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Featured Article

Beyond Knowles: What Those Conducting Simulation Need to Know About Adult Learning Theory

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Abstract: This article explores the adult learning theories that might affect the way that adult learners perceive learning and reach understanding of clinical expertise. Although educators in clinical and simulation settings are becoming much more aware of the theories that affect adult learning, too often their knowledge might not reach past the great work of Malcolm Knowles and his theory of androgogy. Other theories are presented in ways that help adult educators of adults to understand how the conditions that are favorable for adult learning may be replicated to help learners reach a level of understanding, meet clinical and organizational objectives, and willingly seek out lifelong learning opportunities.

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Introduction

The health care profession will always have a demand for talented people, and should the supply of clinical candidates dwindle, everybody would feel the impact. Additionally, maintaining a clinical workforce that is trained to peak performance should be a major goal of any health care organization in which patient safety is a priority. As simulation becomes more prominent throughout the health care world because of its ability to closely replicate the clinical experience, nursing and medical educators are realizing that although important, teaching for understanding involves more than considering how the learning experience might be made more authentic. This part is already being accomplished by recognizing the need and value of simulation. However, educators will need to know what brings the adult learner to the simulation experience and what can be done to make the learning experience the best they ever had, creating a clinical workforce that thrives on self-improvement and lifelong learning. Malcolm Knowles has greatly influenced the clinical world, particularly those conducting simulation for the improvement of health care. But there are many other aspects of adult learning that educators need to know in order to be more effective in reaching adult learners. While it might be impractical to address every learning theory affecting simulation, this article begins with a background of the great work of Malcolm Knowles and then proceeds to some of the other learning theories that are necessary for understanding how adults learn best.

Background: Knowles and Adult Learning

Many educators in clinical settings, as well as those conducting simulations, are familiar with the work of Malcolm Knowles. Knowles (1968) proposed a theory of adult learning, which he felt differs from pre-adult schooling (p. 351), called *andragogy*, meaning ''the art and science of helping

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adults learn'' (p. 43). Knowles' theory was based on the characteristics that distinguish the mature adult from the pre-adult learner, including (a) self-directedness, (b) accumulated reservoir of experience that becomes a resource for learning, (c) readiness to learn and growing orientation to the developmental tasks of the learner's social roles, (d) application of knowledge that is increasingly tied to application and problem centeredness (pp. 44-45), (e) internal motivation to learn, and (f) the need to know why something should be learned (Knowles, 1984, p. 12). Knowles (1984) also changed his position to recognize that the assumptions about andragogy are situation specific and not unique to adults. Knowles received criticism for assuming that all adult learners learn in the same way, ignoring systems of oppression and the effects of culture on learning and development (Merriam, Caffarella, & Baumgartner, 2007, p. 89; Sandlin, 2005). Nonetheless, Knowles did address motivation as a form of internal discipline in understanding why an adult learner approaches learning. For the adult learner, there is often a realization that there are responsibilities that must be addressed. This is validated as studies on participation indicate that participation is clearly linked to the roles of the worker, the family member, and others, while readiness to learn is linked to the developmental task of the adult's role (Merriam et al., 2007, p. 92). So what are those internal disciplines and motivations that educators need to know about the adult learners who will be coming through their simulation centers? The remainder of this article will assist the educator with gaining an understanding of what the adult learner wants you to know.

Key Points

- Create safe, active, and collaborative learning environments.
- Engage prior experiences early and employ ongoing reflection.
- Focus not on the evaluation, but instead on assessment that improves practice.

"I Have Had Bad Learning Experiences in My Past"

Some educators may not be aware that adult learners bring into the learning environment frames of references that are varied, both positive and negative. There appear to be two types of educators, teachers and facilitators of learning. The latter may be more conducive to learning. The facilitator of learning will ensure select strategies that will allow the learners to become actively engaged with the construction of their learning and not be a passive tool of teaching (Clapper, 2009). Many adult learners may recollect bad learning experiences that did not lead to understanding, and instead often resulted in frustration on the part of the learner.

