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On the challenges of embedding assessments of self-regulated learning into licensure activities in health professions education
Les défis liés à l'intégration des évaluations de l'apprentissage autorégulé dans les activités liées à la satisfaction des exigences du permis d'exercice dans l'enseignement des professions de la santé

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Résumé de l'article

Comment pouvons-nous prétendre que nous créons des « apprenants à vie » si nous n'intégrons pas les évaluations de l'apprentissage autorégulées (AAR) dans l'éducation des professions de la santé (ÉPS)? C'est une bonne question, mais à laquelle nous ne devons pas essayer de répondre trop hâtivement. Certains peuvent considérer l'AAR comme une compétence si importante que le fait de ne pas l'évaluer nuit à toutes les personnes impliquées dans l'ÉPS, y compris les patients. Je dirais que l'évaluation de l'AAR est peut-être justifiée, mais que la façon dont elle est mesurée, ce que nous pourrions trouver et quelles pourraient être les implications de ces résultats, sont tout aussi essentielles à prendre en compte. Le fait est que les apprenants en ÉPS sont confrontés à de nombreuses pressions qui influencent non seulement la quantité mais aussi la qualité de leur autorégulation vers l'apprentissage, dont les mesures de SRL devraient tenir compte, pour être efficaces. En m'appuyant sur la littérature sur l'autorégulation et la théorie de l'autodétermination en particulier, mon objectif dans le présent commentaire est de discuter de certaines des nuances et des questions que nous devrions aborder, si nous devions nous diriger vers une approche unifiée de l'évaluation de l'AAR en ÉPS.

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Abstract

How can we claim that we are creating "lifelong learners" if we are not embedding assessments of self-regulated learning (SRL) into health professions education (HPE)? A good question but one that we must not try to answer too hastily. Some may consider SRL to be such an important competency that failing to assess it disservices everyone involved in HPE, including patients. I would argue that assessment of SRL may well be justified, but that how it is measured, what we might find, and what the implications of those findings might be, are equally critical to consider. The fact is that learners in HPE face many pressures that influence not just the quantity but also the quality of their self-regulation towards learning, which measures of SRL would have to account for, to be effective. Drawing on the self-regulation literature and self-determination theory (SDT) in particular, my aim in the present commentary is to discuss some of the nuances and issues that we would need to address, if we were to move towards a unified approach to assessing SRL in HPE.

Résumé

Comment pouvons-nous prétendre que nous créons des « apprenants à vie » si nous n'intégrons pas les évaluations de l'apprentissage autorégulées (AAR) dans l'éducation des professions de la santé (ÉPS)? C'est une bonne question, mais à laquelle nous ne devons pas essayer de répondre trop hâtivement. Certains peuvent considérer l'AAR comme une compétence si importante que le fait de ne pas l'évaluer nuit à toutes les personnes impliquées dans l'ÉPS, y compris les patients. Je dirais que l'évaluation de l'AAR est peut-être justifiée, mais que la façon dont elle est mesurée, ce que nous pourrions trouver et quelles pourraient être les implications de ces résultats, sont tout aussi essentielles à prendre en compte. Le fait est que les apprenants en ÉPS sont confrontés à de nombreuses pressions qui influencent non seulement la quantité mais aussi la qualité de leur autorégulation vers l'apprentissage, dont les mesures de SRL devraient tenir compte, pour être efficaces. En m'appuyant sur la littérature sur l'autorégulation et la théorie de l'autodétermination en particulier, mon objectif dans le présent commentaire est de discuter de certaines des nuances et des questions que nous devrions aborder, si nous devions nous diriger vers une approche unifiée de l'évaluation de l'AAR en ÉPS.

Introduction

Self-regulated learning (SRL) refers to learners planning, monitoring, controlling, and reflecting on their own learning, to make their learning more effective.[1] It involves the use of strategies and goal-oriented processes to facilitate active regulation of one's cognition, metacognition, learning behaviour, and motivation while learning.[2,3] Metacognition is central to SRL and refers to one's knowledge, awareness, and regulation of thinking.[4] There are three main schools of thought pertaining to the continuum and origins of SRL, ranging from it being largely cognitive to largely social: information processing/control theory, social cognitive theory, and social constructivist theory.[5] Going into detail on each is not the intent of this commentary. Suffice it to say, however, that there is common agreement that SRL comprises of three distinct phases–forethought, performance, and self-reflection–and that learners will apply metacognitive processes (goal setting and planning) in the forethought phase, monitoring and self-control in the performance phase, and evaluation and adaptation in the self-reflection phase.[4]

