

Using Self-Determination Theory to Improve Residency Training: Learning to Make Omelets Without Breaking Eggs

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Abstract

An inherent tension exists in clinical training between supervising learners to ensure quality and patient safety, and allowing learners to practice independently to gain experience. In this issue of *Academic Medicine*, Biondi and colleagues discuss this tension, highlighting the disconnect between faculty and resident perceptions of autonomous practice for housestaff. They report that each group perceives itself as more competent in its role than does the other group. Their work leads us to consider how medical educators might safely and effectively transform the learning process.

Self-determination theory (SDT) holds that there is a human tendency to develop toward self-directed and autonomous regulation of behavior. This development of intrinsic motivation is governed by the complex relationships among autonomy, competence, and relatedness as well as educational content and the learning milieu. Applying an SDT framework to their findings, Biondi and colleagues report that faculty desire from residents the evidence of internal motivation and demonstration of competence and self-confidence that will allow faculty to entrust learners with autonomy.

They conclude, however, that these are qualities that faculty find lacking in many residents.

To optimize the balance between autonomy and supervision, this Commentary's author proposes the use of "scaffolding," a construct from developmental psychology. In the scaffolding model, the role of teachers is to support the learner's development and to provide support structures to help the learner get to the next stage of entrustment and competence. Achieving a balance is essential to providing the best patient care now and in the future.

Editor's Note: This is a Commentary on Biondi EA, Varade WS, Garfunkel LC, et al. Discordance between resident and faculty perceptions of resident autonomy: Can self-determination theory help interpret differences and guide strategies for bridging the divide? Acad Med. 2015;90:462–471.

The litmus test for the competence of a classically trained chef is the preparation of a perfect omelet. New York celebrity chef and restaurateur Bobby Flay has said, "When I'm hiring a cook for one of my restaurants, and I want to see what they can do, I usually ask them to make me an omelet."¹ No self-respecting cooking school would graduate a chef who could not be entrusted to do something simultaneously so simple and so complex. To achieve that level of professional skill, the chef-in-training must practice repeatedly and, in the process, break more than a few eggs.

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Acad Med. 2015;90:408–410.

First published online October 21, 2014
doi: 10.1097/ACM.0000000000000523

Eggs are relatively inexpensive, and making an imperfect omelet generally does not pose a threat to the public. Consequently, aspiring chefs can practice and fail without too dear a cost.

Every clinician knows that the first few weeks of July are viewed as the wrong time to get sick or injured. New interns are just beginning their journey toward competence as physicians, and there are likely few among us who would consciously choose to be cared for by the most novice practitioners, if given the option. Consider, however, how neophytes transcend their station and progress along the road to competence. If residents are not given opportunities to care for patients autonomously, to actually "practice" medicine, how shall they learn? Maturation to independent practice requires a process not unlike learning to make a perfect omelet. One key difference is that we can ill afford to break patients in the process.

In an age of evolving training paradigms, duty hours limitations, shift work, and milestones, we must come to better understand the complex intersection of resident needs, faculty perceptions, and patient safety concerns and preferences. Such an understanding will not only help

us produce the best and most competent physicians but also enable us to optimize both learning opportunities and care quality.

There is an inherent tension between learner autonomy and supervision in clinical training, and this tension has increased as accreditation and training standards have changed. During my own training 20 years ago, I do not remember ever having a single attending in-house during my call nights. In recent years, duty hours restrictions have limited learner opportunities for exposure and experience; at the same time, well-founded concerns about quality of care and an enhanced focus on patient safety have fueled the development of hospitalists and nocturnists and the expansion of the roles of intensivists. It is now often the case that faculty supervisors are present at all hours. This supervision can help ensure the safety and quality of patient care in the moment, but it comes with a cost: Learners may not get to practice at all. We risk learners becoming chefs who have only ever watched others make omelets.

In this issue of *Academic Medicine*, Biondi and colleagues² discuss the tension between autonomy and supervision,

highlighting the disconnect between faculty and resident perceptions of autonomous practice for housestaff. Their findings give us some clues as to how we might safely and effectively transform the training process. Each group perceives itself as more competent than the other group does. Faculty find residents passive and lack trust in their skills, whereas residents find faculty overbearing and stifling.

Biondi and colleagues² frame their study using the framework of self-determination theory (SDT), which holds that there is an inherent human tendency to develop toward self-directed and autonomous regulation of behavior.³ This development of intrinsic motivation is governed by the complex relationship between autonomy, competence, and relatedness. Further, learning—especially the application of acquired knowledge—is dependent on the educational content and the milieu in which that learning occurs. What faculty desire in housestaff is evidence of internal motivation and demonstration of competence and self-confidence that will allow them to entrust learners with autonomy. What Biondi and colleagues² found, however, is that these are qualities that faculty find lacking in many residents.

Residents, in contrast, feel that faculty actively restrict their independent decision making and are prone to changing residents' treatment plans without adequately engaging them, as Biondi and colleagues² report. Such overdirection can lead to a pattern of learned helplessness, in which learners' passivity is encouraged while their autonomy is discouraged. This observation has been reported previously, including in one study⁴ that found that the 24/7 presence of faculty in a pediatric intensive care unit had a negative effect on the perceptions of housestaff autonomy among residents, fellows, and attendings alike.

