Translating Intentions Into Actions: A Missing Piece of the Puzzle in Improving Residents' Self-Regulated Learning

Douglas P. Larsen, MD, MEd
Tai Lockspeiser, MD, MHPE

"A goal without a plan is just a wish."
—Antoine de Saint-Exupéry

Many consider well-developed self-regulated learning skills a critical outcome in medical education.[1] The Accreditation Council for Graduate Medical Education core competency of practice-based learning and improvement and its associated milestones codify graduate medical education's commitment to this principle.[2,3] Residents must demonstrate their ability to create and act on learning and improvement goals. Often this occurs through individualized learning plans.[2,4] However, these efforts do not always achieve their intended outcomes. For instance, in a national survey of pediatrics and medicine-pediatrics residents, only 39% felt that setting goals through individualized learning plans was worth the time and effort, and only 26% of those residents tracked their progress with their learning goals.[5] In another study, 35% of residents reported that individualized learning plans provided a useful framework for learning, and 30% felt that their goals and plans improved their awareness of the learning process.[6] Other studies have shown that residents value opportunities to direct their own learning, that they struggle to manage their learning, and that they desire guidance on directing their learning.[7]

Clearly, with self-regulated learning, we need to understand how to support and educate our trainees more effectively. In this issue of the *Journal of Graduate Medical Education*, Saddawi-Konefka and colleagues[8] provide medical educators with an important piece of that puzzle. In this study, investigators use the WOOP (*W*ish, *O*utcome, *O*bstacle, *P*lan) training technique to increase residents' accomplishment of their personal study goals. As the authors note, WOOP is a memorable acronym used to communicate the principles of mental contrasting with implementation intentions (MCII) from the psychology literature. The authors demonstrated that by training residents to identify potential obstacles in achieving their study goals, and creating a plan to overcome those obstacles, they almost tripled the amount of goal-directed study time compared with controls. Significantly, the investigators used a robust control group in which residents were instructed on the characteristics of good goals, as would typically happen in most training programs. In contrast to many educational studies, the authors demonstrate a change in behavior, not simply increased acceptance of an intervention or greater confidence in ability. An important aspect of this study is that WOOP (as a self-regulated learning technique) is not time or resource intensive, and it can easily be implemented into residency training programs.

In a commonly used cyclical model of self-regulated learning, individuals (1) make goals and plans; (2) monitor their actions to ensure that they are achieving their goals; and (3) reflect on the outcomes of their actions to determine which new goals they will create.[9] Use of MCII (or WOOP) helps to influence the transition from goal setting to self-monitored action and improves the efficacy of that self-monitoring. Mental contrasting consists of identifying a desired future state, reflecting on the greatest benefits of obtaining the goal, and contrasting that to barriers in the current reality that may prevent that state from being obtained.[10] When a person feels that achieving the goal is highly likely, this contrasting exercise has been found to energize the person and greatly increase her or his commitment to the goal.[11] This process establishes a strong link in the mind of learners between the obstacles to achieving their goals and the behaviors necessary to overcome the obstacles.[12] Contemplating the desired future state without contrasting it to the challenges of reality actually decreases a person's energy (ie, the level of activation or invigoration leading to goal commitment).[13] Implementation intentions involve creating specific "if-then" plans to overcome anticipated obstacles.[14] In this way, the person monitors his or her activity and takes corrective action once he or she encounters given situations. Mental contrasting combined with

DOI: http://dx.doi.org/10.4300/JGME-D-17-00357.1

implementation intentions has been shown to be more effective than using either alone.[15] Use of MCII has been shown to change a variety of behaviors—from decreasing unhealthy snacking to improving school activity management in children with attention deficit hyperactivity disorder.[15,16]

The MCII/WOOP approach succeeds by making a strong connection between the goal and the plan to achieve it. Typically, residents focus more on the goal itself rather than how to achieve it. Results of previous studies highlight that creating and then implementing a plan are the most difficult aspects of goal setting and striving for residents.[17] The distinction between focusing on the characteristics of the goal versus the plan to achieve the goal is well illustrated in the current study. While the control group was trained to create specific and actionable goals, the WOOP intervention group was trained to focus on the plan to achieve their goals. In another study of self-regulated learning, strategic planning—more than goal setting—was found to be the element that most strongly correlated with academic success.[18]

The role of time frames is often neglected in the discussion of self-regulated learning in residency education. In the present study, residents set goals that applied to their immediate rotation. In our experience, residency programs often require trainees to create individualized learning plans and goals that span longer periods of time. Goals and plans created in this time frame may be difficult to incorporate into daily practice and may be easily forgotten. Other research has shown that goals created around a short time frame improved learners' awareness of their thoughts and actions.[19] Further research in medical education settings is needed to clarify whether WOOP is effective with goals that span long periods of time, or whether it produces its greatest effects with goals that are achieved over short time frames.

The technique modeled by Saddawi-Konefka and colleagues is likely to be only a piece of the larger picture as educators develop tools to facilitate self-regulation. Other models of self-regulated learning have emphasized the importance of the social context.[1] Residents identify institutional support and faculty engagement as the 2 most important factors that determine whether their formal written goals are effective.[20] This support comes as programs provide the tools for creating and following up on goals, and as faculty actively participate with the residents in their goal setting and attainment. As noted by the authors, the goals in the current study are relatively simple and rely solely on the actions of the residents. It remains to be seen how MCII/WOOP may affect more complex process-oriented and patient care–focused goals. These types of goals may require a greater consideration of the social and collaborative nature of practice. When analyzed from a sociomaterial perspective, written learning goals have been shown to serve as tools to facilitate collaboration between learners and their supervisors.[21] Learning goals used in this manner cause both learners and supervisors to act in new ways and, thus, expand their practice experiences.