A large body of empirical evidence (including studies in health professions education (HPE)) supports this idea, and demonstrates that SRL is positively associated with motivation, learning, and achievement.[6-9] In fact, a simple Google search of "self-regulated learning + health professions education" yielded 164,000,000 hits. In the last decade, however, there has been a notable shift away from how to directly "train" SRL into learners, towards studying how instructors will support or hinder SRL, and how SRL can be assessed in educational settings, such as HPE.[10,11,12] Unfortunately, while there is congruence between theory and practice that SRL is a key competency for lifelong learning,[13] how teachers can specifically enhance and assess students' SRL, and what their intentions are for doing so (or not), remain unclear.[14,6,8,11]

Contemporary curricula in HPE simply cannot cover the multitude of problems trainees will face throughout their careers. As others have pointed out, there is thus a need to better understand how trainees in HPE will adaptively transfer acquired knowledge and skills into subsequent learning (e.g., clinical) situations–a concept known as *preparation for future learning* (PFL).[8] Emerging research has begun to affirm that SRL-supported interventions can lead to better PFL (i.e., acquisition, retention, and transfer) in HPE.[8,15] What is being described, though, is how to measure PFL (e.g., one's performance and ability to adapt one's technique for future use) and not SRL per se (e.g., the quality or level of one's motivational, metacognitive, or behavioural engagement). These processes may co-occur, but SRL and PFL are not the same thing, and both are influenced by individual as well as environmental factors.

As Bransen et al.[9] eloquently note, there is a problematic misalignment between current conceptualizations of regulation of learning and current demands for collaboration in healthcare. They emphasize that we will always need competent individuals who can regulate their own learning, but that developments in healthcare require a shift of focus from the individual to the collective, and that concepts of collaborative learning and collective competence challenge commonly held conceptualizations of regulation of learning. Researchers in educational psychology have therefore recommended that we consider SRL not as an individual process but as one that is socially shared.[3] It is in this view and spirit of focusing on the social embeddedness of regulatory learning in HPE that I introduce self-determination theory (SDT) and its organismic-dialectical tenets.

Self-determination theory and SRL

SDT is a leading theory in human motivation, development, and well-being.[16] Rooted in humanism, SDT's view is that people will naturally seek to learn and grow, connect with each other, and integrate experiences, but that for us to do this optimally, we require ongoing support for three universal psychological needs–autonomy, competence, and relatedness.[16] Autonomy is our need for volition (versus feeling helpless or controlled), competence is our need to feel capable of mastery (versus feeling inept or a failure), and relatedness is our need for belongingness (versus feeling excluded, misunderstood, and devalued).[16] SDT therefore claims that, across cultures, domains, and times, support versus hindrance of these needs will greatly impact our motivation, behaviour, and wellness within the activities that we engage in (e.g., in learning, working, relationships, etc.).

Importantly, SDT explains that how these psychological needs influence human behaviour is through their effects on self-regulation. While we share the same psychological needs in common, SDT acknowledges that human beings are each unique and have different motivations for doing different things. It thereby posits various types of self-regulation (i.e., motivation) which occur along an autonomy-control continuum of self-determination, ranging from behaviour regulations that are more extrinsic and "controlled" to behaviour regulations that are more

intrinsic and "autonomous." A comprehensive review of SDT's taxonomy of regulatory styles is beyond the scope of the present paper (see Sheldon et al.[17] for further details). However, in general, controlled motivation is associated with poorer learning, performance, and wellness outcomes, compared to autonomous motivation.[16]

Decades of research support SDT's principles, including studies in HPE concerning SRL and PFL. For example, Babenko et al.[18] demonstrated that creating learning environments that support medical students' need for competence, raising their awareness of the value of learning from their mistakes, and providing opportunities for them to experience self-efficacy, each foster 'mastery' approach goals, which lend to PFL. They also found that, irrespective of career stage and specialty, physicians' basic need satisfaction and involvement in clinical teaching were significant predictors of their propensity towards lifelong learning.[19] More recently, we have learned that self-efficacy, intrinsic goal orientation, task value, and control of learning beliefs were the strongest positive motivational predictors of SRL.[20] Together, these studies reinforce the idea that regulatory learning is a socially driven process, and they highlight the need for us to consider assessments of SRL that tap into its motivational roots.

