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A conceptual framework of student professionalization for health professional education and research

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Abstract

Objectives: To present a conceptual framework of student professionalization for health professional education and research.

Methods: Synthesis and discussion of a program of research on competency-based education.

Results: Competency-based education relies on active, situation-based group learning strategies to prepare students to become health professionals who are connected to patient and population needs. Professionalization is understood as a dynamic process of imagining, becoming, and being a member of a health profession. It rests on the evolution of three interrelated dimensions: professional competencies, professional culture, and professional identity. Professionalization occurs throughout students' encounters with meaningful learning experiences that involve three core components: the roles students experience in situations bounded within specific contexts. Educational practices conducive to professionalization include active learning, reflection, and feedback.

Conclusions: This conceptual framework drives a research agenda aimed at understanding how students become health professional and how learning experiences involving action, reflection, and feedback foster that process and the advancement of professional practices.

Keywords: professionalization; competency-based education; meaningful learning experiences; conceptual framework.

Introduction

Ten years ago, a commission of international experts called for a transformation of health professional education in reaction to persistent gaps and inequities in health (Frenk et al., 2010). Denouncing the mismatch of health professional competencies to patient and population needs, the commission called for a move beyond case-based teaching for the mere transmission and acquisition of scientific and professional knowledge. Students were now expected to effectively mobilize this knowledge in clinical practice, taking into

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account the peculiarities of their own environment and of larger global healthcare systems. While remaining connected to patients and populational needs, students were also expected to become active agents to foster change in healthcare systems. To this end, the commission recommended a shift toward competency-based education and transformative learning.

In response to these recommendations, a group of nursing, rehabilitation, and educational sciences researchers joined forces to conceptualize and study competency-based education and transformative learning in health professional students (Pepin et al., 2017). From a constructivist standpoint, the intent of competency-based education is to support students building competencies and preparing to become health professionals in their chosen discipline. Pedagogically, constructivist competency-based education relies on frequent exposure to situation-based group learning strategies to promote student interactions with peers, patients, and educators. By experiencing situations similar to those that they will eventually encounter in clinical practice, students are expected to acquire resources (i.e., knowledge, skills, and attitudes) and learn how to mobilize and combine these in an effective manner. This type of learning is transformative, in the sense that students are expected to develop sustainable competencies and leadership attributes in order to be effective agents for change in their future practice.

Our group has developed and implemented an eight-year interdisciplinary research program focusing on how constructivist competency-based education contributes to health professional students' transformative learning. Examples of flagship projects from this research program include studies of the effects of competency-based curricula on students' professionalization (Bélisle, Mazalon, Bélanger, & Fernandez, 2020; Charette, Goudreau, & Bourbonnais, 2019), the mechanisms of professional competency development (Blanchet Garneau & Pepin, 2015; Boyer et al., 2020; Boyer, Tardif, & Lefebvre, 2015; Goudreau, Boyer, & Létourneau, 2014; Rochette et al., 2020), and the conditions that foster professional development in various learning environments such as simulation, clinical placement, and problem-based learning (Deschênes, Goudreau, & Fernandez, 2020; Goudreau et al., 2015; Larue, Pepin, & Allard, 2015; Lavoie et al., 2020; Lavoie et al., 2018; Lavoie, Pepin, & Cossette, 2017; Lavoie, Pepin, Cossette, & Clarke, 2019; Merisier, Larue, & Boyer, 2018; Vachon et al., 2018).

Based on these studies, our understanding of how students become health professionals who are connected to patient and population needs and become change agents has evolved considerably. Thus, the purpose of this paper is to describe our current understanding of students' professionalization (i.e., the process of becoming a professional) in higher education, with a focus on health professional disciplines.

A brief history

Before describing our current understanding of student professionalization, it is important to explain how it evolved over time. Our investigation into this concept began with an interest in the growing number of university curricula that shifted towards competency-based education and innovative pedagogical methods (e.g., problem-based and experiential learning in lieu of traditional lectures) as means to improve the preparation of students for their future profession in healthcare and beyond (e.g., engineering, teaching). Questions that led our inquiry were: what does it mean to professionalize students, what are the effects of these innovative curricula on student professionalization, and what contributes to it?

