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In the 1980s, the nontraditional student became the norm in student populations in colleges and universities. The National Center for Educational Statistics estimates that over 60% of students in higher education are 25 years of age or older. The change in student dynamics places challenges on traditionally trained educators and how they educate adult learners. Identify the core characteristics of the adult learner and evaluate the contributions of the humanist, behaviorist, cognitive, and critical reflection orientations in helping us to understand these characteristics? Design a comprehensive theory that addresses the uniqueness of the adult learner and the learning process.

Introduction

Despite the plethora of journals, books, and research conferences devoted to adult learning across the country and world, the field of adult education is far from having a universal understanding of the adult learning process (Brookfield, 1995). Merriam (1993) stated that the "effort of trying to understand learning in adulthood is fascinating and frustrating at the same time. . . fascinating because of the complexity of the phenomenon, frustrating because this same complexity defied simple description" (p. 1). Merriam and Caffarella (1999) refer to a study by Spear and Mocker, (1989), that Americans over the age of 65, as of 1987, outnumbered those under 25 and project that by the year 2000, the largest age group will be between 30 to 44 (p. 7). The growing number of older, nontraditional college students requires educators to reevaluate methods of learning and assessment. The literature contains a great deal of information about the adult learner but there is no comprehensive theory in understanding the adult learning process. The effort of understanding adult learning is infused with many explanations and approaches during the last fifty years. This paper will identify the characteristics of the adult learner that are shared by adult educators. Second, the contributions from the humanist, behaviorist, cognitive, and critical orientations will be presented and the usefulness of each evaluated.

Finally, an attempt will be made to develop a comprehensive theory that addresses the uniqueness of the adult learner and the learning process. The comprehensive approach toward adult learning will be a personal reflection of my work as an adult educator since creating a comprehensive theory is a challenge beyond this paper. Further, given the diversity within the adult learner population, a single comprehensive theory is probably not attainable.

Andragogy and Pedagogy: Is there a theory or model?

The adult education literature (Brookfield, 1995; Cross, 1981; Hudson, 1999; Knowles, Holton & Swanson, 1998; Merriam & Caffarella, 1999; Pratt, 1993) generally supports the core idea that teaching adults should be approached in a different way than teaching children, adolescents, and young adults. The assumption that teachers of adults should use a style of teaching different from that used with pre-adults is based on "informed professional opinion; philosophical assumptions associated with humanistic psychology and progressive education; and a growing body of research and theory on adult learning, development, and socialization" (Beder & Darkenwald, 1982, p. 143). The development of adult learning theory can be traced back to Thorndike's and other psychologists' early investigations of learning (Merriam, 1993). Early works focused on questions on early abilities and the differences between younger learners and adults. Some studies deal with the biological aging process suggested that learning ability declines with age (Bee, 1996; Hudson, 1999), however, more recent works have suggested otherwise. This section will offer a comparison of the andragogical and pedagogical learning models as a way to illustrate the differences between the two

learning models and to relate the general assumptions accepted by most adult educational practitioners.

Andragogy is known as the science and art of learning in adults. Andragogy was a model created to explain how learning in adults differed from the way in which children learn. According to andragogical school of thought, adults are motivated to learn, are self-directed, responsible, and use prior experiences as a template for learning (Hiemstra, 1993; Knowles, 1980). Andragogy is based on the assumptions that (a) adults tend to become more self-directed as they mature; (b) adults have had rich life experiences; (c) adults want to learn and are internally motivated to do so; (d) adults want learning to be purposeful, practical, relevant, and immediately applicable; and (e) adults are more problem-centered than content-centered (Caffarella & Barnett, 1994; Hiemstra, 1993). A sixth assumption, later added, suggests that adults need to understand why they are learning a particular topic (Merriam & Caffarella, 1999). The six differences between andragogy and pedagogy can be summarized as: (a) the need to know; (b) the learner's self-concept; (c) the role of the learner's experience; (d) readiness to know; (e) orientation to learning; and (f) motivation (Knowles, Holton, & Swanson, 1998, p. 64-68). These assumptions provide implications for all practitioners. Rather than focusing on content, as with pedagogical orientation, the focus for an andragogical orientation is the process.

These assumptions have important applications for designing instruction for adult learning. Adults have rich, accumulated life experiences that can serve as learning resources (Knowles, 1980; Merriam & Caffarella, 1999). Since knowledge is assumed to

be actively constructed from prior experience, adults are expected to learn more effectively through experiential techniques, such as discussion or problem-solving, which utilize prior experience in the construction of meaning (Pratt, 1993). Adults also have greater self-awareness about the learning process and a greater need for specific, relevant content. Therefore, well-designed adult education programs should involve learners in both planning and assessment of instruction (Berg & Poppenhagen, 1985), be experientially based, collaborative, relevant, discovery-oriented, active rather than passive (Caffarella & Barnett, 1994, p. 228), and be problem-oriented rather than content-oriented (Pratt, 1993).

Pedagogy refers to the art and science of educating children; it is often used synonymously with teaching. More accurately, pedagogy embodies instructor-focused education. In the pedagogic model, instructors assume responsibility for making decisions about what will be learned, how it will be learned, and when it will be learned. Table 1 illustrates the differences between Andragogy and Pedagogy.

Table 1: Comparison of the assumptions of pedagogy and andragogy following Knowles

Critical Element	Pedagogy	Andragogy
Dependent/Independent	Teacher directs what is learned, how the subject is taught. The teacher encourages and nurtures this and acts as the sole arbitrator to see if what was taught was learned.	The learner moves towards independent self-direction.
Readiness to Learn	People learn what society expects	People learn what they

	them to learn (standardized curriculum)	need to know (learning around life application)
The Learner's Experience	Of little worth. Teaching is didactic.	A rich resource for learning. Teaching methods include discussion and problem-solving
Orientation to Learning	Acquisition of subject matter (curriculum organized by subjects)	The learning experience is based on problems since learners are performance-centered when learning.

Jarvis, P. (1985). The Sociology of Adult and Continuing Education. Beckenham: Croom Helm., p. 51.