As we move forward with the Accreditation Council for Graduate Medical Education's Milestones Project,⁵ we are entering an era in which entrustable professional activities will become a central driver in graduate medical education, for curriculum design and for resident assessment. Just as aspiring chefs must be permitted to practice—a lot—to consistently produce perfect omelets and earn the trust of

their teachers, our learners must be allowed the freedom to practice patient care and to fail in a safe and nurturing environment—one that simultaneously protects the patients, the learners, and their supervisors—until the learners have demonstrated the competence required to function autonomously.

To move forward, we might, as Biondi et al² suggest, borrow a theory of instruction from the field of educational and developmental psychology. "Scaffolding" is one of the central principles of the work of Lev Vygotsky, a Russian who was very active in the 1930s but whose theories did not become popular in Western psychology until the 1970s. Vygotsky defined "scaffolding" as the "role of teachers and others in supporting the learner's development and providing support structures to get to that next stage or level."⁶ The operative principle is not unlike the use of scaffolding in the construction of a building. When erecting an edifice, the builder employs temporary supporting structures that are easily changeable and adaptable. As construction progresses, the building requires less and less external support until, finally, the finished product stands independently. Educational scaffolding employs temporary supports from teachers and supervisors to protect the learner as he or she practices new skills. As the learner's competence increases, the support structures are slowly withdrawn. The ultimate goal is the learner's development of independence and mastery of concepts and skills—in other words, for the learner to become a self-regulated, intrinsically motivated independent practitioner.

Scaffolding gives us a construct by which we may be able to operationalize the concepts of entrustable professional activities as defined by ten Cate and Scheele.⁷ It makes sense that some buildings may require more scaffolding, stronger scaffolding, or longer or shorter periods of scaffolding before they can stand alone. So it is with our learners. This concept empowers us to conceptualize and develop models that will allow us to assess residents according to our level of trust in their abilities to accomplish tasks and activities independently.

Successful scaffolding of learners requires the following key components, as defined by Bransford and colleagues⁸:

1. The learner should be motivated to accomplish the task or skill.
2. The task should be simplified so the learner can manage components of the process and recognize when a fit with task requirements is achieved.
3. The expectations should be clearly defined and the skills necessary to achieve them should be clearly modeled.
4. There must be adequate direction and support to help the learner focus on achieving the goal.
5. There must be constructive, specific, and timely feedback to clearly indicate differences between the learner's performance and the desired solution.
6. Frustration and risk to all parties should be minimized.

To achieve the optimal balance between autonomy and supervision, it is incumbent upon residents to demonstrate both evidence of intrinsic motivation and progressive development of competence. Faculty must foster autonomy within learners, nurture relatedness within the care team, and trust learners to function with decreasing amounts of scaffolding. This is what great teachers have always done, but it has become increasingly challenging to do so in a clinical environment where learners are constantly supervised. Faculty development is necessary to help attending physicians and supervisors operationalize the concepts of SDT and scaffolding in useable ways. The scaffolding model is much more time- and effort-intensive than most traditional GME models, but its alignment with accreditation and with patient safety initiatives makes it especially compelling. Developing curricula and training programs that employ SDT and principles of scaffolding can help us ensure the quality of both present and future patient care.

A chef must always break eggs on his or her way to achieving competence. Doctors must learn to practice in an environment that empowers them to practice in a progressively autonomous fashion. We must allow residents to learn in a way that not only protects everyone now but also ensures their competence in the future.

Acknowledgments: The author thanks Arthur Jaffe, MD, and Cyrus Hoffman, PhD, for editorial assistance.

Funding/Support: None reported.

Other disclosures: None reported.

Ethical approval: Reported as not applicable.

References

- 1 Furlong M. Bobby Flay talks battling Alton Brown and Giada De Laurentiis on "Food Network Star," loving HBO's "Girls," and angry Bobby Flay. *Huffington Post*. May 11, 2012. http://www.huffingtonpost.com/2012/05/11/bobby-flay-food-network-star_n_1507357.html. Accessed August 28, 2014.
- 2 Biondi EA, Varade WS, Garfunkel LC, et al. Discordance between resident and faculty perceptions of resident autonomy: Can self-determination theory help interpret differences and guide strategies for bridging the divide? *Acad Med*. 2015;90:462–471.
- 3 Kusrkar R, ten Cate O. AM Last Page: Education is not filling a bucket, but lighting a fire: Self-determination theory and motivation in medical students. *Acad Med*. 2013;88:904.
- 4 Rehder KJ, Cheifetz IM, Willson DF, Turner DA; Pediatric Acute Lung Injury and Sepsis Investigators Network. Perceptions of 24/7 in-hospital intensivist coverage on pediatric housestaff education. *Pediatrics*. 2014;133:88–95.
- 5 Accreditation Council for Graduate Medical Education. *Next Accreditation System*. <https://www.acgme.org/acgmeweb/tabid/435/ProgramandInstitutionalAccreditation/NextAccreditationSystem.aspx>. Accessed April 23, 2014.
- 6 Raymond EB. Cognitive characteristics. In: *Learners With Mild Disabilities: A Characteristics Approach*. Boston, Mass: Allyn and Bacon; 2000.
- 7 ten Cate O, Scheele F. Competency-based postgraduate training: Can we bridge the gap between theory and clinical practice? *Acad Med*. 2007;82:542–547.
- 8 Bransford J, Brown A, Cocking R. *How People Learn: Brain, Mind, Experience, and School*. Washington, DC: National Academy Press; 2000.