Brookfield (1995) uses a process of autobiography and critical reflection as a method for helping adult learners reflect on their own learning and teaching experiences. Some of these reflections may include experiences of a passive process of note taking, long lectures, worksheets, and the often-dreaded psychometric examination that often did little but evaluate the ability to regurgitate rote memorization of the teacher's endless writing and lecture. Classes were often quiet, collaboration was nonexistent, and glancing at another's paper to ascertain whether one was somewhat following the teacher's seemingly aimless pattern could result in the classification of cheating. Forward to present day: even educators who might read the previous reflection and cringe as they relate to the material may also be stuck in what Argyris and Schön (1992) refer to as an espoused theory that does not match their theory-in-use. This means they may believe in something wholeheartedly, in this case, an active-learning instructional philosophy, but when it comes to placing their espoused belief in action, the two may not match. One might include Brookfield's (1995) recommendations for helping us to reflect on our own experiences through the power of autobiography, a review of the literature for our profession, and critique through the lens of those whom we teach. Reflecting on their own autobiography, educators may note some differences and similarities in the recommended learning and teaching theories that align with their own beliefs. Additionally, reflection by colleagues and students on our instruction methodologies is important for assessing and critiquing our theories-in-use (Brookfield, 1995) and may be lacking.

How do students and colleagues see us? Are we the guide on the side or the sage on the stage? There are many tools available to help us observe whether our 'state of the art teaching skills' espoused theory does in fact match our theory in use with the same high caliber. We might videotape our performance in the classroom, have colleagues observe and assess us using our own espoused theory as a guide, or use the critical incident questionnaire (CIQ), whereby instructional methods are anonymously assessed by the student (Brookfield, 1995). The CIQ allows the instructor to receive regular feedback from students on what is working in the classroom and what is not.

The process of the CIQ might include the learners' submitting an evaluation weekly or, in the case of a 1-day simulation course, perhaps submitting the CIQs to the educator prior to moving to a break period. The idea is more effective than an end-of-course reflection or evaluation (Brookfield, 1995, p. 93) because the CIQ allows educators to do what they are supposed to do and adjust their session to the needs of the learner. The educator may tailor this process in ways that provide the most value for learners. Educators may explain the process at the beginning of the course and inform the learners that prior to each break, they are to write a quick blurb as to the parts of the lesson that they understand and the part they are having difficulty with. Educators may also include a statement regarding the instructional process used by the educator. The key is not to take this feedback personally but instead as a valuable form of assessment that might help us improve our course facilitation skills. Participant involvement in the CIQ process may favorably

affect final course evaluations because the adult learner can become part of the process to develop better learning experiences and improve education.

"I Have a Lot Going On"

Computers are no longer optional, and one secure, guaranteed job to retirement is unlikely. Further, lifelong learning and recertification are not much of an option in many professions, the economy is unstable, and parenting demands mean that one of the parents is with the child, often enough, after work. It is therefore critical that today's educators understand McClusky's (1963) theory of margin so they better accommodate adult learner needs. His theory observed a balance between the ''power'' and the ''load'' as one grows older and moves through adulthood. The power-load-margin includes the load the adult carries in living, and power that is available to him or her to carry the load, while the margin is the relationship between the load and power (Hiemstra, 1981). Hiemstra (1981) defined the load as ''the social demands required by a person to maintain minimal level of autonomy,'' and power is ''the resources, abilities, possessions, position, and allies that a person can command in coping with load.'' McClusky's (1974) formula for margin suggests that the greater the power in relationship to the load, the more margin will be available. The load-to-power ratio changes and adjusts throughout the adult years with changes in any of the power or load factors such that ''margin can be increased by reducing load, or increasing power'' (McClusky, 1970, p. 83). The implications of McClusky's theory might include understanding that adults, students in particular, must be adept at juggling multiple responsibilities and demands of their time, but we should not make an assumption that overloaded adults are not capable of learning (Merriam et al., 2007, p. 96). In fact, Wolfin (1999) found that overloaded adults will do all they can, regardless of the load they carry, so long as they view those activities as essential and meaningful.