Merriam and Caffarella (1991) related that Knowles' conception of andragogy is an attempt to build a comprehensive theory of adult learning that is anchored in the characteristics of adult learners. Cross (1981) also uses such perceived characteristics in a more limited attempt to offer a “framework for thinking about what and how adults learn” (p. 248). Such approaches may be contrasted with those that focus on: 1) an adult's life situation (e.g.: Knox 1986; Jarvis 1987a); and 2) changes in consciousness (Mezirow 1991; Freire 1977) (Merriam and Caffarella 1991).

While andragogy provides a basis of understanding the adult as a learner and the part they play in the learning process there is no comprehensive approach in the adult education field toward learning and assessment of the process or learning outcomes. Over the past forty years there has been a continuous debate on the merit of andragogy as a theory, a list of assumptions, or as a model.

In the 1970s and early 1980s much of the discussion in the adult learning community was about the validity of andragogy as a theory of learning (Pratt, 1993, p.

15). These discussions lead to criticisms of whether andragogy was a theory or list of practices. Hartree (1984) questioned whether there is a theory at all, suggesting that perhaps these were just principles of good practice, or descriptions of “what the adult should be like” (p. 205; Merriam and Caffarella, 1991, p. 250). The second area of discussion surrounded the extent to which the assumptions are characteristic of adult learners only. Knowles concedes that four of andragogy's five key assumptions apply equally to adults and children (Knowles, Holton & Swanson, 1998, p. 70). The sole difference is that children have fewer experiences and pre-established beliefs than adults and thus have less to relate. However, some children in certain situations may have a range of experiences more qualitatively enriching than some adults. While valid concerns, andragogy has alerted practitioners of critical characteristics of the learner and aspects on how to improve the learning process (Rodgers, 1983).

As a model of andragogy has and continues to serve as the core set of assumptions that hold the adult education movement together, i.e.: self-direction (experience (Kolb, 1984, 1986), Motivation to learn (Cantor, 1992; Cranton, 1994), Self-concept (Pratt, 1988). Brookfield suggested that the model of assumptions serves as a badge of identity that distinguishes the field from other areas of education, especially childhood schooling’ (cited in Merriam & Caffarella, 1999, p. 273). Many educators have argued that as a model Andragogy has many questions of concern. Some of concerns are: What is andragogy and to whom does it apply? Do some or all of the assumptions apply to children? Are its assumptions too simplistic? Does andragogy ignore the learning context?

According to Knowles (1984) everything that practitioners do in the classroom is based on the five major assumptions that make up andragogy:

1) Self-concept: As a person matures his self concept moves from one of being a dependent personality toward one of being a self-directed human being.
2) Experience: As a person matures he accumulates a growing reservoir of experience that becomes an increasing resource for learning.
3) Readiness to learn. As a person matures his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles.
4) Orientation to learning. As a person matures his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject-centeredness to one of problem centredness.
5) Motivation to learn: As a person matures the motivation to learn is internal. (Knowles, 1984, p. 12)

Knowles initially positioned his work as universally applicable, arguing that "in the world of the future educators must define the mission of education as to produce competent people" (Knowles 1980, pp. 18-19), and he put andragogy forward as the means to this end. It is unclear whether he maintained this position. In the late 1990s he wrote of his conviction that:

> “[a]ndragogy presents core principles of adult learning that in turn enable those designing and conducting adult learning to build more effective learning

> processes for adults. It is a transactional model in that it speaks to the characteristics of the learning transaction, not to the goals and aims of that transaction. As such, it is applicable to any adult learning transaction." (Knowles, Holton, and Swanson 1998, p. 3).

It is not clear whether this statement argues for andragogy as a theory of learning, an approach to teaching adults, or simply a useful set of assumptions. If it is a claim for andragogy as a universal adult learning theory, Knowles was not acknowledging significant concerns expressed about his work. Probably the most influential critique was written by Pratt (1993), who argued that Knowles assumed all adult learners were willing to engage in a highly participatory and democratic teaching/learning transaction grounded in a Western male concept of individuality. This assumption is a significant weakness of Knowles' portrayal of andragogy, and it has been criticized by feminists for overlooking gendered structures of power in education. (Merriam & Caffarella, 1999; Tisdell, 1998). Further it was argued by Grace (1996) that andragogy did not pay attention to cultural factors. Grace (1996) believed that Knowles focuses on the individual learner and ignores the impact of socio-cultural factors on learners. Grace (1996) argued that Knowles presented a descriptive technique that is only superficially grounded in philosophy and has not critically examined andragogy. Grace continued his argument by stating that Knowles' conception of andragogy ignores marginalized groups' struggles and instead supports the status quo by "satisfying the economic agendas of business and industry (Grace, 1996, p. 388). Grace also stated: "Organizational culture and social structures and relations impact on individual freedom. The individual cannot be seen as

the isolated and insulated self whom Knowles defines as an autonomous self-directed learner" (Grace, 1996, p. 390).

The extent to which andragogy can be claimed as the distinguishing feature of adult education as a field. Though Knowles moved from a belief in andragogy as the antithesis of education for children toward the idea of a continuum, he presented andragogy as "very anti-schooling, seeing as an important part of its mission…'liberating' adult learners from its unhappy consequences" (Usher, Bryant, & Johnston 2002, p. 81). This suggests that the boundary between the education of children and that of adults is very significant for adult educators in working with adult learners. Yet some of the most fertile ground for andragogy has been K-12 education and the closely linked arena of the community college. For instance, discussion on cognitive development for adults is often associated with Piaget's four stages of development (The sensorimotor period, Preoperational thought, Concrete operations, and Formal operations), (Merriam & Caffarella, 1999). In a formal educational setting, andragogy must be watered down (for example, it is daunting to imagine learner control of evaluation in medical school), the line between the practices of child and adult education are sufficiently blurred to make andragogy almost useless as a way to define what is adult about adult education. This argument is based more on methods of delivery than assumptions about the learner.

Merriam (1993) argued we should build upon our understanding of the assumptions (concept of self, accumulated experience, and readiness to learn) that has held the field together for the last forty years rather than build a comprehensive theory of learning. According to Merriam and Caffarella (1999), andragogy is not an encompassing theory of adult learning but it still sparks debate and "constitutes one piece

of the rich mosaic of adult learning" (p. 278). A learning theory is based on roles in the process, the actual process, and the objectives and goals of the learning (McCarthy, 2000).

