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Original Article

Updating Our Knowledge of Adult Learning

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Abstract: *Whether one is involved in undergraduate, graduate, or continuing professional education, the learning transaction can be enhanced by understanding how adults learn and the conditions under which adults learn best. Andragogy, self-directed learning, and transformational learning, three major contributions to the growing knowledge base of adult learning theory, are first reviewed in this article. The second half of the article introduces readers to several new perspectives on adult learning; in particular, consciousness and learning, situated cognition, and feminist pedagogy are examined for what they can offer adult learning theory. Several conclusions are advanced about the state of adult learning theory, and implications are drawn for continuing education in the health professions.*

Key Words: Adult learning, adult learning theory, andragogy, feminist pedagogy, self-directed learning, situated cognition, transformational learning

While we can chuckle about it now, researchers in the early decades of the 20th century wondered, in all seriousness, whether adults *could* learn. Learning had become so intertwined with formal educational activities in institutionalized, school-like settings that it took publications such as Thorndike et al.'s 1928 *Adult Learning*¹ for the question to be redirected to understanding *how* adults learned, and the conditions that would promote learning. These questions — how adults learn, and under what conditions adults learn best — still guide much of the research on adult learning today. This article reviews several major contributions to our understanding of adult learning, including the most recent ways in which the questions have been approached. Some conclusions about the future of adult learning theory are presented as well as some implications for practice in the health professions.

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Adults Learn Differently than Children

By the mid-1950s, the effort to understand how adults learn became coupled with an interest in differentiating adult learning from learning in childhood. Three of the most prominent efforts to codify these differences — andragogy, self-directed learning, and transformational learning — constitute most of the knowledge base on adult learning theory today.

Andragogy

Over 25 years ago, Malcolm Knowles introduced educators to the European concept of andragogy, meaning “the art and science of helping adults learn”² (p. 43). In contrast to pedagogy, helping children learn, andragogy became a means of distinguishing adult learning from preadult learning.

While many practitioners have never heard of andragogy, the assumptions underlying the “theory” are readily identifiable in even a cursory examination of one’s own learning experiences. For example, an ongoing knee problem constituted a significant learning activity for me. Persistent pain

and the inability to continue jogging sent me to a doctor whose eventual recommendation was arthroscopic surgery. I learned all about knee joints, plica bands, meniscuses, and arthritis; I questioned numerous friends and acquaintances who had had any sort of knee problems or surgery; I read printed literature; I learned the jargon of having my knee "scoped;" and I decided when I had enough information to make a decision regarding surgery. The surgery itself entailed more learning — about hospital procedures and costs, anesthesia options, and recovery activity.

Analyzing this learning in terms of the five principles of andragogy, it becomes clear that Knowles' theory captures much about adult learning. First, adult learning is characterized by being problem centered rather than subject centered, and by the need for immediate, rather than postponed, application of knowledge. I was not interested in anatomy as a subject, but in the anatomy of *my* knee and the probable causes of *my* problem and what could be done about it now. The second assumption, that adult learning is related to an adult's readiness to learn, which is associated with life stage and life tasks, played out in my case with regard to my age and physical condition (my knee was not a problem as a young adult!). Knee pain presented the "teachable moment;" there would have been no interest in this topic otherwise. Third, an adult has accumulated a reservoir of experience that becomes a resource for learning. I had had joint problems before and surgery before. These experiences became reference points in understanding this new problem. Fourth, adults become increasingly independent and self-directed as they age. This means that they can participate in diagnosing, planning, and evaluating their own learning needs. I did not, for example, feel it would be helpful to view a video on knee replacement surgery; I also decided if and when I would have surgery. Finally, as is certainly true in this example, adult learners are more often motivated by internal needs than by external pressures.

The merits of andragogy as a "theory" of adult learning have been debated over the years

with an emerging consensus being that, while not really a theory of adult *learning*, andragogy does capture general characteristics of adult *learners*, and does offer guidelines for planning instruction with learners who tend to be at least somewhat independent and self-directed. Contract learning, collaborative planning, experiential instructional techniques, self-assessment of learning needs, and self-evaluation have been successfully incorporated into undergraduate, graduate, and continuing education programs with adults.^{3,4}

Self-Directed Learning

Grounded in the notion that adults are independent beings who can take control of their own learning, the area of self-directed learning draws from the same humanistic philosophy as andragogy. While not an actual "theory" of adult learning, self-directed learning continues to generate more writing and research than other areas of adult learning.