Based on the literature on professional learning and socialization (Abrandt Dahlgren, Richardson, & Sjöström, 2004; Abrandt Dahlgren, Hult, Dahlgren, Hård af Segerstad, & Johansson, 2006; Eraut, 1994; Greenwood, 1966; Sorel & Wittorski, 2005), competency-based education (Hager, Gonczi, & Athanasou, 1994; Lessard & Bourdoncle, 2002; Tardif, 2006), and students' perceptions of their learning in competency-based curricula (Prince, van Eijs, Boshuizen, van der Vleuten, & Scherpbier, 2005; Vaatstra & De Vries, 2007; Schmidt, van der Molen, te Winkel, & Wijnen, 2009), we defined three dimensions of student professionalization in the initial proposition of the conceptual framework: the development of professional competencies, the construction of a professional identity, and the appropriation of a professional culture.

The framework was further developed through three qualitative studies. The first one was an interpretative exploratory study of engineering students' perceptions of the effects of an innovative problem-based and

project-based curriculum on their professionalization (Bélisle, 2011, 2013). Individual interviews were conducted with 10 recent graduates ($n = 3$ women) from two engineering curricula at a middle-sized French-Canadian university. This study revealed variations in students' perceptions of the competencies they had developed, their appropriation of the engineering professional culture, and the extent to which they identified with their profession and specific roles. Findings suggested that these variations were related to the learning experiences they had encountered over the course of their studies (i.e., the roles they experienced in learning situations bounded by specific contexts). Thus, learning experiences were added to our conceptual framework of student professionalization. This first study also gave us a glimpse into the various educational practices that, according to participants, were conducive to their professionalization.

The second study focused on the professionalization of nursing students as perceived by 14 second- and third-year baccalaureate nursing students ($n = 12$ women) and their educators ($n = 8$ women) in a problem-based curriculum at a large French-Canadian university (Bélisle, Goudreau, Boyer, & Bastidas, 2017; Bélisle, 2018). In total, six focus groups were held. Findings revealed that students and educators perceived a gap between the culture of nursing promoted in the university and in the workplace. Specifically, they described a lack of professional autonomy and recognition in the workplace, which impeded their ability to construct a professional identity in sync with the philosophy of nursing that they adhered to, and the roles they valued and identified with. Results from this study revealed disciplinary differences relating to the professionalization of students that could be explained by contextual factors in the workplace and in the university setting. Thus, it highlighted the centrality of learning experiences in an individual's path to becoming a professional, particularly the roles that students experienced and the contexts in which these experiences unfolded.

The third study used a multiple case design and focused on 37 educators' ($n = 27$ women) conceptions and perceptions of student professionalization in various health science curricula (i.e., nursing, occupational therapy, pharmacy, and physiotherapy) from three French-Canadian universities (Bélisle, Boyer, Lechasseur, Goudreau, & Bouchard, 2014). A qualitative questionnaire and a focus group interview were used to elicit their conceptions and perceptions. Findings revealed that educators held a common conception of the dimensions of professionalization, but their expectations regarding student development varied. This was partially attributed to their relatively short-term involvement with students (i.e., often for the duration of a single course) and their lack of a comprehensive view of student development over the course of the curricula. In addition, this study revealed that multiple teaching strategies were common across competency-based curricula (i.e., problem-based learning, clinical placements, and learning portfolios). Based on participants' accounts, these strategies appeared to rely on similar educational practices, which students had alluded to in the two previous studies: active learning, reflection, and feedback. Thus, this third study allowed to elaborate on the role of educational practices in our framework of student professionalization.

Based on findings from these three studies, we hereby define and detail a conceptual framework of student professionalization in higher education that we used to orient our research program that focuses on constructivist competency-based education for health professional students.

Health professional students' professionalization

Professionalization is understood as the dynamic and ongoing process of imagining, becoming, and being a member of a professional health discipline. Professionalization unfolds in three phases (MacLellan, Lordly, & Gingras, 2011): pre-professionalization (before entering formal education), professionalization (formal education), and post-professionalization (in practice). Through this process of formal and informal professional socialization (de Swardt, Rensburg, & Oosthuizen, 2014), one learns cognitive and cultural ways of being, doing, and acting that are characteristic of a professional group (Abrandt Dahlgren et al., 2004). One also shapes an identity that will influence one's behavior in professional and extraprofessional situations.

Professionalization entails not only the development of competencies tied to a specific professional discipline but also the appropriation of a professional culture and the construction of a professional identity (Abrandt Dahlgren et al., 2004; Bélisle, 2011), which are the three dimensions of professionalization defined hereafter.