When the adult educator engages in the practice of education, he/she applied certain assumptions into the practice. These assumptions constitute the basis for a philosophy of education. One's individual philosophy of education may be unrecognized, internally inconsistent, and only partially formulated, however, beliefs about education do provide some basis for selecting instructional content, establishing teaching and learning objectives, selecting and/or developing instructional materials, interacting with learners, and evaluating educational outcomes.

What follows is a discussion of the contributions from the humanist, behaviorist, cognitive, and critical reflective orientations in understanding aspects of adult learning. Each orientation offers assumptions about the learner, learning outcomes, the role of the educator, and the learning process.

Humanist Orientation

Humanist theories consider learning from the "perspective of human potential for growth" (Merriam & Caffarella, 1999, p. 256). According to Merriam and Caffarella (1991), "a humanist orientation would reject the notion that behavior is predetermined either by the environment or one's internal subconscious" (p. 256). Humanism suggests that while individuals' perceptions are centered in experience, individuals have freedom to pursue their unlimited potential for growth and development. This shift to the study of the affective as well as cognitive dimensions of learning was informed in part by Freud's

psychoanalytic approach to human behavior (Knowles, Holton, & Swanson, 1998). Humanism generally is associated with beliefs about freedom and autonomy and notions that "human beings are capable of making significant personal choices within the constraints imposed by heredity, personal history, and environment" (Elias & Merriam, 1980). All levels of education, from pre-school through adult, have modified both theory and practice in accordance with humanistic principles. Human education is student-centered not only with regard to responsibility for learning but in terms of the self-development of each learner. Humanist principles stress the importance of the individual and specific human needs. The basic humanist assumptions offered by Carl Rodgers in table 2 are:

Table 2: Humanist assumptions according to Carl Rodgers

Personal involvement	The affective and cognitive aspects of a person should be involved in the learning event.
Self-initiated	A sense of discovery must come from within.
Pervasive	The learning makes a difference in the behavior, the attitudes, perhaps even personality of the learner.
Evaluated by the learner	The learner can best determine whether the experience is meeting a need
Essence of meaning	When experiential learning takes place, its meaning to the learner becomes incorporated into the total experience.

Knowles, Holton, & Swanson, p. 14

Among the major assumptions underlying humanism are the following: (a) human nature is inherently good; (b) individuals are free and autonomous, thus they are capable of making major personal choices; (c) human potential for growth and development is virtually unlimited; (d) self-concept plays an important role in growth and development; (e) individuals have an urge toward self-actualization; (f) reality is defined by each person; and (g) individuals have responsibility to both themselves and to others (Elias & Merriam, 1980).

Principles of humanist thought have served as a foundation for major developments in both psychology and education. In psychology, the humanist paradigm emerged as a response to both the determinism inherent in Freudian psychoanalysis and the limited place of affect and free will found in behaviorism (Merriam & Caffarella, 1999, p. 256). While many individuals have made important contributions to humanistic psychology, two of the most noteworthy contributors were Abraham Maslow and Carl Rogers. Maslow discussed the concept of "self-actualization," which he described as "the full use and exploitation of talents, capacities, potentialities, etc." (cited in Merriam & Caffarella, 1999, p. 257). He identified a number of characteristics of self-actualizing people, three of which are tolerance for ambiguity, acceptance of self and others, and "peak experiences" that lead to personal transformation through new insights. Rogers, through the approach he referred to as "client-centered therapy," noted that the major goal of therapy is to help clients foster greater self-direction (Merriam & Caffarella, 1999).

In adult education, humanism is evident in learner-centered (self-directed learning) approaches that impact attitudes and personality as well as behavior. It

continues in popular adult education offerings such as “group dynamics, collaborative learning, sensitivity awareness training, and self-directed learning” (Caffarella, 1993, p. 25; Elias and Merriam, 1995). Learning institutions that allow learners to design their own learning experiences are becoming more common (Senge, 1994; Smith, 2001). The humanistic approach has become an important part of adult basic education programs to improve the poor self-confidence of many adult learners who have not been successful in previous educational experiences.

Humanistic education is based on similar ideas. Patterson (1973) has stated that "the purpose of education is to develop self-actualizing persons" (p. 22). According to Valett (1977), humanistic education is a lifelong process, the purpose of which "is to develop individuals who will be able to live joyous, humane, and meaningful lives" (p. 12). Priorities of humanistic education should include "[t]he development of emotive abilities, the shaping of affective desires, the fullest expression of aesthetic qualities, and the enhancement of powers of self-direction and control" (p. 12). Essential characteristics of the humanistic educator are empathic understanding, respect or acceptance, and genuineness or authenticity (Patterson, 1973).

Humanism is not without its critics. One of the most frequent criticisms emanating from fundamentalists on the religious right is that humanism runs contrary to basic tenets of Christian and other theological orientations. In fact, humanism does emphasize the "here and now" and frequently is viewed as denying existence of the supernatural; although as Elias and Merriam (1980) point out not all humanists see incompatibility between affirming autonomy and existence of a God. While this assumption may dissuade some individuals from fully embracing humanism, many

believe that teachers, trainers, or administrators do not have to abandon traditional theologies in order celebrate the good of humanity and to engage in practices designed to facilitate self-direction.

A second criticism is that humanism is sometimes believed to be a highly self-centered, or selfish, approach to life. One of the characteristics of self-actualizers discussed by Maslow is the tendency for individuals to focus on problems that lie outside of themselves. Within the realm of adult education, one of the most powerful reflections of how humanists look at the relationship between individual and social concerns is offered in this observation made by Lindeman (1988) that, "Adult education will become an agency of progress if its short-time goal of self-improvement can be made compatible with a long-time, experimental but resolute policy of changing the social order" (p. 105).

Behaviorist's Orientation

Much of college instruction is behaviorist in nature, with students viewed as empty vessels to be filled with knowledge delivered by the faculty member. Whether or not one supports the concept of behavioral objectives, they are widely used by teachers, curriculum designers, administrators, and adult educators in a variety of settings. Adult basic education, continuing professional education, and training in business and industry are three program areas in adult education that make extensive use of behavioral objectives.   Behaviorists define learning as a change in behavior (Merriam & Caffarella, 1999, p.252). The role of the teacher is to arrange the contingencies of reinforcement in the learning environment so that the desired behavior will occur (p. 252).

