

Literature Review of Residents as Teachers from an Adult Learning Perspective

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Abstract

Academic medical centers represent the intersection of higher education and workforce development. However residents often utilize traditional pedagogical approaches learned from higher education settings that fail to translate with adult learners. The purpose of this study is to synthesize literature on resident teachers from the perspective of adult learning – particularly the concept of andragogy – to provide insight for improving medical education. This integrative literature review relies on one aspect of adult learning - Malcolm Knowles' (1984) tenets of andragogy - as a theoretical framework. Articles are pulled from eight databases using keywords of “residents as teachers” and “adult learning.” Data was synthesized from articles which identified skills and characteristics of resident teachers either as a framework or as part of their residents-as-teachers curriculum. Results of this review present these characteristics as mechanisms for achieving the five tenets of Knowles' (1984) model of adult learning. This study is relevant, as it connects andragogy with medical education and posits that teaching skills be more clearly conceptualized for faculty and residents and incorporated into their respective curricula.

With historic legislation on healthcare reform, major demographic shifts in the American population, mass retirements, and the quickened pace of innovation, medical education is at the crossroads of unprecedented change. Some believe that demand for physicians will soon outstrip supply. Christensen, Grossman, and Hwang (2009) believe that hospitals will have to move toward a corporate education model, thus assuming a greater role in the higher education of medical doctors. The field has long relied on Academic Medical Centers (AMCs) to provide a continuum of education for undergraduate, graduate (residency), and continuing education. AMCs are unique environments that represent the intersection of higher education and workforce development, offering formal learning, such as lectures and didactic sessions, and informal learning through clinical experience. Given the changing landscape, medical education must examine its educational infrastructure, such as curriculum, facilities, cost, faculty development, and student pipeline to ensure a quality workforce. This paper specifically addresses one aspect of the infrastructure: residents as teachers (RasT).

Researchers estimate that residents spend at least twenty percent of their time teaching junior learners (Greenberg, Goldberg, & Jewett, 1984; Hatem, 2003) yet the field has not clearly defined necessary teaching competencies. Residents arrive at AMCs from many different medical schools with highly variable teaching skills and philosophies. Some medical schools have incorporated teaching into the curriculum, whereas others trust that solid medical knowledge and presentation experience represent sufficient preparation. Residents differ from attending faculty: their time at an AMC is typically transient, they may not wish to pursue a faculty career, evaluation of their

teaching is used for knowledge assessment, and they are often young adults with little experience in professional work culture. Residents are expected to become increasingly independent and self-directed as they balance personal and professional development.

Teaching in an AMC involves colleagues, subordinates, patients, and medical students in a sometimes harried clinical environ. Prior research has found that residents can role model wrong behavior to medical students (Bennett, O'Reilly, & Campfield, 2010), which undermines their teaching. Residents often follow traditional pedagogical approaches learned from higher education settings that do not translate well with adult learners in AMCs. Teaching adults requires a new set of skills, abilities, and relationships yet the extent to which residents are prepared to become educators of adults is questionable. The purpose of this paper is to review and synthesize literature on resident teachers from the perspective of adult learning, which will provide insight for improving medical education infrastructure.

Literature and Theoretical Frame

Adult Learning is the principle theory for this literature review, particularly the concept of andragogy. It was introduced in the United States by Malcolm Knowles, whose work was based in Humanism thought that regards learners as autonomous, free, and growth-oriented (Merriam, 2001). Andragogy was defined as the art and science of helping adults learn (Knowles, 1984), which stands in juxtaposition with traditional pedagogical assumptions as well as general experiences of learning in childhood. Knowles proposed five tenets of adult learning. Adapted from Knowles, Holton, and Swanson (2005), these five tenets are:

1. Adults have a high need to know why they need to know something. They learn best when they self-discover learning gaps through real and simulated experiences.
2. Adults have an independent self-concept, take responsibility for one's life, are increasingly self-directed, and have a deep psychological need to control learning.
3. Adults enter into learning with a greater volume and quality of experiences. They vary in learning styles, backgrounds, motivational factors and needs; this fund of knowledge provides rich resources for learning through activities such as simulation, group discussion, and case method but can form biases that inhibit the integration of new material.
4. Readiness to learn results from real-life problems and entry into new developmental stages and changing social roles. These stages can be jumpstarted through such activities as career counseling and simulation.
5. Adult learning is life-centered rather than subject-centered; the greatest motivation is internal and when an activity presents new knowledge, values, and skills readily applicable to real-life.

