address old thinking patterns, “transcending a couple of decades sometimes where their memories of learning in the secondary classrooms are the teacher lectures or take it from a book and process it and regurgitate it back...a very passive role.” One commented on the nature of andragogy by identifying the quality of experience and the need for reflective learning: “With learning to learn, they are taking on another mind set of actively engaging themselves, utilizing those rich experiences they have had over the past decade as adults, and processing and analyzing those in a reflective manner so that now they are able to grow at a higher level of interaction.”

In addition to presenting a variety of meanings for learning to learn, the four administrators also manifested learning to learn in their practices in a variety of ways: a) promoting professional development among her staff and in the department; b) personal development, both formal and informal; c) modeling learning to learn behavior.

When asked how critical thinking relates to problem solving and learning to learn, the respondents expressed an understanding that the relationship speaks to how learners utilize thinking - becoming better as a critical thinker facilitates improvement in problem solving and learning to learn. “Learning how to think in those ways and not just the standard ways we have been taught,” and “(t)he more options you have to be flexible with your ability to think through things...from different perspectives, the better you’re able to make decisions and...make judgements...the better you’re able to do whatever it is you need to do.”

Category 3: Toward effective administration

The four respondents offered a variety of characteristics of effective administrators which were all related to management and leadership style. The questions were designed to lead them deeper into the process of identifying increasingly specific characteristics and processes of how they perceive the effective administrator.

Overall impression - In general, the effective administrator recognizes and encourages growth in his/her self and staff. This individual has well developed

leadership and communication skills, and is savvy to the “politics” of the institution/ agency. Key concepts drawn from responses include: recognition (knowledge, awareness, and understanding) of differences in thought processes combined with acting on that recognition; effective communication both in the administrative role and outside; politically astute, not too trusting; and the effective administrator has a personal commitment to lifelong learning and critical thinking.

Use of critical thinking - The effective administrator models critical thinking, reflecting on situations, analyzing through multiple perspectives, and sharing personal enthusiasm toward new understanding. One respondent commented that the effective administrator focuses critical thinking and learning to learn as a means to enhance his/her professional development and marketability.

Application of problem solving - Effective administrators “delegate responsibility with authority, and authority with responsibility,” one said. They are proactive rather than reactive in their approach to potential problem situations. They have an optimistic framework within which they work to resolve or enhance situations.

Learning to learn - Perceptions of the effective administrator’s application of learning to learn was not clearly expressed by the respondents, which supported the general nature of their initial perceptions of learning to learn. Concepts drawn from the responses include modeling of professional development, encouraging professional development among staff, and a frank “don’t know.”

Beliefs toward lifelong learning - All four of the participants shared the perceptions that the effective ACE administrator holds a deep belief in the value of lifelong learning for all people, not limited to professional development. This individual models lifelong learning, encourages staff to develop and grow, and values learners in all types of adult education settings. “Lifelong learning, continuous learning, that’s what continuing education is all about.”

Category 4: Toward ineffective administration

Respondents commented that their perceptions of ineffective administrators were largely the opposite of their effective descriptions. In general, respondents shared the perceptions that ineffective administrators are closed-minded, controlling, narrow vision, nonsupportive of professional development of staff, model lack of belief in the philosophy of lifelong learning, poor communicators, inhibit change, and are not examples of the reflective practitioner model.

Critical thinking - Respondents shared the perception that ineffective administrators do not model critical thinking skills. Thinking is not reflective, and creativity is not a concern.

Problem solving - “The same conflict situations arise over time...it leads you to believe that there’s more at work here than situational conflict,” one administrator commented. Repeating patterns of conflict indicated to the respondents that the customary approach to problem solving is problem isolation and quick solution. Problems are delegated without authority to resolve causes of the conflict. Two respondents commented that ineffective problem solvers blame others for results. Creativity is not a factor in this problem solving strategy. One commented that an ineffective problem solving trait involved a low tolerance for ambiguity. “It’s looking for that solution, right answer, door to be closed to move on to something else...treating them as a separate incidence without checking to see if there’s a pattern developing. It’s the opposite of systems thinking.”

Learning to learn - Ineffective administrators do not perceive learning to learn as a priority. Lack of modeling was the respondents primary concern. The notion that the nontraditional student is deficient or not a legitimate student influences this thinking. Addressing the needs of the client base is not a priority. Ineffective characteristics include exclusionary vision for learning, not open to options, guided by biases, miss opportunities, and lack of a theory.

Beliefs toward lifelong learning - Respondents all shared the perception that the ineffective administrator may, indeed, believe in lifelong learning, but may be exclusionary in terms of the type of learners who should be addressed. One indicated

that the fact that she did not know what the ineffective individual's beliefs were was a characteristic of not only ineffective communication, but also of lack of strong belief or priority toward lifelong learning.