Inspired by the "learning-oriented" participants in Houle's work,⁵ Tough's study of adults' learning projects is generally considered the seminal work in this area. He found that nearly 90% of adults are engaged in learning projects, approximately 70% of which are planned, implemented, and evaluated by the learners themselves.⁶ Numerous studies with diverse samples have largely supported Tough's original findings.

Currently, several distinct aspects of self-directed learning are being investigated.⁷ First is the effort to understand the *process* of self-directed learning. Most familiar is the linear, step-wise process of assessing one's needs, selecting learning activities to meet those needs, etc., described by Knowles⁸ and Tough.⁶ Another understanding of the process is that it is much more haphazard, circuitous, and dependent upon the context and circumstances of each individual learner.^{9,10} Yet another model builds on the context and circumstances but also documents the cognitive process involved.¹¹

A second aspect of self-directed learning being investigated is the extent to which adults are naturally self-directed, and whether they can

become more self-directed with practice and/or age. In summarizing this research, Caffarella identifies four variables that appear to determine whether learners exhibit self-directedness: "their level of technical skills, their familiarity with subject matter, their sense of personal competence as learners, and the context of the learning event"⁷ (p. 30).

The third thrust of this research, and the one that holds the most implications for health educators, is how to foster learner autonomy and control in formal educational settings. This requires some adjustments on the part of both teachers and learners. Models of instruction that promote greater student self-direction have been proposed by several writers.¹²⁻¹⁴

In addition to these three areas of self-directed learning research, there is an ongoing discussion about how to define the phenomenon. Candy, for example, distinguishes between self-direction as "a process or method of instruction" and as "a goal or outcome"⁹ (p. 19). Further, feminist pedagogy scholarship (see section later in this article) is challenging the notion of autonomy and independence as preferable to interdependence and collaboration/cooperation. Finally, some feel that "the most fully adult form of self-directed learning" incorporates critical reflection and action into the process¹⁵ (p. 58).

Transformational Learning

Critical reflection is also a key component in what has come to be called transformational learning theory. More than either andragogy or self-directed learning, some who write about transformational learning do claim to have a "theory" of learning that is uniquely adult. While there are several strands of transformational learning theory, all have as their central core the notion that significant learning experiences change the learner in fundamental ways: "The process can be gradual or sudden, and it can occur in a structured education environment or in the classroom of ordinary life. Transformational learning, is, in short, a normal

part of our lives and intimately connected to the developmental process"¹⁶ (p. 47).

Mezirow et al.'s theory of perspective transformation is the cornerstone of this orientation to adult learning. He describes this distinguishing form of adult learning as "becoming critically aware of how and why our presuppositions have come to constrain the way we perceive, understand, and feel about our world; of reformulating these assumptions to permit a more inclusive, discriminating, permeable, integrative perspective, and of making decisions or otherwise acting upon these new understandings"¹⁷ (p. 14). The more developed or complex we become, the better able we are to handle "the mental demands of modern life."¹⁸

Two other transformational learning theorists — Freire and Daloz — have also had a substantial impact on adult learning theory. While Mezirow tends to concentrate on personal transformation, Brazilian educator and philosopher Paulo Freire sees personal transformation in the service of social change. Through critical reflection in a community of learners, oppressive social structures are exposed and individuals become empowered to act to change the world. Praxis, the combination of reflection and action, is key to his theory, as is the political nature of education. From his perspective, education is never neutral; it either domesticates or it liberates.¹⁹

Daloz's²⁰ arena for transformational learning is higher education. Regardless of the subject matter studied, adults in a higher education setting more often than not undergo a transformation. Higher education challenges adults to let go of preconceived notions of themselves and the ways in which they view the world. Daloz emphasizes the dialectic nature of development. That is, rather than rejecting the old, ill-fitting perspective for the new, "transformation demands [that one] move *through* those contradictions and become whole, not again, but anew. It means synthesis, a placing together"²⁰ (pp. 140-141).

Mezirow's theory has stimulated much debate and research in the field. Of particular interest has been the process of perspective transformation,

the relationship of transformation to social context, and whether this kind of learning is limited to adulthood. All three writers, Mezirow, Freire, and Daloz, have provided guidelines and instructional strategies for facilitating transformational learning and development with adult students in settings ranging from basic literacy programs to higher education.