So what does this mean to the educator? Many physicians and nurses often work long, unsteady hours, and should we apply Knowles's (1980) theory of andragogy and McClusky's (1963) theory of margin, we would be aware that they will be coming to the center with many other responsibilities weighing heavily on their minds. Courses and simulation experiences have to be timely, convenient, and accessible to ease the burden of moving to this learning environment. Distance learning is no longer an innovation and instead has become a regular part of many instructional methodologies (Marx, 2006a, p. 97). At an address to doctoral students in Washington, D.C., in April 2009, the president of Capella University noted that online learning had been previously viewed as nontraditional learning, but since nearly all major universities and colleges now offer online learning, it is ''brick and mortar'' resident education that may be considered nontraditional (Cassirer, 2009). While online learning might be convenient and accessible, those educators who wish to develop this mode of learning for their centers need to know that although adults tend to become more self-directed as they mature (Merriam et al., 2007), they might require some form of additional support or scaffolding through the process of self-directed learning. One might consider the advantages of Grow's (1991, p. 143) staged approach to self-direction. Both Grow and Candy (1991, p. 309) observed the importance of heavy scaffolding at the beginning of the learning experience, with Grow stressing a gradual transition through four stages and culminating in the learners taking on full implementation of their learning. Both observe the importance of the availability of the facilitator to provide scaffolding as needed, even in the latter stages.

For those organizations that consider offering online learning, the site should be easy to navigate and provide a supportive online environment. Remember that although convenient, if the learner is frustrated due to poor navigational features within the online learning management system, or poor instructional design, the learner might reflect on the lack of available margin for this task and could in fact withdraw from the experience. Additionally, those educators and simulation centers expecting that learners will be able to cover a vast amount of pre-course work prior to attending resident training should not be shocked to learn that very little of this work gets accomplished. Even if learners are in a paid learning status, it is unlikely that anything more than familiarity will come from large amounts of data that must be reviewed prior to course attendance, especially if the adult learner has a significant load to carry. Further, as will be noted in a later section of this article, without some degree of internalization and reflection, the information presented is unlikely to result in any real learning. A primary factor in learning is the learner's ability to perceive and attend to the stimulus (Phelps, 2004, p. 198).

Other factors to consider include the time of day of the course, transportation to and from the site, and the value that one could conceivably attain from the experience. If one expects to start the course work on time, allow for training to begin mid-morning if possible to allow for children to be put on the bus and allow learners transportation time to the site. The goal for every session should be to promote a positive experience that leads to better understanding. Reflecting on good learning experiences will likely place the learner in the mode where they feel they might be able to find some power to meet the need [load] for attending the training at the learning center.

"Make Learning Active and Help Me Make Meaning of It"

Many educators might not be aware of the need to create experiences that correspond to the Dunn and Dunn (1978) learning style inventory, be it auditory, visual, or kinesthetic;