Respondents agreed that verbal support may be forthcoming, but modeling is weak, reading is limited, and personal learning seems to be a low priority. Comments included, "talk is cheap," and "give lip service" as characteristics of the ineffective administrator.

General unhappiness among staff is a symptom of ineffectiveness. One respondent indicated that ineffective traits such as narrow vision and poor problem solving strategies tend to multiply within the organization because "the ambiance has been set by the administrative level...wanting to keep things very much the same as they have been." Inhibiting change, lack of risk-taking, and not supporting growth among staff, in the department, and in the organization was expressed as a characteristic of the ineffective administrator.

Application across contexts

The four respondents apply their critical thinking, problem solving and learning to learn beliefs and skills in other areas of their lives. All are actively involved in activities and interests outside of their occupations, whether with family, personal, or extended professional activities. Examination of personal goals was mentioned as an application of critical thinking skills. Two respondents indicate that they think critically too much ("I think critically about what I had for lunch"), and that observation would be supported by family or friends.

Evaluating options in terms of values is a theme which three of the respondents addressed. Situations call for reflection or problem posing. Options are studied, balancing with values. This shared application crosses the contexts of the respondent's lives.

Implications

Perceived characteristics of effective and ineffective administrator are clearly identified within the context of the study and are consistent with those identified in research (See McDade, 1987, p. 11-20). One major area of concern was the respondents inconsistent perception of the meaning or application of the concept of learning to learn. Learning to learn is a cognitive process by which learners make meaning of information, or learn. It is the learning process itself. Implications of the respondents' perceptions of the process reflect on the administrator's understanding of the end user - the adult learner. Beyond customary learning needs such as relevancy and comfort, learning to learn is an intrinsic need of learners. Continuing education has traditionally targeted the educated adult - one who is already a lifelong learner. Changing demographics of adult education, however, has revealed an influx of nontraditional learners returning to higher education as well as a sizeable population of learners who are in need of equivalency or remedial education.

The process of learning how to learn again, or for the first time for some, must be understood by administrators as a primary need. Issues such as staff sensitivity to such needs and availability of learning opportunity for the returning adult can be addressed in staff development curriculum. Some administrators work only within the realm of professional development, and do not encounter end users with basic learning needs or who are nontraditional in their path. ACE administrators and educators at all levels, however, from high level administrators who develop the vision, to the mid-level administrators who develop the adult education programs to carry out the vision, to the individual educators who work directly with learners, must be well versed in the impact learning to learn has on the organization.

In addition to incorporating learning to learn into the values and beliefs of administrators in ACE, professional development should be encouraged to ensure that administrators have the identified abilities for effective leadership. Two areas of proficiency identified by the respondents - communication and problem posing/ problem solving skills - need to be well developed in the effective administrator. Problem posing involves critical thinking and communication. Effective problem solving is facilitated by

knowledge and practice of these skills. Ensuring competency in these areas through professional development will benefit the ACE organization.

Further implications of critical thinking, problem solving, and learning to learn apply to hiring practices of administrators and educators. Utilizing McDade's checklist of characteristics of the effective administrator (1987, pp. 12-15) will facilitate a successful hiring process. In addition, the candidate who has given attention to these concepts within the scope of professional development and other educational choices and who is reflectively aware of the importance of these concepts within the vision of ACE, will be a good fit to develop or continue positive, proactive attention to the application of critical thinking, problem solving, and learning to learn within lifelong learning.

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Appendix A

Interview Protocol - Reasons behind the questions

1. *Let's begin by talking about some background information:*

1-a. *What do you do in your daily work?*

1-b. *How did you come to this practice?*

1-c. *What is your education background?*

1-d. *And, What prior experiences have you had before this?*

These questions are designed to illustrate similarities and differences in subject's educational background, daily tasks, and career path. Also, this type of question helps to develop trust and comfort between the subject and the researcher.

1-e. *How do you describe yourself as an adult learner?*

This was the first conceptual question, intended to turn subject's thoughts to adult learning. To ask the subject to describe herself as an adult learner moves her thinking away from self-as-administrator to self-as-learner. Subsequent questions focus on learning and processes first, and administration second.

2. *More and more emphasis is being placed on critical thinking, problem solving, and learning to learn in the **learning process**.*

The purpose of this set of questions was to develop a profile of the subjects own understandings and manifestations of critical thinking, problem solving, and learning to learn.