The behaviorism orientation was founded by John B. Watson in the early part of the 20th century (Merriam & Caffarella, 1999, p. 251). This was the earliest formulation of the theory of learning. Watson argued that the inner experiences that were the focus of psychology could not be properly studied as they were not observable. Instead he turned to laboratory experimentation. The result was the generation of the stimulus-response model. In this the environment is seen as providing stimuli to which individuals develop responses. In essence three key assumptions underpin this view:

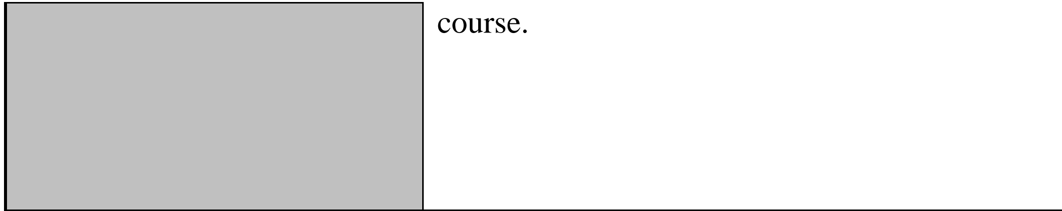
1) Observable behavior rather than internal thought processes are the focus of study. In particular, learning is manifested by a change in behavior.
2) The environment shapes one's behavior; what one learns is determined by the elements in the environment, not by the individual learner.
3) The principles of contiguity (how close in time two events must be for a bond to be formed) and reinforcement (any means of increasing the likelihood that an event will be repeated) are central to explaining the learning process. (Merriam and Caffarella 1991, p. 126).

A variety of perspectives emerged over the next few decades, including the work of Thorndike, Tolman, Guthrie, Hull, Skinner, and others (Merriam & Caffarella, 1999, p. 251). From the behaviorist perspective, three assumptions are evident. First, the focus was on observable behavior rather than on internal cognitive processes. If learning has occurred, then some sort of observable external behavior is apparent. Second, the environment is the shaper of learning and behavior, not individual characteristics. Third, principles of contiguity and reinforcement are central to explaining the learning process.

The behaviorist orientation is fundamental to much current educational practice, including adult education (Merriam & Caffarella, 1999, p. 252). Skinner believed the ultimate goal of education was to train individuals toward values and behaviors that would ensure their personal survival as well as the survival of cultures and the species. The teacher's role, in this perspective, “is to provide an environment that elicits the desired behaviors and extinguishes the undesirable ones” (p. 253). “This is done by constant reinforcement”—which, according to Skinner, “is essential to understanding operant conditioning” (cited in Merriam & Caffarella, 1999, p. 252). Educational practices which have these notions at their core include systematic design of instruction, behavioral and performance objectives, programmed instruction, competency-based instruction, and instructor accountability (Merriam & Caffarella, 1999). Table 3 lists some of the critical assumptions of the behaviorist school of thought.

Table 3: Behaviorist assumptions

Activity is important.	Learning is better when the learner is active rather than passive. Learning by doing is to be applauded.
Repetition, generalization and discrimination are important notions.	Frequent practice—and practice in varied contexts—is necessary for learning to take place. Skills are not acquired without frequent practice.
Reinforcement is the cardinal motivator.	Positive reinforcers like rewards and successes are preferable to negative events like punishments and failures.
Learning is helped when objectives are clear.	Those who look to behaviorism in teaching will generally frame their activities by behavioral objectives. By the end of the session participants will be able to understand and apply learning competencies given in the



course.

Hartley, J. (1998). Learning and Studying: A research perspective. London: Routledge.

Another key concept is that behaviorism, with a focus on the behavior of an individual and the external forces that shape that behavior, allows an evaluation of an individual without placing inappropriate blame or praise on the individual. The individual is subject to the control of the principles of behavior, where behavior is a product of the contingencies that follow that behavior, rather than being subject to ill-defined internal forces of personality, emotions, or other thought processes.

The problem with the behaviorist-learning orientation is that it requires certain parameters that control the roles of the teacher and the learner. The learner is successful if he/she can relate the objectives learned in a prescribed learning environment. Learning is one directional from the top to the bottom. The approach assumes that learning is the same for all regardless of age, experience, background, etc. The role of the teacher is to develop an environment that will encourage the learners to demonstrate the desired response (Caffarella, 1993).

Finally, much of the criticism directed towards behaviorism is based on faulty interpretation of the underlying principles of behavior and misuse of the terminology. The word reinforcement, for example, refers to a contingency that follows a behavior

with the main effect of increasing the probability that behavior will occur more frequently in the future. A parent might consider giving a child ice cream as a treat for eating vegetables. However, if vegetable eating as a behavior does not increase in the future, technically ice cream cannot be called a reinforcer for the vegetable eating behavior. Lamenting that reinforcement did not work in this case is a failure to use the terminology correctly; this is a semantic failure, not a systemic one. Behaviorism assumes that there are correct or desirable responses to outcomes. Behaviorists believe that the environment is controlled, and measurable objectives are used to change a person's behavior in this type of method (Darkenwald and Merriam, 1982). Not concerned with feelings or emotions, true behaviorism is concerned with the survival of society and individuals (Elias and Merriam, 1995). This is unfortunate aspect of the behaviorist orientation since adult learners learned base on their experience both professional and personal and as all human beings feelings and emotions shape frameworks on what is right and wrong, etc. Part of the model of learning at Boricua College is experiential studies where the focus is on broadening the experience of the student by emphasizing sensory and perceptual development. Affective studies another part of the learning model deals with emotional responses to ideas and concepts though interaction and other cultural competencies. This and other educational models were created in contrast to the behaviorism model of framing behaviors and responses. Such models places limits on what is considered knowledge or the truth.