or again it might not be a part of their theory-in-use. Unfortunately, although valuable, movement of the body and immersion in the learning experience is often discouraged and neglected in many environments. To not engage all three learning styles in each lesson, when one is aware of the value of doing so, is irresponsible. In a meta-analysis of 76 experimental studies conducted at multiple universities, Lovelace (2005) found the overall data reported significantly higher test scores when teachers used the Dunn and Dunn learning-style strategies compared with traditional-based methodologies. Further, Kolb's (1984) experiential learning theory would posit that learning is a continuous process grounded in the experience with knowledge being continuously derived and tested out by the learner (p. 27). It involves the learner becoming actively involved in the experience and reflecting on the experience during as well as after. People learn from experience in a way that is simply not possible from instruction or information delivery alone (Caine & Caine, 2006), and this involves interaction between the learner and the environment, moving between "opposing modes of reflection and action and feeling and thinking" (Kolb & Kolb, 2005, p. 194). This does not describe the passive process of learning occurring in many classrooms. Educators might be advised to put aside the PowerPoint slides and instead use the power of project-based learning and various cooperative learning techniques to get the learners actively involved in constructing their own learning. Both methods involve individual and social construction of knowledge and may be integrated with critical reflection, which is a necessary part of learning from the experience (Fenwick, 2003). Experiential learning ties in well to Mezirow's (1991) transformative learning theory, and those conducting simulations and skill development tasks might immediately be able to see the relationship between the two.

If we are bringing learners to the simulation center to develop new skills or to change frames of references that the adult learner brings into the environment, experiential, active learning will likely be an important element in the transformative learning process described by Mezirow (1991). Transformative learning focuses on "changing what we know" (Kegan, 2000, p. 48), and this process often includes three key concepts, including life experiences, critical reflection, and the connection between transformative learning and development (Merriam et al., 2007, p. 144). Mezirow's (2000) transformative learning theory is focused on "the process of using a prior interpretation to construe a new or revised interpretation of one's experience in order to guide future action" (p. 5). This theory capitalizes on Knowles's suggestion that adult learners possess a richer base of experiences that are brought into the learning environment (1980, p. 43), and justifies the need for inquiring about the levels of knowledge and frames of reference that already exist at the beginning of the learning experience. One might sense the constructivist overtones in Mezirow's (1995) transformative learning process, beginning with (a) the experience itself or a "trigger event," or significant emotional event; (b) self-examination of the situation causing the discomfort, exploration, and perhaps new ways of explaining the situation; and (c) development of new ways of thinking about the situation; followed by (d) trying on the new role or assimilation. Transformative learning occurs when the learners change their frames of reference to match this new way of thinking, which occurs through critical reflection (Mezirow, 1997).

In fact, reflection is an important component in transformative learning. Educators can foster critical reflection on the experience and challenge learner assumptions by serving as facilitators of reflection (Fenwick, 2003; Merriam et al., 2007, p. 169). Rather than wait until the debriefing process, which is a reflection-on-action process, the simulation experience should also involve the reflection-in-action principle of experiential learning (Kolb, 1984). Further in line with constructivist theory, transfer of learning from one situation to another is possible and may be optimized through the socialization experience with other learners (Fenwick, 2003). This theory justifies the use of cooperative learning techniques and projects that employ the use of teams. Frames of reference are the experiences and ways of knowing that a learner has accumulated throughout their life. The process of reflection and simultaneously learning from the experience requires the learner to be open and emotionally capable of transforming the frames of reference that are brought into the new experience (Mezirow, 2000, p. 8) to help them make meaning of the information. Learning does not have to be relevant to the learner at the time of the experience because the facilitator can make learning relevant (Brooks & Brooks, 2001), and this might be accomplished either through the activities or through reflection, particularly at the beginning of the lesson. Brookfield (1987) also emphasizes critical reflection on past anxieties and discomfort to assess from various perspectives how the new experiences might apply to one's life (p. 27). In essence, this process would become valuable as learners reflect on why they might have done certain tasks in the past and why the new ways are perhaps more logical and productive.

Simulation learners are rarely involved in what we might refer to as an experience in which they might be only observing or receiving knowledge passively. This is not to imply that no learning can occur in this manner, but it should not be considered a form of active learning. For those of us involved in both education and simulation, we are keenly aware that simulation is the promotion of understanding through doing that also offers the opportunity to merge theory with practice (Garside, 2009) while also maximizing on diversity and teamwork opportunities with unfamiliar participants and situations (Cranston, 1996, 2002; Garside, 2009; Lamb, 2003). Transformative learning is the goal of any simulation experience, and an understanding of this adult learning principle is a call for understanding and improving on the active and experiential learning of our participants. Perhaps this is why Garside (2009) found that nursing students performing clinical simulation appreciated and valued their learning experiences

and often commented that they felt they were better prepared for ''the real thing.''

