


Moving the Field Forward: Using Self-Determination Theory to Transform the Learning Environment in Medical Education

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ABSTRACT

Issue: The learning environment (LE) is known to be the main determinant of physician distress, yet most wellness interventions continue to focus on the learner. Additionally, few wellness interventions that focus on the LE have derived from well-established theory. These limitations represent major barriers in our progress toward improving the LE and supporting medical learner wellness in an evidence-based, humanistic, and scalable way. **Evidence:** To remedy the situation, I highlight a cross-section of promising experimental research in self-determination theory (SDT) and its potential applications in medical education. **Implications:** I propose that we incorporate SDT-based faculty development workshops to improve leaders' awareness and motivating style with learners. These interventions are known to improve the LE and thus learners' engagement, performance, and wellness. SDT-trained personnel would be needed to train medical faculty, including about the reciprocal benefits of being autonomy-supportive.

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Identifying the problem, shifting the focus

Becoming a physician is highly stressful, and learner distress and burnout are ever-growing problems in medical education.^{1,2} I write about these issues as a practicing physician who trained in Canada and understands how its medical education system works. Individual factors (e.g., mindfulness, resilience, coping skills), as well programming to support learner wellness (e.g., wellness committees, self-care workshops, pass/fail grading, streamlining curricular content), have been discussed extensively, and surely play a role.³ Research tells us, however, that the learning environment (LE) is the chief determinant of medical learner distress, and that current wellness interventions have done little to solve this problem.⁴⁻⁶ Despite these facts, the majority of medical schools and their wellness interventions continue to target the individual (not the LE), which has real potential to stigmatize learners. Operating from this deficit model (treating wellness as a “competency” to augment) also ignores what decades of empirical evidence in social and contemporary educational psychology tell us about what humans need for growth and wellness.

Self-determination theory (SDT)

Self-determination theory (SDT) is a leading theory of human motivation and wellness. It posits that satisfaction of three basic psychological needs – autonomy, competence, and relatedness – is the motivational mechanism that energizes and directs peoples' goals and behavior.⁷ Environmental supports and barriers to meeting these needs are therefore seen, in SDT, as ultimate obstacles to engagement, performance, and wellness. Autonomy is the need for volition (vs. feeling pressured or controlled), competence is the need to feel capable of mastery (vs. feeling incapable or inept), and relatedness is the need to feel connected to significant others (vs. feeling excluded or disliked.)⁷ According to SDT, autonomy is the “anchor” because support for autonomy (e.g., by educators for their students) will tend to facilitate satisfaction of all three basic needs – not just autonomy. The key concepts, here, thus relate to autonomy support (vs. control) for medical learners, as a way of creating learning climates that support their self-determination and wellness.

Importantly, SDT's dual process model – where autonomy-supportive environments and need

satisfaction lead to positive health and wellness outcomes and controlling environments and need frustration lead to negative ones – is well evidenced across domains, cultures, and times.⁷ Of special interest in the present paper, however, are studies in education by SDT expert, Reeve and colleagues. This group of researchers has successfully implemented and published a series of experimentally based, longitudinally designed, teacher-focused workshops, grounded in SDT, that teach instructors how to become more autonomy-supportive and less controlling with their learners. I cover some of these promising studies below, but first a section on what it means to be more autonomy-supportive and less controlling.

How to be “more autonomy-supportive” and “less controlling”

According to Reeve, to support the three basic psychological needs, teachers ought to begin their instruction by adopting their students’ perspectives and incorporating their input and suggestions into the day’s instructions.⁸ During instruction, they should then nurture inner motivational resources by tapping into students’ psychological needs, use non-controlling language by communicating in ways that convey flexibility (e.g., offering information about choices) and minimize pressure (e.g., avoiding “must” and “have to” statements), provide explanatory rationales to help students understand why an activity has personal utility, and accept and address negative affect by acknowledging that some teacher requests might conflict with students’ preferences. For further reading, including a detailed table on what medical educators can do to support learners’ basic psychological needs, see here.^{9,10} These acts of autonomy support derive from SDT and have been empirically validated through lab experiments and classroom-based investigations.^{9,11,12} Scarcely, however, have they made their way into medical education.¹³

Benefits of autonomy-supportive learning climates

In one study, Cheon, Reeve, and Moon¹⁴ randomly assigned 19 secondary physical education teachers into an experimental or delayed-treatment control group. Then, over 1100 of their students self-reported their course-related need satisfaction, autonomous motivation, amotivation (i.e., lack of motivation), classroom engagement, skill development, future intentions, and academic achievement, at the beginning, middle, and end of the semester. Repeated-measures ANCOVAs

showed that the students of the teachers in the experimental group showed significant mid- and end-of-semester improvements in all dependent measures, with multi-level structural equation model mediation analysis showing that it was because the teachers in the experimental group (who learned to be more autonomy-supportive and less controlling) vitalized their students’ need satisfaction in ways that the teachers in the control group were unable to do.