Cognitive Orientation

The earliest challenge to the behaviorist came from cognitive orientation in the work of Bode (Merriam & Caffarella, 1999). Bode criticized behaviorists for "being too particularistic, too concerned with single events and actions, and too dependent on overt behavior to explain learning" (p. 253). Such criticism was especially strong from those who saw themselves as Gestalt psychologists ("Gestalt" meaning configuration or pattern). For them, perceptions or images should be approached as a pattern or a whole rather than as a sum of the component parts.

Cognitive learning is often associated with the work of Piaget, who applied his work on how children learn. Piaget proposed that one's internal cognitive structure changes as a result of maturational changes in the nervous system and partly as a result of the organism's interacting with the environment and being exposed to an increasing number of experiences (Merriam & Caffarella, 1999). The major difference between the behaviorist and Gestaltists is the control of the learning activity. For Gestaltists it lies with the individual learner; for behaviorists it lies with the environment created by the teacher. Table 4 offers some of the critical assumptions of cognitive learning.

Table 4: Critical assumptions of cognitive learning

The learner	The learner should be encouraged to discover the underlying nature of a topic or problem (i.e., the relationship among the elements).
Instruction	Instruction should be based upon the laws of organization: proximity,

	closure, similarity, and simplicity.
Objective of learning process	Emphasize higher-order cognitive processes.
The learning process	Learning is the acquisition through human activity and the exercise of human faculties of knowledge, skills, and attitudes.

Source: Ertmer, P.A. and Newby, T.J. (1993). Behaviorism, Cognitivism, Constructivism: Comparing critical features from an Instructional Design perspective. Performance Improvement Quarterly, 6(4), 50-72. http: http://www.personal.psu.edu/users/t/x/txl166/kb/theory/compar.html

Important in the cognitive orientation is the learning style of the individual. As mentioned earlier a great deal of early work was on the child's ability to learn. The ideas applied by Piaget and others on the learning process of children have been applied to adults as well. Litzinger and Osif (1992) describe learning styles as "the different ways in which children and adults think and learn" (p. 73). They see that each of us develops a preferred and consistent set of behaviors or approaches to learning. In order to better understand the learning process, they break it down into several processes:

1) Cognition—How one acquires knowledge
2) Conceptualization—How one processes information. There are those who are always looking for connections among unrelated events. Meanwhile, for others, each event triggers a multitude of new ideas.
3) Affective—People's motivation, decision making styles, values, and emotional preferences will also help to define their learning styles.

A number of people have tried to catalogue the ranges of learning styles in more detail than this. Kolb is perhaps one of the best known and his thinking is outlined below. Kolb showed that learning styles could be seen on a continuum running from:

1) Concrete experience—Being involved in a new experience
2) Reflective observation—Watching others or developing observations about own experience
3) Abstract conceptualization—Creating theories to explain observations
4) Active experimentation—Using theories to solve problems, make decisions

Hartman (1995) took Kolb's learning styles and gave examples of how one might teach to each them:

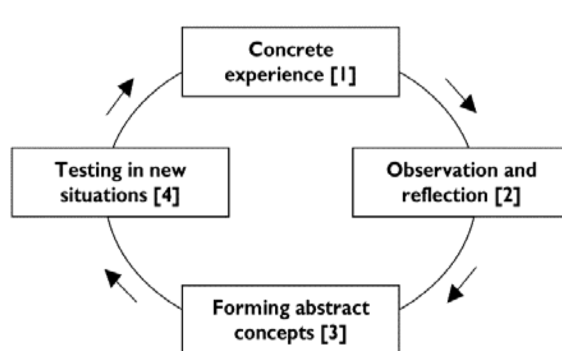
1) For the concrete experiencer—Offer laboratories, field work, observations, or trigger films.
2) For the reflective observer—Use logs, journals, or brainstorming.
3) For the abstract conceptualizer--lectures, papers and analogies work well.
4) For the active experimenter—Offer simulations, case studies, and homework

Although Kolb thought of these learning styles as a continuum that one moves through over time, usually people come to prefer, and rely on, one style above the others. And it is these main styles that instructors need to be aware of when creating instructional materials. In order to find out more about each of Kolb's learning styles, and how to teach

to them, you may choose to may choose to click on any of the learning style names in the diagram below.

Experience and learning are a key points in adult learning. There are many scholars who have argued this point from Dewey to Kolb and Jarvis. Learning though experience allows educators to make education, real, motivating, and responsible. Kolb (1984) created his model out of four elements: concrete experience, observation and reflection, the formation of abstract concepts, and testing in new situations (p. 21). He represented these ideas in the experiential learning circle (figure 1). Kolb and Fry (1975) argued “that the learning cycle can begin at any one of the four points—and that it should really be approached as a continuous spiral” (p. 35). However, it is suggested that the learning process often begins with a person carrying out a particular action and then seeing the effect of the action in this situation (Merriam & Caffarella, 1999). Following this, the second step is to understand these effects in the particular instance so that if the same action was taken in the same circumstances it would be possible to anticipate what would follow from the action. In this pattern the third step would be to understand the general principle under which the particular instance falls.

Figure 1: Kolb’s model



Kolb on experiential learning, http://www.infed.org/biblio/b-explrn.htm

The education process should have continued growth and hence should consist of a process of reflecting, responding, and adjusting. Kolb's model of concrete experience, observation and reflection, the formation of abstract concepts and testing new situations is an exciting model for it creates a process in which experiential learning is encouraged. Part of the reason why there is such a large dropout rate of young minority students is because they often feel that the information presented in school is culturally biased and not relevant to their lives (Hurtado, 1992). Experiential learning is a refreshing way of presenting material by making it relevant. Kolb's model helps in doing just that. In this model teachers are facilitators in the learning process. Facilitators that guide the learner through the process from being a reflective learner to being an active "doer" in the process. Helping students analyze their experience and applying their experience or experiences into a new theory that can be tested and hence these implications can lead to new experiences in growth.

Jarvis' model on experiential learning expands on Kolb's model by setting out to show that there are a number of responses to the potential learning situation (Merriam & Caffarella, 1999). He used Kolb's model with a number of different adult groups and asked them to explore it based on their own experience of learning. He was then able to develop a model which allowed different routes. According to Jarvis, all experience occurs within a social situation, a kind of objective context that one experiences as life:

Some of these are non-learning, some non-reflective learning, and some reflective learning. These routes and patterns are shown in figure 2 illustrating Jarvis' model.