I draw on SDT because one's quantity of motivation (e.g., towards learning) can be high, while one's quality of motivation can simultaneously be low.[21] For example, an individual can be strongly motivated to learn but for non-self-determined reasons (e.g., out of fear and pressure to be "successful" in medical school). SDT would view this type of self-regulation as lower in quality, because it tends to be associated with higher stress, more superficial learning, and less autonomy and persistence in applying that learning.[22-25] We cannot apply this analogy to all assessments in general–e.g., OSCEs that measure clinical exam skills–because we are not talking about quality of skills or measurement of learning contents. What we are talking about, in the present paper, is why one's quality (i.e., type) of self-regulation matters when it comes to assessing SRL. Students can memorize facts and blurt out standardized phrases to score a 91% on an OSCE (low quality SRL), or they can study to deeply process the material and score 71%, while maintaining their other wellness needs (high quality SRL). Which is best? If we simply measure the presence of SRL (e.g., as a component within licensure and examinations in HPE) and not its underlying quality, we will invariably fail to capture students' real propensity towards PFL. We would need to

consider not just *where* and *how* to embed measures of SRL into activities in HPE, but whether our measurement of SRL is sophisticated enough to capture its quality–the latter being the better predictor of the outcomes that we seek.

Current barriers for assessing SRL

Measuring SRL and its components is challenging. Metacognition directs cognitive activities, but disentangling cognition from metacognition in learner behaviour is very difficult.[1] As previously mentioned, cognitive and metacognitive strategies involved in SRL also depend on motivational conditions.[11] These aspects play a fundamental role in SRL by influencing the initiation, persistence, and maintenance of students' learning behaviour.[26] Students who aren't motivated towards using SRL strategies are therefore less likely to adapt to new challenges that place more emphasis on SRL (e.g., a flipped classroom).[27] It's for this reason that Veenman[6] argues that learners, if they are to be motivated towards SRL, must be explicitly taught how and when to use SRL strategies, how to be aware of their benefits, and how to recognize their own ability to use those strategies. All of this to say that SRL arises best when knowledge about *and* motivation to use SRL strategies co-occur.[28]

Future directions: where do we go from here?

Supporting SRL improves learning outcomes.[29] However, we are not so sure about the benefit of embedding it into learning environments.[30,31,27] Similarly, the valid assessment of SRL is still a major challenge, even for researchers.[32] This makes me wonder if we shouldn't just aim to strongly support students' SRL and focus on measuring their PFL instead? It is well-established that SRL can be promoted through direct approaches (e.g., explicit and implicit strategy instruction) and indirect approaches (e.g., through powerful learning environments), with good effect.[11] Dignath and Veenman[11] emphasize this and provide 10 cornerstones for future directions in SRL research, which center on how teachers can promote it.[11] They recommend systematic comparisons between direct and indirect support of SRL, research on the needs of heterogeneous student populations, and aspects of teacher competence in fostering SRL (including self-efficacy beliefs, prior knowledge about, and misconceptions towards SRL).

Dignath and Veenman[11] also recommend that we study teachers' self-regulation, instructional decision-making,

and assessment of students' SRL. Teachers must be able to diagnose their students' self-regulation skills if they are to recognize how to meet their learning needs,[33] and what scarce research exists on this topic suggests that teachers have little knowledge about how to do this effectively.[34] Dignath and Veenman[11] therefore recommend that we gather more self-report data from students and teachers, to obtain a more comprehensive view of the effectiveness of approaches to support SRL.

Another area of promise is reflection. Cui et al.[35] remind us that reflection is a key activity in SRL, and a critical part of HPE that supports PFL, but that our current understanding and support for reflection in HPE remains somewhat limited. They discuss the recent trend towards digital reflection practices (e.g., examining student reflections about their teaching experiences, by using methods such as linguistic inquiry and word count indices), and how these practices offer opportunities to further study and support SRL in HPE. They also provide a multi-dimensional analysis framework for conceptualizing reflection analytics, which can contribute to a unified approach towards assessing students' SRL in HPE.[35] Combining self-report measures with approaches that provide greater opportunities for self-reflection may therefore be a valuable direction for future research and practice.

Conclusion

How can we claim to be creating "lifelong learners" if we are not embedding assessments on SRL into activities in HPE? Well, the validity of assessing SRL still represents a major challenge. However, there are many ways that we can support students' SRL (both directly and indirectly), and SRL and PFL are already co-occurring in HPE. While leveraging this co-occurrence as a novel data point may be appealing, not everything that signals 'learning' is of equal value, and therein lies the importance of adopting assessment strategies that account for students' self-determination (i.e., quality of self-regulation) towards learning–not just their goal contents or exhibition of their knowledge (i.e., strength of self-regulation). Hence, the focus of this commentary isn't whether we should assess students' SRL or not. Rather, it's how we're conceptualizing SRL in HPE, more broadly, and what the nuances and potential pitfalls are that we ought to consider when attempting to measure students' SRL in HPE.

Conflicts of Interest: None

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