2-a. *What does problem solving mean to you?*

To begin the examination process with problem solving allows the subject to start with a concept that is familiar. Although the term has a variety of connotations, problem solving is a widely used term.

•*Can you give me an example?*

To help clarify meaning, and focus the subject's thinking on the topic.

•*How do you use **problem solving** in your administrative role in this organization?*

To personalize the meaning.

2-b. *What does critical thinking mean to you?*

Critical thinking is a more abstract concept. The purpose of this question was to determine the nature of meanings of critical thinking as understood by administrators.

•*Can you give me an example?*

To help clarify and focus meaning.

•*How does **critical thinking** influence your administrative role in this organization?*

This question was intended to discover whether critical thinking is a conscious process, or imbedded in the subject's thinking patterns.

2-c. *Let's look at learning to learn? What does **learning to learn** mean to you?*

This question was intended to discover if the subject was familiar with the term within the context of nontraditional adult education

•*Can you give me an example?*

This probe was intended to help clarify and focus meaning.

•*How does **learning to learn** influence your administrative role in this organization?*

This question serves as a probe to draw reflection about the subject's emphasis on learning in the daily experience.

2-d. *How does your understanding of critical thinking relate to problem solving and learning to learn?*

This question was intended to discover how, if at all, the subject links critical thinking, problem solving and learning to learn, whether as separate or interrelated concepts.

•*How are they similar?*

•*How do they differ?*

This probe was intended to help clarify and focus meaning.

3. *Think now about individuals that you know that are in similar professional positions as yourself that you feel are **highly effective** at their work.*

The purpose of this set of questions was to develop a parallel profile of the subjects perceptions of effective manifestations of critical thinking, problem solving, and learning to learn. The step of relating the question to a physical person(s) was intended to assist the subject to answer this line of inquiry.

3-a. *What is it about them that leads you to believe they are effective?*

This question was designed to turn the subject's focus to effective administrative job performance. The process of expressing characteristics of effective performance was a prelude to the next question.

Let's focus on the way they think

3-b. *How does the way they think influence their effectiveness on the job?*

It is understood that the subject can report only personal perceptions of how another individual thinks. However, previous emphasis on critical thinking,

problem solving and learning to learn has already influenced the focus of the subject to answer in these terms.

3-c. What 1 or 2 characteristics about the way they think enhances their effectiveness in their work?

This question was designed to help the subject to focus on specific characteristics of how an effective administrator thinks.

Probe:

- *How do they use **problem solving** in their administrative role?*
- *How do they use **critical thinking** in their administrative role?*
- *How do they use **learning to learn** in their administrative role?*

These probes are intended to be utilized to help the subject focus on articulating a response to the above question.

Now let's focus on their beliefs toward lifelong learning

3-d. How do their beliefs (toward lifelong learning) influence their effectiveness on the job?

Once again, it is understood that the subject can report only personal perceptions of how another individual thinks. This question was designed to encourage the subject to expand the previously developed line of thinking to include perceptions about lifelong learning.

3-e. What 1 or 2 characteristics about their beliefs toward lifelong learning enhances their work?

This question was designed to help the subject to focus on specific characteristics.

Probe:

- *How does **problem solving** apply to their beliefs toward **lifelong learning**?*
- *How does **critical thinking** apply to their beliefs toward **lifelong learning**?*
- *How does **learning to learn** apply to their beliefs toward **lifelong learning**?*

These probes are intended to be utilized to help the subject focus on articulating a response to the above question.

*4. Think now about individuals that you know that are in similar professional positions as yourself that you feel are **not very effective** in their positions.*

The purpose of this set of questions was to develop a parallel profile of the subjects perceptions of effective manifestations of critical thinking, problem solving, and learning to learn. Once again, the step of relating the question to a physical person(s) was intended to assist the subject to answer this line of inquiry.

4-a What is it about them that leads you to believe they are not very effective?

This question was designed to turn the subject's focus to ineffective administrative job performance. The process of expressing characteristics of ineffective performance was a prelude to the next question.

Let's focus on the way they think

4-b. How does the way they think influence their effectiveness on the job?

As was stated previously, it is understood that the subject can only report personal perceptions of how another individual thinks. Emphasis has been placed on critical thinking, problem solving and learning to learn as manifested in personal practice and as perceived in effective administrators. This question was a natural step in the sequence.

4-c. What 1 or 2 characteristics about the way they think impairs their effectiveness in their work?

This question was designed to help the subject to focus on specific ineffective thinking characteristics.

Probe:

- ***How do they use **problem solving** in their administrative role?***
- ***How do they use **critical thinking** in their administrative role?***
- ***How do they use **learning to learn** in their administrative role?***

These probes are intended to be utilized to help the subject focus on articulating a response to the above question.