Figure 2: Jarvis' learning process model

Merriam & Caffarella, 1999, p. 285

While this represents a useful addition to our thinking about learning, a number of problems remain. There is still an issue around sequence—many things may be happening at once, but Jarvis' model falls into the trap of stage thinking. As with Kolb's work there is a limited experimental base to support it. Practitioners can also ask questions as to whether these are different forms or routes—or can they be grouped together in a different and more compact way. There are some strong aspects to Knox's, Kolb's, and Jarvis' respected models as discussed by Hiemstra (1993). For instance,

McClusky's Theory of Margin, was concerned with finding ways to help adults maintain a productive posture in meeting the requirements of living (Hiemstra, 1993). McClusky believed that being an adult means facing continuous growth, change, and integration, in which constant effort must be made to use the energy available for meeting normal living responsibilities. However, because people have less than perfect control over many aspects of their lives, they must find ways to be prepared to meet unpredictable crises or problems. However, they need more development and inclusion of more variables and empirical studies to validate them beyond their popularity.

In summary, cognitively oriented explanations of learning encompass a wide range of topics with a common focus on internal mental processes that are within the learner's control (Merriam & Caffarella, 1999). Its application to the adult learner stressed the importance of experience in the learning process.

Critical Reflective -Transformative learning Orientation

Critical reflection, transformative learning, and critical thinking are recent popular directions in which many adult educators are going. The roots of critical reflective theory and transformative learning develop from humanism and critical social theory (Cranton, 1994). "Reflective learning involves assessment or reassessment of assumptions, and reflective learning becomes transformative whenever assumptions or premises are found to be distorting, inauthentic, or otherwise invalid" (Mezirow, 1991, p. 6). It is a process whereby adults think about practices and ideas and then challenge and confront your own thinking by asking probing questions like: Why does this teaching practice exist? Whose

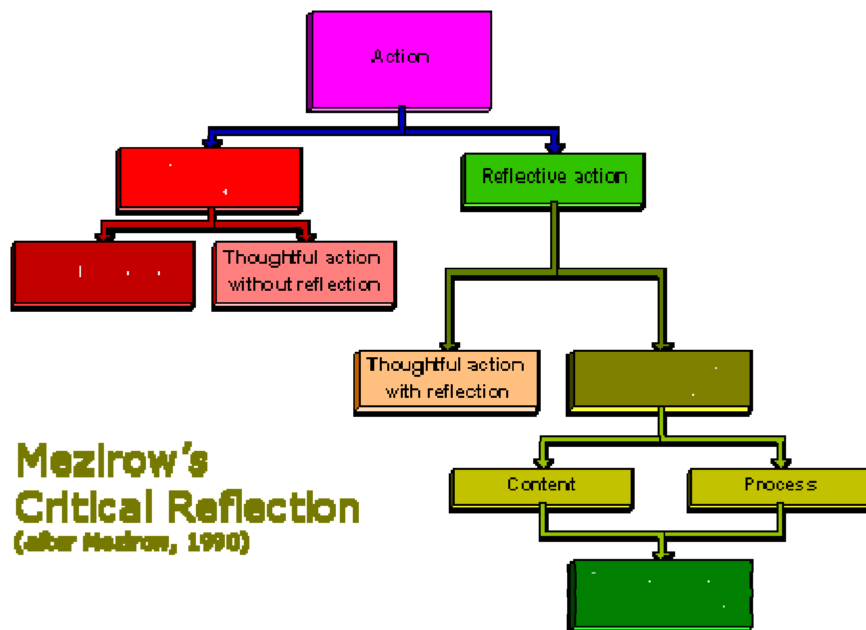
interests does it serve? Who is being advantaged or disadvantaged by it? Why do I think this? Are there inconsistencies in my thinking? How could I do things differently in my practice? What are the underlying assumptions of this theory? From whose perspective has it been written? Whose knowledge has been included or excluded?

According to Brookfield (1995), evidence that adults are capable of critical reflection but not younger learners can be found in developmental psychology, where a host of constructs such as embedded logic, dialectical thinking, working intelligence, reflective judgment, post-formal reasoning describe how adults come to think contextually and critically. As an idea critical reflection focuses on three interrelated processes: 1) the process by which adults question and then replace or reframe an assumption that up to that point has been uncritically accepted as representing commonsense wisdom; 2) the process through which adults take alternative perspective on previously taken for granted ideas, actions, forms of reasoning and frameworks use of role play, cases, simulation are use in teaching; and 3) the process by which adults come to recognize the hegemonic aspects of dominant cultural values. When educators are operating in the domain of transformative learning, they help learners examine their beliefs and how they have acquired them by creating situations in which they can debate how their values, assumptions, ideologies, and beliefs have come to be constructed (Cranton, 1994).

One very important work in this area of research is by Mezirow (1991). Merirow’s work, conducted with women returning to higher education, focused on the idea of perspective transformation which the author understood as the learning process by

which adults come to recognize and re-frame their culturally induced dependency roles and relationships. In figure 3 Mezirow shows how action can lead to non-reflective action or reflective action. A learner who becomes transformative is one whose actions are reflective, thoughtful and leads to a critical understanding of content and process finally leading to new presuppositions.

Figure 3: Mezirow's Critical Reflection model



Critical reflection, Retrieved from
http://www.dmu.ac.uk/~jamesa/learning/critical1.htm

One of the areas that have been critiqued in Mezirow's theory of transformative learning is the idea that perspective transformation is initiated with a disorienting dilemma. Mezirow believes that perspective transformation "begins when we encounter experiences, often in an emotionally charged situation, that fail to fit our expectations and

consequently lack meaning for us, or we encounter an anomaly that cannot be given coherence either by learning within existing schemes or by learning new schemes" (Mezirow 1991, p. 167). Critics have argued that the transformative learning process occurs in a more gradual fashion.

Another major area of contention surrounding Mezirow's theory is its emphasis upon rationality. Although many empirical studies support Mezirow's contention that critical reflection is central to transformative learning, others have "concluded that critical reflection is granted too much importance in a perspective transformation, a process too rationally driven (Taylor in Merriam & Caffarella, 1999, p. 335). Taylor also argues that the western bias toward rationality that takes away from other perspectives and thus does not allow the learner to appreciate the usefulness of other perspectives.