Dimensions of professionalization

The development of professional competencies is the first dimension of professionalization. A professional competency is defined as a complex set or cluster of skills, knowledge, and attitudes that are efficiently mobilized and orchestrated to solve real-life professional situations (Bélisle, 2011; Tardif, 2006). Competencies can be characterized by their nature: disciplinary (e.g., clinical reasoning in nursing or medicine, caring in nursing), methodological (e.g., project management, quality improvement), relational (e.g., collaboration, communication), or personal (e.g., humanism, ethical conduct). In all cases, they belong to a domain of professional practice and evolve throughout a professional's lifetime, in formal education and in clinical practice.

The second dimension of student professionalization is the appropriation of a professional culture, which is defined by the values, norms, attitudes, and symbols shared by members of a given profession (Bélisle, 2011). Such appropriation requires an understanding of one's future profession, as well as the various roles held by practitioners of this profession. In addition, interdisciplinarity and interprofessionality are increasingly emphasized in healthcare practice and education and have become key values in the appropriation of a professional culture.

The development of professional competencies and the appropriation of a professional culture are both grounded in a substantial body of disciplinary, professional, and contextual (i.e., social, political, and historical) knowledge that students integrate throughout their learning trajectory. Altogether, learning related to professional competencies and culture also leads to the construction of a professional identity, the third dimension of student professionalization. Professional identity is one's self-image as becoming or being a professional (Gohier, Anadón, Bouchard, Charbonneau, & Chevrier, 2001). It is also characterized by the extent of identification with one's professional group, and by how one relates to society in general and to the learning environment in particular (Bélisle, 2011). Having a sense of belonging to a professional group and a sense of who you are becoming as a professional are important elements of professional identity (Zarshenas et al., 2014; Maginnis, 2018).

Thus, students' professionalization in health professional disciplines rests on the evolution between three interrelated dimensions: professional competencies, professional culture, and professional identity (see Figure 1). Throughout their learning journey, students demonstrate various configurations of these dimensions. For example, a first-year nursing student could achieve high levels of disciplinary and methodological competencies in the context of surgical care, while demonstrating little appropriation of the nursing professional culture and not clearly identifying with the nursing profession. In fact, students' professionalization trajectories are unique and depend on learning experiences that they participate in.

Meaningful learning experiences as the driver of student professionalization

Becoming a professional is a dynamic process that occurs throughout one's encounters with meaningful learning experiences. These experiences are defined by three core components: (1) the role students experience in; (2) a situation that is deemed professionalizing and bounded within; and (3) a specific context.

First, situations are defined by the set of conditions that students experience at a given moment. To be deemed professionalizing, learning situations must involve a set of conditions reflecting authentic professional situations that students are likely to encounter in their future professional practice. This usually involves the presentation of ill-defined problems that require the use of a complex set of knowledge, skills, and attitudes. In the process of using their competencies to solve these problems, students acquire or extend the scope of their knowledge, skills, and attitudes, while learning how to orchestrate these resources to respond effectively to problems that they encounter. In this respect, situations contribute to the development of students' competencies.

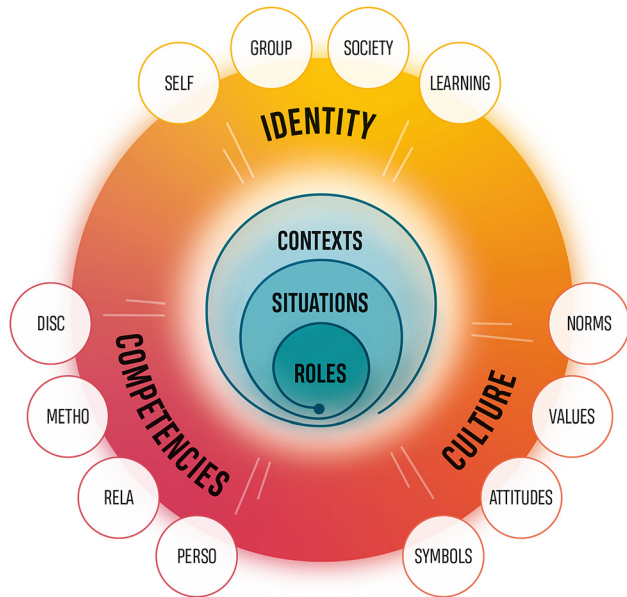


Figure 1: Three dimensions of professionalization.