Let me now focus on their beliefs toward lifelong learning

4-d. How do their beliefs (toward lifelong learning) reduce their effectiveness on the job?

Once again, it is understood that the subject can report only personal perceptions of how another individual thinks. This question was designed to encourage the subject to include perceptions about lifelong learning.

4-e. What 1 or 2 characteristics about their beliefs toward lifelong learning impair their effectiveness in their work?

This question was designed to help the subject to focus on specific characteristics.

Probe:

- ***How does **problem solving** apply to their beliefs toward **lifelong learning**?***
- ***How does **critical thinking** apply to their beliefs toward **lifelong learning**?***
- ***How does **learning to learn** apply to their beliefs toward **lifelong learning**?***

These probes are intended to be utilized to help the subject focus on articulating a response to the above question.

5. Earlier we talked about critical thinking as **manifest in your practice** as an Adult Education leader. In what ways is critical thinking manifested **outside of your practice**, in other aspects of your life?

This question was intended to discover ways in which critical thinking was applied cross-contextually in the life of the subject.

Appendix B

Interview Protocol

Background:

Increasing emphasis is being placed on critical thinking, problem solving, and learning to learn in all phases of education today. It is frequently mentioned in the adult education readings. The purpose of this study is to develop a better understanding of what critical thinking, problem solving and learning to learn means to adult education administrators. My objective is to develop a profile of definitions and applications of critical thinking, problem solving and learning to learn as manifested among female professionals in leadership positions in Adult and Continuing Education.

Your responses are confidential. Names will not be included either on my notes or on the tape. The cassette will be erased after the data is transcribed. No names will be included in any reports.

Do you have any questions or concerns at this point?

1. Let's begin by talking about some background information:

- 1-a. What do you do in your daily work?
- 1-b. How did you come to this practice?
- 1-c. What is your education background?
- 1-d. And, what prior experiences have you had before this?
- 1-e. How do you describe yourself as an adult learner?

2. More and more emphasis is being placed on critical thinking, problem solving, and learning to learn in the **learning process**.

2-a. What does problem solving mean to you?

- Can you give me an example?
- How do you use **problem solving** in your administrative role in this organization?

2-b. What does critical thinking mean to you?

- Can you give me an example?
- How does **critical thinking** influence your administrative role in this organization?

2-c. Let's look at learning to learn? What does **learning to learn** mean to you?

- Can you give me an example?
- How does **learning to learn** influence your administrative role in this organization?

- 2-d. How does your understanding of critical thinking relate to problem solving and learning to learn?
- How are they similar?
 - How do they differ?
3. Think now about individuals that you know that are in similar professional positions as yourself that you feel are **highly effective** at their work.

3-a. What is it about them that leads you to believe they are effective?

3-b. How does the way they think influence their effectiveness on the job?

3-c. What 1 or 2 characteristics about the way they think enhances their effectiveness in their work?

Probe:

- How do they use **problem solving** in their administrative role?
- How do they use **critical thinking** in their administrative role?
- How do they use **learning to learn** in their administrative role?

3-d. How do their beliefs (toward lifelong learning) influence their effectiveness on the job?

3-e. What 1 or 2 characteristics about their beliefs toward lifelong learning enhances their work?

Probe:

- How does **problem solving** apply to their beliefs toward **lifelong learning**?
- How does **critical thinking** apply to their beliefs toward **lifelong learning**?
- How does **learning to learn** apply to their beliefs toward **lifelong learning**?

4. Think now about individuals that you know that are in similar professional positions as yourself that you feel are **not very effective** in their positions.

4-a. What is it about them that leads you to believe they are not very effective?

4-b. How does the way they think influence their effectiveness on the job?

4-c. What 1 or 2 characteristics about the way they think impairs their effectiveness in their work?

Probe:

- How do they use **problem solving** in their administrative role?
- How do they use **critical thinking** in their administrative role?
- How do they use **learning to learn** in their administrative role?

4-d. How do their beliefs (toward lifelong learning) reduce their effectiveness on the job?

4-e. What 1 or 2 characteristics about their beliefs toward lifelong learning impair their effectiveness in their work?

Probe:

- How does **problem solving** apply to their beliefs toward **lifelong learning**?
- How does **critical thinking** apply to their beliefs toward **lifelong learning**?
- How does **learning to learn** apply to their beliefs toward **lifelong learning**?

5. Earlier we talked about critical thinking as **manifest in your practice** as an Adult Education leader. In what ways is critical thinking manifested **outside of your practice**, in other aspects of your life?

That completes the survey. Do you have any questions or concerns?

Thank you very much for your time.