Transformative learning has two layers that at times seem to be in conflict: the cognitive, rational, and objective and the intuitive, imaginative, and subjective (Merriam & Caffarella, 1999, p. 338). Both the rational and the affective play a role in transformative learning. Although the emphasis has been on transformative learning as a rational process, teachers need to consider how they can help students connect the rational and the affective by using feelings and emotions both in critical reflection and as a means of reflection.

Transformative learning may not always be a goal of adult education, but its importance should not be overlooked and all adult educators should strive to understand it, even if they do not choose to foster it. The approach is appealing to me in that it empowers the learner. The approach looks at the totality of a learner, their relationship

with the teacher (facilitator), the context of their learning, and the social actions of empowerment. While these same items are unresolved issues within the school of thought, they do, however, offer exciting freshness of possibilities in theory development.

The problem with using experience and critical reflection as a foundation for theory building is that experiences varied and there is no way to measure whether a certain experience will lead to a certain outcome. The focus on the experience is key to the adult learning process and it may offer suggestions on the learning process. Nevertheless, the problem still exists that there is no comprehensive theory of adult learning. Further, while much of the research in critical reflection confirms that critical reflection is context or domain-specific, how is it that the same people can be highly critical regarding, for instance, dominant political ideologies, yet show no critical awareness of the existence of repressive features in their personal relationships? Brookfield (1995) warns us that experience should not be thought of as an objectively neutral phenomenon, a river of thoughts, perceptions, and sensations into which we decide, occasionally, to dip our toes. Rather, our experience is culturally framed and shaped. The focus on cognition helps in that endeavor.

The next section will look at how assumptions in the four orientations are used in our work as educational practitioners. Table 5 lists the assumptions of the four learning orientations.

Table 5: Summary of assumptions of the four learning orientations

Aspect	**Behaviorist**	**Cognitive**	**Humanist**	**Critical Reflective**

Learning theorists	Thorndike, Tolman, Guthrie, Hull, Skinner, Watson	Bode, Piaget	Maslow, Rogers	Brookflied, Cranton, Mezirow
View of learning process	Change in behavior	Internal mental process (including insight, information processing, memory, perception)	A personal act to fulfill potential	Is a transforming process Experience is also critical in the learning process
Locus of learning	Stimuli in external environment	Internal cognitive structuring	Affective and cognitive needs	Affective
Purpose of education	Produce behavioral change in desired direction	Develop capacity and skills to learn better	Become self-actualized, autonomous	Questioning of existing assumptions, values, and perspectives
Teacher's role	Arranges environment to elicit desired response	Structures content of learning activity	Facilitates development of whole person	To support learners as they struggle with the dark side of critical reflection. To act as facilitators of the learning process.
Manifestation in adult learning	Behavioral objectives Competency-based education Skill development and training	Cognitive development, learning, and memory as function of age Learning how to learn	Andragogy Self-directed learning	

Application

The practitioner must develop these orientations along the characteristics adult learner. This is where Brookfield's idea practical theorizing assist the practitioner. The development of a working philosophy is an important step in the preparation of an individual for the role of educator. Apps (1973) claimed that

> “[a] working philosophy is never completely developed, the ultimate working philosophy never reached. We’re always moving toward, hopefully, a more complete and thus more useful philosophy” (p. 1).

Practitioners in working with adults must continue to design learning activities that meet the needs of the adult learner. They must take the advice of Brookfield who suggests that the practitioner use practical theorizing in their work. Practical theorizing has its origins in practitioners' attempts to grapple with the dilemmas, tensions and contradictions of their work. These reflections, these apparently instinctive reactions can be understood to be embedded in assumptions, readings and interpretations that practitioners have evolved over time to make sense of their practice. Practitioners seem to come to a more informed understanding of their informal patterns of reasoning by subjecting these to critical review drawing on two important sources. First, they compare their emerging informal theories to those of their colleagues (Brookfield, 1995). This happens informally in individual conversations and in a more structured way through participation in reflection groups. Colleagues serve as reflective mirrors in these groups; they reflect back to the practitioner readings of her or his behavior that come as an interesting surprise. As they describe their own reactions and experiences dealing with typical crises, colleagues can help the individual worker re-frame, broaden and refine her own theories of practice. Second, practitioners also use formal theory as a lens through which to view their own actions and the assumptions that inform these (Brookfield, 1995). As well as providing multiple perspectives on familiar situations, formal theory can help educators 'name' their practice by illuminating the general elements of what

were thought of as idiosyncratic experiences. These two sources - colleagues' experiences and formal theory - intersect continuously in a dialectical interplay of particular and universal perspectives. The theoretical foundation of an educational practitioner is based on their educational orientation.

Facilitation

The idea of the teacher as a facilitator is a hallmark of adult education (Apps 1991; Brookfield 1995; Knowles 1992). This central principle charges adult educators to go beyond the role that the teacher takes in traditional classroom settings and stipulates the need to treat adults as equals in the classroom. Yet, it is clear that facilitation does not occur on a neutral stage, but in the real world of hierarchical power relations among all of the adults, including teachers and learners. When learners and teachers enter classrooms they bring their positions in the hierarchies that order the world, including those based on race, gender, class, sexual orientation, and disability.

During my experience at Boricua College I had the opportunity of working with students in a way different from the traditional university setting. The model of facilitation was the foundation of the education model of Boricua College (www.boricuacollege.edu). According to the mission of the college:

> "[A]s an innovative and non-traditional institution, Boricua College offers students the opportunity to design highly individualized learning programs, and work at their own pace towards intellectual and career goals. Such programs build upon prior student achievements, for which special credit may be granted. These

learning programs combine individual and group instruction, academic study and clinical experience beyond the College's walls; and give serious attention to both intellectual and affective dimensions of human growth. A Boricua College education is therefore well adapted to the needs of all students, but especially adult students returning to college after some years of employment or homemaking, and to students whose continuing family or employment responsibilities would otherwise make a college education impossible" (From the Boricua College website www.boricuacollege.edu).