Self-regulated learning is a complex activity that requires a sophisticated and multilayered approach in our educational work. For educators to move beyond regulatory requirements and checkbox assessments to actually change the behavior and practices of learners, we must have tools that address self-regulated learning from the level of the individual's cognitive processes, as well as the social and material interactions that also determine learners' actions. The emerging research in this area shows exciting opportunities, as educators seek to put together the complex puzzle of optimal self-regulated learning and practice.

References

1. Brydges R, Butler D. A reflective analysis of medical education research on self-regulation in learning and practice. *Med Educ*. 2012;4691:71–79.
2. Accreditation Council for Graduate Medical Education. ACGME common program requirements. http://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRs_2017-07-01.pdf. Accessed May 17, 2017.
3. Burke AE, Benson B, Englander R, et al. Domain of competence: practice-based learning and improvement. *Acad Pediatr*. 2014;14(suppl 2):38–54.
4. Li ST, Burke AE. Individualized learning plans: basics and beyond. *Acad Pediatr*. 2010;10(5):289–292.
5. Li ST, Tancredi DJ, Co JPT, et al. Factors associated with successful self-directed learning using individualized learning plans during pediatric residency. *Acad Pediatr*. 2010;10(2):124–130.
6. Stuart E, Sectish TC, Huffman LC. Are residents ready for self-directed learning? A pilot program of individualized learning plans in continuity clinic. *Ambul Pediatr*. 2005;5(5):298–301.
7. Nothnagle M, Anandarajah G, Goldman RE, et al. Struggling to be self-directed: residents' paradoxical beliefs about learning. *Acad Med*. 2011;86(12):1539–1544.
8. Saddawi-Konefka D, Baker K, Guarino A, et al. Changing resident physician study behaviors: a randomized, comparative effectiveness trial of goal setting versus use of WOOP. *J Grad Med Educ*. 2017;9(4):451–457.

9. Zimmerman BJ, Schunk DH. Self-regulated learning and performance. In: Zimmerman BJ, Schunk DH, eds. *Handbook of Self-Regulation of Learning and Performance*. New York, NY: Routledge; 2011:1–12.
10. Oettingen G. Future thought and behaviour change. *Eur Rev Soc Psychol*. 2012;23:1–63. http://www.psych.nyu.edu/oettingen/Oettingen,%20G.%20(2012).%20In%20W.%20Stroebe%20&%20M.%20Hewstone.pdf. Accessed May 17, 2017.
11. Oettingen G, Mayer D, Timur Sevincer A, et al. Mental contrasting and goal commitment: the mediating role of energization. *Pers Soc Psychol Bull*. 2009;35(5):608–622.
12. Kappes A, Singmann H, Oettingen G. Mental contrasting instigates goal pursuit by linking obstacles of reality with instrumental behavior. *J Exper Soc Psychol*. 2012;48:811–818. http://affectivebrain.com/wp-content/uploads/2012/10/1-s2.0-S0022103112000145-main.pdf. Accessed May 17, 2017.
13. Kappes HB, Oettingen G. Positive fantasies about idealized futures sap energy. *J Exper Soc Psychol*. 2011;47:719–729. http://www.psych.nyu.edu/oettingen/Barry%20Kappes,%20H.,%20&%20Oettingen,%20G.%20%282011%29.%20JESP.pdf. Accessed May 17, 2017.
14. Saddawi-Konefka D, Schumacher DJ, Baker KH, et al. Changing physician behavior with implementation intentions: closing the gap between intentions and actions. *Acad Med*. 2016;91(9):1211–1216.
15. Adriaanse MA, Oettingen G, Gollwitzer PM, et al. When planning is not enough: fighting unhealthy snacking habits by mental contrasting with implementation intentions (MCII). *Eur J Soc Psychol*. 2010;40:1277–1293.
16. Gawrilow C, Morgenroth K, Schultz R, et al. Mental contrasting with implementation intentions enhances self-regulation of goal pursuit in schoolchildren at risk for ADHD. *Motiv Emot*. 2013;37:134–145. http://www.psych.nyu.edu/oettingen/Gawrilow,%20C.,%20et%20al.%20(2013).%20Motivation%20and%20Emotion.pdf. Accessed May 17, 2017.
17. Li ST, Favreau MA, West DC. Pediatric resident and faculty attitudes toward self-assessment and self-directed learning: a cross-sectional study. *BMC Med Educ*. 2009;9:16.
18. Artino AR Jr, Cleary TJ, Dong T, et al. Exploring clinical reasoning in novices: a self-regulated learning microanalytic assessment approach. *Med Educ*. 2014;48(3):280–291.
19. Larsen DP, Naismith RT, Margolis M. High-frequency learning goals: using self-regulated learning to influence day-to-day practice in clinical education. *Teach Learn Med*. 2017;29(1):93–100.
20. Lockspeiser TM, Li ST, Burke AE, et al. In pursuit of meaningful use of learning goals in residency: a qualitative study of pediatric residents. *Acad Med*. 2016;91(6):839–846.
21. Larsen DP, Wesevich A, Lichtenfeld J, et al. Tying knots: an activity theory analysis of student learning goals in clinical education. *Med Educ*. April 12, 2017. Epub ahead of print.

Douglas P. Larsen, MD, MEd, is Associate Professor, Division of Pediatric and Developmental Neurology, Department of Neurology, Washington University in St Louis School of Medicine; and **Tai Lockspeiser, MD, MHPE,** is Associate Professor, Department of Pediatrics, University of Colorado School of Medicine.

Corresponding author: Douglas P. Larsen, MD, MEd, Washington University School of Medicine, 660 South Euclid Avenue, Campus Box 8111, St Louis, MO 63110, 314.454.6120, larsend@wustl.edu