''Learning Is an Emotional Thing''

Emotions are a powerful tool for learning, and yet too rarely do we hear about the positive emotions resulting from learning experiences. We can, however, reflect on those bad experiences in our lives and, in doing so, may realize that during those times, learning with deep understanding was probably not occurring although learning might have taken place after the fact through a process of reflection. Adult learners know the value of emotions in learning and, like learners of all ages, prefer positive ones. Over the past 20 years, the emotional aspects of teaching and learning in adulthood have become more prevalent, not only in scholarly literature, but also in professional development sessions (Dirkx, 2008, p. 8). For realizing the effect that emotions might have on learning, educators would be advised to understand MacLean's (1990) triune brain theory. MacLean's theory would explain why higher-order learning might not occur when the environment is not positive for learning. MacLean divided the brain into three parts, including the base of the brain, referred to as the reptile- or R-complex, which is responsible for basic survival; the limbic system, in the middle of the brain, responsible for memory and emotion; and the neocortex, which is associated with higher-order thinking.

Most learning occurs in the limbic system and through understanding, which may make its way up to the neocortex (Caine & Caine, 2006; MacLean, 1990). The amygdala can modulate the encoding of memory triggered by the hippocampus by forming episodic representations of emotional significance (Phelps, 2004, p. 198). Being that the brain is very susceptible to emotion, positive emotion can pave the way for memory and higher-order thought. On the other hand, according to MacLean (1990), fear and intimidation can immediately cause the learner to move from the neocortex or limbic system, all the way down to the R-complex, where the learner's major concern is with survival and protection, a condition MacLean referred to as ''downshifting.'' Adult educators can expect a substantial proportion of their students to be in survival mode (Caine & Caine, 2006, p. 57), especially if the environment is not made less threatening.

To imagine how this might work in a clinical environment, we might imagine a group of physicians or nurses attending a simulation experience, and during the debriefing process, the debriefer publicly degrades the participant. Place yourself in the position of the participant, and it might be clear that no matter how good the simulation experience was, and no matter how well the reflection process goes after this point, it is very likely that the participant is reflecting solely on the comment by the debriefer. MacLean (1990) suggested that through positive self-talk and reassurance, the learners can move themselves out of the R-complex. Educators conducting simulation training should be alert to varied perceptions by learners and facilitate any support or scaffolding that might be necessary to help the learner maintain a positive composure.

In further support of the role of emotions in learning, consider that after reviewing 23 empirical studies, Taylor (2000) found evidence for Mezirow's (1995) ideal conditions for fostering transformative learning, including providing a safe and trusting environment, promoting collaboration, and incorporating activities that encourage exploration of alternative personal perspectives and critical reflection. This means that health care professionals attending training at simulation centers will expect confidentiality of the experience to exist, as well as conditions for them to make mistakes and freely learn from those opportunities without fear and intimidation looming over them. Educators need to know that this is something that is expected, and any violation of this trust could jeopardize not only the learning experience for the learner but also the reputation of the center as a learning institution. Mulvihill (2003) provided additional emphasis on emotions in the transformative process as it might apply to the debriefing process of a simulation or role-playing experience and reinforces helping learners capture the emotions of the experience, which he suggested leads to a more ''holistic paradigm'' (p. 325).