My job as an educator and facilitator was to help students understand that their cultural difference from the larger community was not a negative but rich in history and culture. The founders of the college like Merriam and Caffarella, Brookfield and others believed that, experience plays a critical role in the practice of situated cognition, which acknowledges the importance of social and cultural context of learning, (Brookfield, 1995; Merriam & Caffarella, 1999, p. 247). What Boricua college also did was to empower its students to get involved in community activities and politics. Not all experiences are learning experiences and my role as a facilitator was to help them distinguish between experiences with educational value and those without.

Self-Concept

Learners are accustomed to making their own decisions about events that affect them. Having become skilled professionals, contributing community members, and/or

family providers, they have earned the respect of their peers. Consequently, adults expect to be treated with respect by the trainer and by other learners. Most adults want to be able to exercise autonomy in the learning situation by playing a substantial role in defining what they learn and in determining when and how learning takes place. Some adults, on the other hand, may lack confidence in their ability to learn. They may have been out of the job market or away from formal schooling/training for many years, or they may have physical factors or past negative experiences in school that contribute to a lack of confidence in their ability to learn.

Implications for Training. The learners' participation must be elicited in identifying needs, in performing learning activities, and in determining whether the learning goals have been met. The facilitator obtains learner input by conducting needs assessments, asking participants to articulate their learning expectations, or by disseminating predetermined goals enabling potential participants to decide whether the course will meet their needs. The facilitator provides learning activities which require participants to be involved actively, instead of passively, in the learning process. Examples include group discussions and role-plays. Rather than serving as the sole judge of whether learning has occurred, the facilitator designs exercises, such as case studies, which enable the participant to obtain his or her own evidence regarding learning progress.

Accumulated Experience

Learners have accumulated a wide range of experience which can contribute significantly to the learning situation. Other learners, as well as the trainer, can learn from these experiences. The Facilitator is responsible for encouraging learners to share those elements of their experience which are relevant to the learning situation. The trainer also is responsible for helping learners draw relationships between new learning, prior learning, and past experience.

Implications for Training. The facilitator focuses on activities that encourage communication between trainer and learner and among learners. This establishes relationships between the past experience of the learners and the concepts you wish to explore. Examples include group discussions, role-plays, and both individual and group case study exercises, coupled with group processing. To promote sharing, the trainer establishes a non-threatening intellectual climate as well as a physical environment that promotes information exchange. Because of the variability among adult learners, it is important to individualize instruction. One way to do this is to allow learners to pick specialized topics of interest to them. Another is to help learners adapt materials for their own use.

Readiness to Learn

Adults are ready to learn what they believe is necessary to perform tasks or solve problems that affect them (Knowles, Holton & Swanson, p. 67). All adults are not equally

ready to learn the same material at the same pace. Adults may be motivated to learn for a variety of reasons—concern with upward occupational mobility, a sense of personal achievement, satisfaction, and self-fulfillment.

Implication for Training. The facilitator is responsible for ensuring that course goals and content are compatible with the participants' learning needs as well as with their skill and experience levels. The facilitator actively involves participants in developing mutually agreed-upon learning goals to satisfy specific requirements. Throughout the learning process, the trainer establishes clear relationships among the stated goals, learner expectations, and learning activities. The Facilitator also provides opportunities for learning assessment at regular intervals. This enables participants to determine their readiness to learn a more difficult concept or skill, depending on whether they have successfully mastered simpler material.

How Are Adult Learning Differences Applied to Training?

The preceding discussion has highlighted the contrasting elements of pedagogy and andragogy. This contrast does not suggest that andragogy is a better model than pedagogy. Each has its own applications. Determining which model is most appropriate depends upon whether and to what extent the learner is able to draw relationships between the new learning and his or her past experiences. The greater use the learner can make of past experiences, the less dependent he or she needs to be on the trainer, and the more appropriate the andragogical model is to the learning situation. When the new learning involves acquiring knowledge or skills that are alien to the learner's past

experiences, the learner needs to rely to a much greater degree upon the trainer. In this case, aspects of pedagogy can be combined effectively with elements of andragogy. For example, a new admissions officer with no prior experience in recruiting will be highly dependent upon the trainer to define learning needs, conduct learning activities, and determine whether the goals have been met. By contrast, a veteran financial aid administrator will be much less dependent upon the trainer. He or she can use past experience as a resource by drawing relationships between his or her existing knowledge base and the concepts and terminology involved in learning new program rules and regulations.

Regardless of how dependent the adult learner is in the learning situation, the learner should always be viewed as an adult. This is in accordance with the "self-concept" principle of andragogy that stresses mutual self-respect, an appropriate degree of individual autonomy, and a non-threatening learning climate. The trainer will recognize the learner's dependency not by treating him or her like a child, but rather by providing—at least at the beginning—more direction in determining learning needs, completing learning activities, and assessing whether learning has taken place.

Conclusion: Toward a Comprehensive Theory of Education

Is it possible to have a single theory for adult learning? Will andragogy remain a useful set of assumptions for adult educators? Does andragogy still define critical assumptions about adult education? Will transformative learning continue to evolve and

create dialogue in the field? What of the future of self-directed learning and critical theory? Will learning theories that represent women, people of color, gays, and other marginalized groups emerge and claim their space in adult learning theory?

One thing is certain. A single adult learning theory will never capture the complexities of adult learners (Merriam, 2001). Merriam and Caffarella (1999) support that idea by saying that the "field has developed a significant knowledge base about learning in adulthood, much of it fairly recent" (p. 403). The field of adult learning consists of multiple approaches developed along the assumptions based on the andragogical model. However, the field must look at the marginalized segment of the adult learning population, i.e., gays, Latinos, African-Americans, etc. Maybe the field needs to look at including additional assumptions to understand other aspects of the adult learning population.

Second, the whole idea of education has changed from the traditional teacher-student relationship to lifelong learning where the adult is learning as a way to deal with career demands, family, technology, and a changing society. This new dimension in education requires us to have an awareness of the socio-cultural contexts of the lives of our students. This understanding will help us as practitioners and as learners. Finally, much of what educators know about learning is derived from non-adults or selected adult populations such as college students and the elderly. This suggests that there is more room for research on learning in adulthood.

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