Recent Contributions to Adult Learning Theory

Since the 1920s, educational and cognitive psychologists have continued to study human learning, and adult educators are continuing to delineate the unique aspects of learning in adulthood. Simultaneously, researchers in other disciplines are adding to our knowledge of adult learning.

Worth mentioning briefly is one of the more eclectic efforts, loosely termed "consciousness and learning."²¹ Physicists, chemists, biologists, anthropologists, and others are exploring human consciousness and its relationship to learning. Meditation, chemically induced states of consciousness, biofeedback, and subliminal technologies (such as self-help tapes) are being experimented with for their efficacy in enhancing learning. Likewise, practices and ways of knowing found in ancient and native cultures are being investigated for what they have to offer about learning. Interestingly, other disciplines are also turning to ancient and indigenous cultures. Recently, for example, the National Institutes of Health established an Office of Alternative Medicine to investigate non-Western medical practices.²²

Situated Cognition

In a provocative article titled "Learning in School and Out," Resnick²³ highlighted four ways in which the two learning environments differed. In school, learners are evaluated on what they can do alone while, outside school, learning typically takes place in a social system, with the learner

interacting with other people. Resnick called this factor individual cognition versus shared cognition. The second factor, pure mentation versus tool manipulation, referred to the fact that in school one is expected to solve problems without the benefit of tools (such as maps, calculators, printed materials) used in real-life problem solving. Symbol manipulation versus contextualized reasoning represented a third difference. In school, one deals with symbols of the real thing (such as numbers representing amounts), whereas, in real life, we more often use objects found in the context of the learning. Finally, she pointed out that in school we engage in generalized learning versus situation-specific competencies developed out of school.

Resnick's thinking illustrates a recent theory of learning emerging from cognitive psychology known loosely as "situated cognition." Research by Lave²⁴ and others²⁵ has demonstrated that the context in which learning takes place is crucial to the nature of the learning, as are the tools in that setting and the social interaction with others. Understanding human cognition means examining it in situations of authentic activity in which actual cognitive processes are required, rather than the simulated ones typical of school. Lave's experiments with grocery shoppers is a good example of the difference. Comparison pricing was found to be considerably more accurate in the activity of shopping (98% error free) than in doing identical calculations on a paper and pencil test in the classroom (59% error free).²⁶

The notion of situated cognition resonates well with what we already know about adult learning. Locating learning in the real-life experiences of adults has long been promoted as good adult education practice. Schon,^{27,28} for example, is noted for promoting contextually based reflective practice. Knowledge gained in school is not enough to make a reflective practitioner. One must also engage in the actual practice. Others recommend apprenticeships, internships, and practicums where one can learn through modeling, coaching, and trial and error.²⁹

Feminist Pedagogy

Having an even stronger impact on adult learning theory at the moment is feminist scholarship. Writing in this area embodies a psychological, sociological, and critical dimension. The psychological focus, or what Maher³⁰ terms the "gender" model, is concerned with the development and personal empowerment of individual women. The sociological or "liberatory" model is anchored in an analysis of the structured power relations of the larger society that have resulted in women being an oppressed and marginalized group. Both perspectives are critical in that women's experiences are critically assessed at both the individual and societal levels.

These analyses extend to women's modes of learning and the classroom, both of which reflect the larger social world of power and privilege inherent in a patriarchal system. Feminist pedagogy is specifically concerned with "(1) how to teach women more effectively so that they gain a sense of their ability to effect change in their own lives, (2) an emphasis on connection and relationship (rather than separation) with both the knowledge learned and the facilitator and other learners, and (3) women's emerging sense of personal power"³¹ (p. 93).

Tisdell³¹ has also identified at least three insights about adult learning that can be gleaned from the feminist pedagogy literature. First, women's learning needs may be different from men's. That is, women appear to value affective as well as rational forms of knowledge, and wish to validate their experiences as women. A number of writers have proposed "connected" or collaborative learning environments where knowledge construction can occur.^{19,20,32,33}

A second insight from feminist pedagogy is that attention is called to the interlocking systems of power and oppression that are implicit in the overt and hidden curricula of classrooms. For example, readings and other instructional materials are more often than not by white males; further, compared to men, women are rarely portrayed as

being in positions of authority and power. A third contribution from feminist pedagogy to adult learning is "a direct discussion of how to deal with power issues in the learning environment [such as the power disparity between instructor and student] that affect the learning process"³¹ (p. 99).