New learning that conflicts with prior learning causes adults to re-evaluate existing material and integrate conflicting information more slowly (Zemke & Zemke, 1995).

Two criticisms of andragogy question whether all cultures tend toward self-direction and the role of the wider social context of adult learners (Merriam, Caffarella, & Baumgartner, 2009). Self-direction is an enduring component of adult education and

when adult learning is problem-centered, it is likely to be informal and involve experiential learning processes (Kolb, 1984) that contrast with traditional higher education pedagogy. Learning in clinical environments is highly experiential and problem-centered. Since adult learning theory focuses on teachers as facilitators of learning, it emphasizes interpersonal and adult relational skills in addition to subject knowledge; however, new residents may have little exposure to adult learning theory or even recognize the need to move from independent learning necessary for success in traditional higher education to teaching and learning skills that lead to success at AMCs.

Prior RasT literature reviews have focused on teaching program evaluations with emphasis on course comparisons and outcomes (see Hill, Yu, Barrow, & Hattie, 2009; Post, Quattlebaum, & Benich, 2009; Wamsley, Julian, & Wipf, 2004). These reviews covered interventions and tools. Noticeably missing was a discussion of underlying constructs and theories of resident teaching.

Methods

Integrative Literature Review

An integrative review of the literature (Cooper, 1982) was conducted by synthesizing articles on RasT. Following Cooper's (1982) methodology, a problem statement was developed. The research question driving the study was: what are the essential skills and characteristics of resident teachers consistent with andragogy? The search term "resident as teacher" was used alone and in conjunction with the phrase "adult learning" to comb literature across eight databases, including; PubMed, Ovid, SpringerLink, Web of Science, PsychINFO, JSTOR, Wiley-Interscience, and SCOPUS.

Books were excluded from the search criteria, as were journal articles referencing graduate medical education outside North America. The search was limited to articles published between 1990 and 2010. Reference lists from selected articles were also searched individually for relevant sources. This review was substantially complete by the submission deadline.

Results

Essential Characteristics for Resident Teachers

Results of the literature search identified 32 citations. Abstracts from all citations were reviewed for relevance. After excluding articles which did not focus on resident teaching skills, 17 articles remained for the final analysis. Characteristics and skills were synthesized for content and mapped onto the tenets of adult learning (see Table 1).

Following are descriptions of the five tenets of the andragogical model and how they translate to resident teaching. RasT skills and characteristics found in the literature are presented as mechanisms for achieving these tenets. Some characteristics cut across all of the tenets and are presented in a separate category.

The need to know why/self-discovery of learning gaps.

Residents must encourage continual knowledge development to help junior medical students identify learning needs and to synthesize new information into existing schemas. They must “help the learners become aware of the ‘need to know’” (Knowles et al., 2005, p. 64). Resident teachers can promote this self-discovery process through assessment and feedback which should be “both corrective and reinforcing, and establish plans for learner improvement,” (Heflin, Pinheiro, Kaminetzky, & McNeill, 2009,

p.e234). In addition, residents should engage learners in the literature and develop life-long learning practices.

Learning autonomy and relationship with teacher.

Adult learners are typically self-directed and control their own learning (Merriam, 2001; Zemke & Zemke, 1995). Residents must alter their teaching practices to promote autonomy in their learners. They can do this by engaging learners through effective questioning and by asking them to discuss their diagnoses aloud. Students who are engaged and involved in the material are more likely to satisfy the “deep, psychological need to be seen by others and treated by others as being capable of self direction” (Knowles et al., 2005, p. 65), important for physician identity development. Residents must also leverage the self-direction of their learners; this efficiency is necessary given time constraints in clinical teaching.

Incorporation of background experiences and existing funds of knowledge.

Effective resident teachers incorporate the prior experiences of their learners. They can tap into the great volume of learners’ experiences, either with problem solving or group discussions (Knowles et al., 2005), which allow adult students to learn from each other as well as integrate prior knowledge. Further, by establishing rapport with learners, resident teachers can gain knowledge about their background experiences and more effectively tap into that knowledge across different contexts.

Life stages and changing social roles.

Residents must remain cognizant of the developmental stages of their learners and be aware of the factors that contribute to a positive climate for learning. A positive climate can help junior learners navigate changing personal and professional roles. Role modeling is a form of informal teaching. Because residents may draw on their recent memories of medical school, they have greater ability to relate to the learning needs of medical students and naturally create a more positive learning climate for them (Weissman, Bensinger, & Koestler, 2006) which promotes “educational growth” (Hatem, 2003, p. 711).