In another study, Cheon, Reeve, Marsh, and Song¹⁵ found that autonomy-supportive teacher interventions also reduced antisocial behavior in school. Using a cluster randomized control trial design with longitudinally assessed dependent measures (across three waves), 49 secondary education teachers, who taught 1487 students between them, were assigned to an experimental or control group, and students then reported their need satisfaction and need frustration, perceptions of the classroom learning climate, and antisocial behavior (e.g., bullying), at different time points. Latent multi-level structural equation modeling analyses showed that intervention-enabled autonomy-supportive teaching improved students’ need fulfillment (more satisfaction and less frustration) and the overall classroom climate (more autonomy supportive and less conflictual), and the improved learning climate best explained the reduction in students’ antisocial behavior. The authors emphasized the importance of incorporating classroom climate effects to understand why autonomy-supportive teaching interventions improve student outcomes.

Of note, the benefits of helping teachers to become more autonomy-supportive and less controlling do not just apply to the students. Studies show that when teachers realize how easy it is to become autonomy-supportive, the majority do, and that it reciprocally benefits the teacher.¹⁶ For instance, in two experimental, longitudinally designed studies, secondary-level teachers were randomly assigned to take part (or not) in an intervention to help them learn how to support autonomy, provide structure, and provide structure in an autonomy-supportive way. In study 1, teachers who participated in the intervention showed longitudinal gains in teaching efficacy, job satisfaction, teaching motivation, and wellness. In Study 2, the students of these teachers then showed longitudinal gains in classroom engagement and skills development.¹⁷ Assuming a more autonomy-supportive teaching style has also been shown to increase student resilience by boosting their agentic engagement when learning (where they search for ways to “pull” more autonomy support from their instructors), which facilitates the teaching and learning process for teachers.¹⁸

Creating SDT-based, LE-focused wellness interventions in medical education

As mentioned, these matters are considered highly relevant to medical education, given that: (a) medical student distress and burnout are serious issues in ongoing need of address, (b) its LEs tend to be controlling and psychologically unsafe, and c) medical leaders (e.g., program directors), teachers (e.g., clinical preceptors) and administrators (e.g., clerical coordinators) receive little or no training in how to support and not hinder learners' basic psychological needs.¹⁹ While it has been recommended that medical faculty be targeted to help reduce extraneous information during curricular teaching,^{20,21} and this is important to do, this alone is insufficient. As the above studies demonstrate, it is not just about *what* teachers do but *how* they do things in the LE that impacts learner motivation and wellness.²² I note here that less-controlling teaching might be thought of simply as "adult learning" but it is universally relevant regardless of age. It is more about how authority figures, who are accountable for others' outcomes, will receive, absorb, and pass pressures along to learners, and how those pressures affect each party, psychologically.

Now, the above experimental studies were primarily conducted in secondary school settings in Korea, where the culture and student attitudes toward learning may be unique. Most interventions were also directed toward physical education teachers, and not those who work in clinical settings. That said, Reeve et al. conducted a similar intervention with some of the most competitive individuals on the planet – Olympic athletes and their coaches. In their field-experiment during the 2012 London Paralympic games, they adopted an experimental research design that longitudinally assessed the coaches' and athletes' self-report, rater-scored, and objective dependent measures. They randomly assigned 33 coaches and their 64 athletes from 10 sports into an experimental or control group, then assessed their motivation and functioning over time. They found that athletes in the control group (i.e., whose coaches maintained their standard training procedures) displayed significant deteriorations in all measures of motivation, engagement, and functioning, and won fewer Olympic medals, compared the experimental group (i.e., whose coaches received autonomy-supportive training). Of note, the coaches, and the athletes in both arms of the study gave their informed consent to participate, and the researchers have since been invited back to help them in further competitions.

Based on this study, Reeve et al. emphasized the importance of enacting an autonomy-supportive

coaching style in high-stakes environments, since these situations tend to pressure coaches toward a counterproductive and controlling motivating style. It is in these high stakes situations that coaches will often prioritize extrinsic incentives over athlete's intrinsic satisfactions (e.g., win the medal vs. enjoy the activity), display negative conditional regard (e.g., emotionally and physically withdraw after a poor performance), use controlling language (e.g., demands), insist on strict compliance coupled with constant monitoring, counter-argue against any resistance to the coach's procedures, impose prescribed values while simultaneously invalidating the athlete's feelings and opinions, exert power and display intimidation tactics, and show impatience.^{23–25}

As mentioned, the stakes are high for medical learners and research suggests that their instructors' controlling motivating styles are likely a strong contributor. Studies on psychological safety, for example, show that a pervasive hidden curriculum exists in medicine which rewards those who conform and punishes those who do not.²⁶ There are also questionable teaching practices and weak ethical cultures in medicine, which continue to lend to marginalization, harassment, and under-reporting of abuse.²⁷ Despite the incivility that medical learners can face, they are nonetheless reminded that being in medicine is a privilege and they must maintain their professionalism and wellness. Studies show that medical learners internalize this message and it can lead them to experience guilt and shame, suppress their negative emotions, and avoid seeking help, due to fear of the consequences.²⁸ Hence, targeting medical educators who contribute to the LE is imperative if we desire a more humanistic and wellness-promoting culture in medicine.