Additionally, Boud, Keogh, and Walker (1985, 1996) observed that learning through reflection requires (a) returning to and replaying the experience, (b) attending to the feelings that the experience evoked, and (c) reevaluating the experience. Boud et al. also suggested working though negative emotions while enhancing positive feelings. This capturing of emotions is critical to the first part of the debriefing process, when the experience is still fresh in the participants' minds. Both facilitators and debriefers must be trained to help the learner match the experience with the emotion and find meaning in the experience (Fenwick, 2003; Merriam et al., 2007, p. 169). This means that right from the start, it is necessary to create conditions that reduce or neutralize the survival response while nurturing an appropriate sense of safety and community (Caine & Caine, 2006).

Finally, both Jarvis (1987) and Illeris (2002) recognized that learning involves all the senses, including sound, sight, smell, taste, and touch, so educators need to develop lessons that activate each of these senses to maximize the learning experience. Readers of this article might only reflect on their best learning experiences, and one set of words might come to mind that is missing too often from instruction: positive and fun.

''I Prefer Assessment and Improvement Over Evaluation and Failure''

Brookfield (1995) noted that many of us, although fully competent, might feel intimidated in the presence of other professionals in our field. He suggested that we might go

through our lives fearing that at some point we might be publicly recognized as frauds, or what he termed *imposters*. There are a lot of great health care and educational professionals out there, and opinions certainly vary over methods and procedures. When the learners come into the simulation center, will they be unveiled as a fraud? Do they have any reason to believe that they will? Everybody has made mistakes, and it is reassuring to learners to hear from leaders in the organization who are serious about change and improvement in their field that they themselves have made mistakes (Brookfield, 1995, p. 250). Adult learners coming to the learning environment know that the further they travel from habitual practices, the more incompetent they may look (Brookfield, 1995, p. 232). For good learning to occur, the environment must be one that allows for experimentation and failure in the learning process without the risk of some sort of professional backlash. Otherwise, the learner might avoid or resist the learning opportunities. Learners often express joy and elation about reaching the point of understanding on a task (Dirkx, 2008, p. 10), otherwise known as the ''aha-factor,'' but for many adults, taking tests is the equivalent of coming across a threatening snake (Caine & Caine, 2006. p. 58). Here again, ongoing reflection, in which one can apply correction to the immediate situation, along with including a good debriefing process, is likely to be more beneficial to the learner in correcting misunderstandings in practice and procedure.

If a center considers itself a place where learning and understanding are the goal as a means of increasing patient safety, then experimentation without repercussion should exist. Additionally, evaluations are good for removing people from positions, whereas ongoing assessment can help to change frames of reference. Centers should ask themselves how they wish to be viewed by their learners, as the reaper of career death or as the facilitators of improvement for patient safety. A well-constructed rubric in which the criteria address the objectives and goals for learning is what is necessary to assess learning. Ultimately, it should matter more that a learner's level of understanding is assessed and leads to better clinical outcomes than wondering whether the learner guessed correctly or incorrectly on a psychometric examination.

"I Want to Leave With a Better Understanding"

It can be argued that if you cannot teach it for understanding, do not teach it at all. When it cannot be done right, the educators are wasting their time, the learner's time, and accomplishing little to increase patient safety. In fact, if they do not understand it, learners might leave the simulation center as confident incompetents. Educators should become more knowledgeable about organizing and facilitating the learning experience. Also, it makes little sense to gather evidence and develop scenarios without placing as much or more emphasis on the packaging and delivery of the learning experience. Imagine teaching learners to swim by showing them a PowerPoint presentation on the breaststroke and then taking them to the deep end of the pool and telling them to jump in and learn from the experience. In a review of 210 studies published on computer-assisted learning, Letterie (2003) determined that improvement in learning was demonstrated in only five of the studies, but that technology was still being used in the teaching process. On both sides, it is not clear that technology can by itself generate the outcomes we desire. Technology is only a tool to be used in conjunction with a good learning plan that enhances and does not replace the need for active engagement activities. There is further evidence in Crofts et al.'s (2008, p. 2) observation that poor neonatal outcomes after shoulder dystocia are associated with a lack of confidence and competence. Although training is recommended, there is little guidance on how shoulder dystocia management should be taught.