Life-centered and problem-centered learning.

By keeping their teaching problem-centered and distilled to relevant points, residents can make learning immediately applicable to real-life, especially in patient care. Defining specific goals and objectives for the student makes the relevance of material more apparent, and summarizing into take-home points capitalizes on the problem-centered nature of the material. Resident teachers must also effectively demonstrate and teach clinical skills, as this is often most important to medical students.

General skills and characteristics.

Several characteristics and skills associated with effective resident teachers support teaching from an adult learning perspective. Several authors noted the importance of communication skills, enthusiasm, and ethics; all of which play into teaching and rapport-building. Similarly, an understanding of leadership, learning theories, control, and how to promote understanding and retention were also identified as necessary skills (see Table 1).

These skills are associated with effective teachers across many settings, and their applicability to the andragogical model is more general rather than specific to a given tenet. Communication skills, for example, affect many items listed in the table and influence adult learning in many ways. In addition, enthusiastic resident teachers appear engaged and may be more willing to find the “teachable moments” than peers with less enthusiasm.

Table 1. Effective resident teacher characteristics and skills, organized by tenets and goals consistent with adult learning theory

Adult Learning Theory Tenet	Resident Goal	Resident Teaching Skill/Characteristic	Cited by
1. Need to know why and self-discovery of learning gaps	Encourage continual knowledge development through feedback and assessment	Give feedback	4,5,6,7,10,12,13,18,21,23,25
		Encourage feedback from learners	10
		Fostering life-long learning	12,14,18
		Assessing the learner's needs/knowledge	6,7,21,25
2. Learning autonomy and relationship with teacher	Allow learners a degree of control and alter teaching practices accordingly	Engage and motivate the learner	14,25
		Leveraging self-direction to create teaching efficiency	24,28
		Effective questioning/Identify methods to improve student learning	5,12
		Ask learner to articulate his/her diagnosis or plan to encourage self-control	6
3. Incorporation of background experiences and existing funds of knowledge	Leverage/manage incorporation of prior experiences	Apply teaching in different contexts	10,29
		Effectively lead large and small group discussions	4,7,10
		Establish rapport with the learner	9
4. Life stages and changing social roles	Remain cognizant of individual and collective level of life development and understand what contributes to a positive climate for change	Develop a learning community	9
		Encourage faculty reinforcement of desired teaching skills	5
		Be a positive role model for students	23,28
		Establish comfortable learning environment for students	5,9,10,12,26,28
		Apply learning theory to teaching sessions	10
5. Life-centered and problem-centered learning	Keep teaching problem-centered and distilled to most relevant	Summarize teaching into take-home points into what is most relevant	6,7,14
		Effective skill instruction/teach content effectively	4,5,7,14,23,26
		Demonstrate clinical knowledge	4,26
		Involve the patient	13
		Develop specific goals and objectives for the learner consistent with what they need to learn	7,10,12,14,18,21,28
		Capitalize on "teachable moments"	29
6. General skills and characteristics	Incorporate effective teaching practices	Communication skills	23,26
		Enthusiasm	13,26
		Ethics	23
		Knowledge of learning styles/theories	23
		Leadership	23
		Promote understanding and retention	18
		Control the teaching session	10,18

Discussion

This study is significant because it draws a clear and specific connection between andragogy and medical education. Given the amount of time residents teach, it is important to train them in adult learning principles and techniques. To do this, attending faculty must also be facile with learning theory, but faculty development programs often focus on teaching techniques rather than underlying constructs. Where resident teaching does not incorporate adult learning tenets, it may very well cause role conflict with junior learners. We advance that teaching skills should be more clearly conceptualized for faculty and residents and incorporated into their respective curricula. It is also important for residents to explore their own assumptions about teaching and learning that affect their RastT role.

Further research on resident teaching should progress in several areas. First, education researchers should investigate how well-prepared residents feel to act in their role as teachers. This information would further inform curriculum development and benefit residents and their adult learners alike; it would also benefit patients since physicians would be well-served to view their adult patients as adult learners. Second, future research may study the potentially conflicting roles of residents as both learners and teachers. Heflin et al. (2009) argued that “residents must first grasp the fundamental principles of learning theory as well as their own learning style and account for these in a variety of teaching situations” (p. e237). Third, medical education should examine and re-imagine its core values and assumptions about teaching that de-emphasize the role of sound learning theory as curriculum foundation. We anticipate sweeping changes to

medical education in the coming decade, and the role of education research and development should become even more important to the field and to AMCs.

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