As with situated cognition, feminist pedagogy intersects with what is already considered good practice in adult education. Valuing the learner's experience, establishing a "safe" environment for learning, and reducing the power disparity between instructor and student through self-directed and collaborative instructional models are promoted in the literature and practiced in many adult learning settings.

Some Conclusions and Implications

What does the future hold for adult learning theory? First, adult learning theory will continue to be influenced by work going on in a variety of disciplines; this cross-fertilization will make for an even more robust understanding of how adults learn and the conditions that promote learning. Second, andragogy and self-directed learning are here to stay. The assumptions or principles underlying andragogy (one of which is self-direction) are intuitively valid for most people, and offer concrete guidelines for planning instruction for adults in settings ranging from community programs to higher education to continuing education. Third, the work in consciousness and learning and feminist pedagogy are prying open our thinking about what learning *can* be, what constraints or barriers impede our learning, and how we might free ourselves to learn more effectively. Fourth, transformational learning and situated cognition offer the most potential for moving toward a comprehensive theory of adult learning. Both focus on the process of learning and both accommodate, indeed, engage with, the context of adult life.

Continuing educators in the health professions are ideally situated to contribute to our understanding of how adults learn. Regardless of the content of continuing professional education

(CPE), what all CPE situations have in common is a teaching-learning transaction involving adult learners. Questions can be asked about instructional methods that best fit with the content to be learned, the timing of learning, the impact of learning on one's personal and professional life, the best way to evaluate what learning has occurred, how to ensure for the transfer of learning back to the workplace, and so on. Furthermore, to the extent that CPE integrates actual practice, we can learn much about adult learning in real-world settings that have real-world consequences attached. A study of how professionals learn to deal with ethical dilemmas as they arise in practice, for example, may enhance our understanding of how our prior life experiences, and personal, professional, and institutional value systems are negotiated in the learning process.

A number of implications for the education of health professionals can be drawn from this review of adult learning theory. First and foremost, we should be concerned with developing self-directed learners. No amount of academic preparation, undergraduate or graduate, or CPE will be able to keep pace with changes in the health field. Professionals must take it upon themselves to be lifelong learners, to engage in learning projects to stay current. There are any number of models and guidelines in the literature for fostering autonomy and control in formal educational settings. Employing such strategies in formal settings can lead to greater self-direction and responsibility for one's own learning *outside* the classroom.

Indeed, some licensing bodies and professional associations are allowing for self-directed learning activities to "count" in meeting continuing education requirements. A good example of this is the continuing education program (called The Maintenance of Competence Program or MOCOMP) of the Royal College of Physicians and Surgeons of Canada. Each year, participants submit a personal profile of continuing education activities to the Royal College. One fourth of the profile consists of a personal learning portfolio that documents one's self-directed learning activities.

There are guidelines for putting together the portfolio, as well as a software package for keeping a diary of self-directed learning activities.³⁴

A second major implication from this review is that the more significant learning is that which is situated in the context of adult life, in "authentic" activity. Rather than isolating adults from actual work settings, creative ways of at least integrating real work with learning need to be developed. Apprenticeships of various sorts, reflective practicums,²⁸ internships, mentor programs, and case study instructional methodologies are but a few ways in which learning can be connected to real situations. Farmer et al.,³⁵ in an article titled "Cognitive Apprenticeship: Implications for Continuing Professional Education," give an example of how the phases of cognitive apprenticeship could be employed "to teach community pharmacists how to clinically assess patients' needs and provide patient guidance" (p. 43). The phases involve a pharmacist-model at first articulating for the apprentice his or her thinking when dealing with a patient. This is followed by the pharmacist-model providing scaffolding (a structure to fall back on), coaching the apprentice in subsequent situations, then gradually fading as the learner begins to function well. The apprenticeship concludes with a discussion of what was learned that would be relevant to future situations.

Finally, in an area such as health care, developing critical thinkers would seem to be especially important. Some of the new thinking in adult learning theory offers continuing medical educators the tools for examining the underlying premises of one's ideas, attitudes, and beliefs, as well as how the interlocking systems of race, class, and gender structure individual learning and practice and society as a whole. Part of the story of nursing's "curriculum revolution" begun in 1986, for example, was a consideration of these issues in developing relevant curriculum.³⁶ Thoughtful critique combined with action can empower not only learners themselves, but those with whom they interact as continuing educators and professionals.

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