While there have not been any experimental SDT-based intervention studies in medical education yet, observational research points to a benefit of creating more autonomy-supportive LEs. One study showed that using SDT to construct the curriculum led to longitudinal improvements in residents' autonomous motivation and professional development.¹³ Studies have also shown that when medical instructors are more autonomy-supportive, learners will experience lower perceived stress and impostor phenomenon, more adaptive and less maladaptive coping, and increased levels of resilience, mindfulness, and psychological well-being.^{10,29–32} This line of work suggests that autonomy-supportive interventions directed at medical leaders would effectively mitigate medical learner distress, and support the faculty's wellness in return. Addressing the LE through a SDT lens, and

focusing on faculty development, has also been called for in the medical education literature.^{3,33–37} To date, we have simply been at a standstill in terms of the “how”.

Maximizing the effectiveness of SDT-based faculty development interventions

Importantly, Su and Reeve performed a meta-analysis of 19 autonomy-supportive intervention studies (including those in and outside of sports, exercise, and physical education) to explain why some were more effective than others.³⁸ They found that less effective interventions tended to include: (1) a training experience that featured only a subset of the autonomy-supportive instructions listed above; (2) a training experience that was too brief; (3) an intervention that focused more on content (what autonomy support is) than skill building (how to be autonomy-supportive); (4) the absence of a group discussion component where teachers could express their concerns and share ideas; (5) an over-reliance on reading materials and under-reliance on electronic media to deliver the intervention; (6) a failure to address participants’ pre-training beliefs and values that might conflict with the message of the training; (7) the absence of supplemental follow-up activities to boost the original intervention experience; and (8) the absence of a continuing flow of support throughout the intervention (e.g., *via* an ongoing mutual support group). Some studies also had serious methodological limitations, such as the lack of a control group, no random assignment to conditions or a manipulation check, inclusion of too few participants, and a failure to obtain objective ratings of post-training instructional behaviors.³⁸

Avoiding these pitfalls is critical for creating effective medical faculty development programs that improve the LE. This SDT-based approach to supporting learner wellness is based on state-of-the-art knowledge, it is environment-focused and grounded in positive psychology, and it is applicable and replicable on a large scale, which facilitates collaboration between institutions. Faculty development and evidence-based practices are also already emphasized in medical education, so the proposal to use SDT aligns with its principles. The key steps would be: (1) recruit SDT-trained personnel to provide the autonomy-supportive instructor training; (2) involve and facilitate the engagement and retention of medical leaders who the training is most likely to benefit; (3) follow Reeve et al.’s protocol with design, implementation, and assessment, and (4) choose and expand

on dependent measures of interest, such as teacher and learner motivation (e.g., need satisfaction and frustration), job and academic performance, and aspects of well-being (e.g., stress, coping, burnout, mindset). Note, step # 2 will be made easier if faculty are aware of the reciprocal benefits, since many (e.g., clinical preceptors) are neither paid much nor necessarily motivated to teach.

Practically, it would also be easiest to implement these SDT-based workshops with faculty based on how consistently they interact with medical learners. For example, administrators, clinical program directors and rotation coordinators tend to be “constants” for medical learners, so their motivating style is most likely to impact learners, due to their direct interactions with them. Workshops could then be expanded in waves, to support course directors and preceptors in each module (e.g., cardiology, gastroenterology, respirology, nephrology) or clinical rotation (e.g., internal medicine, surgery, emergency medicine, pediatrics). Though beyond the scope of this paper, it is also imperative to address policies, structures, and aspects of the LE, other than faculty members, that frustrate medical learners’ autonomy, competence, and relatedness needs.

Conclusion

There is increasing agreement that the LE needs to be improved in medical education, but how to actually do this has been an enigma. This paper presents a viable way forward, through SDT-based, LE-focused faculty development workshops on to how to become more autonomy-supportive and less controlling with medical learners. Importantly, this article is not to say that medical educators are the only source of learner distress, or that they should be blamed. Their job pressures and wellness must too be considered. Faculty are also not the only ones responsible for the LE, in what is a large and fairly complex medical education system. It is just that medical leaders and those in positions of authority (e.g., administrators, teachers, directors, preceptors) play a key part in the educational partnership with learners, which directly impacts their wellness. We must also remember that learner-focused wellness interventions (i.e., that target individual attributes) are largely treating the symptoms and not the root cause of what makes a medical learner unwell – the culture and LE. Addressing aspects of the LE that frustrate medical learners’ basic psychological needs, including faculty, is thus a rate-limiting step if we are to see real changes in their wellness.

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