To teach for understanding, we must be willing to move away from methodologies that are not effective, despite their having been used for so long in the past. Instruction should be organized to take advantage of the power of the constructivist and transformative process. In the case of the shoulder dystocia training issue identified by Crofts et al. (2008), hands-on, brain-based learning may lead to understanding of the causes and prevention of shoulder dystocia, so the clinical staff can manage the situation calmly and confidently. If learning resulted in understanding, this should not be an issue. Their approach to the problem involves not simply listening to a lecture but instead involving the participants in an authentic, hands-on approach to learning, as is available through simulation.

Similarly, Williams and Dunn (2008) recommend the four-phase lesson plan for organizing learning plans for better understanding. These lesson plan designs combine brain-based learning and differentiated instruction and use a consistent logical flow of learning consisting of the *inquire*, *gather*, *process*, and *apply* phases. The four-phase lesson is very effective for ''learning for understanding'' because it helps the facilitator to transfer in the learner's frames of reference, and adult learners do possess vast numbers of them (Knowles, 1980). In each of the phases, the learner is taken to active learning activities, and along with the process of reflection, the learner is assisted with moving through a transformative process that not only leads to assimilation of the new or revised frame of reference but also asks the learner to apply the knowledge in new ways. This plan also makes good use of the collaborative or social components important to the transformative process (Dirkx, 2000; Jarvis, 1987; Knowles, 1980; Mezirow, 1991, 2000). This is the same format used to develop lesson plans for the Pennsylvania Veteran's Museum (http://www.paveteransmuseum.org) for lessons that have received national

recognition. As with many of these types of lesson plans, the goal is active, collaborative learning. In a study involving baccalaureate nursing students as group participants and graduate counseling psychology students as facilitators, Kinyon, Keith, and Pistole (2009) found that the collaborative-experiential teaching method enhanced learning of specific knowledge and skills. Additionally, the nursing students gained a better understanding of group process and roles, practice in using and further developing therapeutic communication skills, and increased self-awareness to improve their practice.

If the goal is to create understanding while increasing self-efficacy, learners must be set up for success, which necessitates that instruction be packaged to maximize understanding. As educators and researchers, we often review and develop studies that seek to measure whether simulation or other tools are working. The process sometimes takes us to determining whether retention of the information exists after a certain time. The answer is likely in the development, packaging, and facilitation methods of the instructional plan. Educators can project some slides on the wall and have learners practice a particular skill, or they can organize the learning experience into a transformative process based on experiential learning and reflection that might lead to more meaning making and understanding.

Conclusion

One of our goals as educators should be to develop our clinical professionals to become more self-directed, lifelong learners. Change is the constant variable, and we must constantly anticipate the changes in ourselves and our organization if we are to improve our practice. Futurist Gary Marx (2006a) shared with us some basic trends that one should not find surprising if one is to assess one's own internal and external environments. While Marx (2006b) observed 16 trends that education systems will face in the 21st century (p. 111), the most applicable to our profession as education and health care professionals are that technology and information will rapidly increase, the aging population will soon outnumber the young, and many of the jobs that will exist in 2015 do not exist today. What this implies is that more adult workers will be needed and are likely to be entering the health care profession to meet the demand. The bad news is that with the aging population, retirement of the baby boomer generation will result in 10,000 retirements a day (Marx, 2006a), which will create an additional burden on an already short-staffed nursing corps (Staed, 2009). Additionally, technology and the rapid sharing of information will expand job descriptions or create new jobs in the field that will require clinical education. In the clinical education and simulation world, adult learners are our most valuable resource. Understanding the conditions that will maximize and encourage learning and understanding is essential in retaining our valued clinical staff while reducing health care errors. What keeps the adult learner wanting to return for more learning experiences at your center? That should be the question that all educators ask, and many of the answers have been provided in this article.

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