Second, situations call for specific roles, which are defined by the functions that health professionals assume, and what is expected of them with respect to how they are to act in a given situation. Roles are diverse and inextricably tied to situations; each situation calls for the exercise of a specific role, which requires the mobilization of a unique set of resources directly related to students' professional competencies. Depending on the demands of a situation, students will be expected to take on a variety of roles: care provider, educator, preceptor, manager, director, or something else. Thus, each professionalizing situation is an opportunity for students to safely experiment with a professional role and use the competencies that are associated with that role. Consequently, exercising a certain role in a professionalizing situation contributes to the development of certain competencies—sometimes to the detriment of others—and either validates or invalidates students' identification with that role as future practitioners. As such, roles that students exercise in situations impact both the development of their competencies and the construction of their professional identity.

Third, context is defined by the setting in which a situation occurs. Every professionalizing situation occurs within a specific context (e.g., a learning environment or a workplace) characterized by unique cultural features. The characteristics of the context determine what possibilities students will have to integrate and learn about certain aspects of a situated professional culture. Although there are similarities across settings, cultural features of a particular setting may not be compatible with those of another setting. For example, the caring philosophy embraced by the nursing discipline may not entirely align with the organizational characteristics of the hospital setting or the competitive nature of higher education. Although the appropriation of cultural elements occurs tacitly in students' professionalization process, it is still instrumental to professionalization and the degree to which they identify with members of a professional group.

As the three components of meaningful learning experiences are closely intertwined with the dimensions of professionalization, students' professionalization can potentially be reconfigured through the various meaningful learning experiences they encounter in their learning trajectory. Examples of meaningful learning experiences in an undergraduate nursing curriculum are shown in Table 1.

Educational practices conducive to student professionalization in higher education

The construction of students' competencies, identity, and culture through meaningful learning experiences can be fostered by various educational practices. Strategies conducive to student professionalization

described in the literature and in our own research studies can be organized into three categories. First, active learning methods, such as problem-based learning, clinical simulation, and clinical placement, provide an opportunity for students to engage in real-life or realistic situations and to make use of their competencies. As a result, they build students' confidence in their ability to cope with real-life practice (Marañón & Pera, 2015). Second, reflective methods (e.g., educational portfolios, reflective journals, debriefing, and small group discussions) allow students to reflect on their learning experiences and on how these are related to the competencies they are developing or the professional identity they are constructing. Third, feedback and support received by students through guidance and mentoring from teachers, mentors or professionals (Salisu, Dehghan Nayeri, Yakubu, & Ebrahimpour, 2019) during and after their learning experiences can contribute to their professionalization. However, it is not sufficient to provide students with information on their performance; they must have the opportunity to use this feedback to improve their performance in a given situation.

Those three categories of educational strategies—active learning, reflection, and feedback and support—are consistent with a constructivist approach to competency-based education (Goudreau et al., 2009). Furthermore, they echo three principles of learning soundly supported in the educational literature (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010): action, reflection, and feedback. In our research, we have observed that teaching strategies that rely on any combination of these three principles have a tendency to focus on one dimension of professionalization (i.e., competencies OR identity OR culture) or two at most. However, learning situations that rely on a cycle of action-reflection-feedback have the potential to become even more meaningful learning experiences for students, provided that they are explicitly linked to the three dimensions of their professionalization. Such meaningful learning experiences are expected to foster the development of professional competencies, the appropriation of a professional culture, and the construction of a professional identity (see Figure 2).

Implications for education and research

Our conceptualization of health professional students' professionalization has consequences for education, research, and practice. Educators in nursing and other professional disciplines are encouraged to focus on the development of competencies in the curriculum, but also to acknowledge and value the importance of identity construction and culture appropriation throughout students' process of imagining, becoming, and being a professional. To do so, educators are encouraged to nurture a common understanding of what professionalization means in a specific professional discipline, which entails key questions likely to affect the design, implementation, and evaluation of a professionalizing curriculum: What learning situations are significant for student professionalization and why? When in the curriculum is it most essential to reflect on all three dimensions of professionalization? How should students reflect to learn and develop as health professionals? How do educators and students know a professional transformation has occurred?

From a research perspective, this conceptual framework has shifted the focus of our group to describing and understanding learning experiences and educational practices that are weaved through health professional curricula. Examples of questions that will be addressed in the next cycle of our research program include the following: What are the situations and contexts that students experience in the curriculum, and what roles are they enacting consequently? What is the intersection between active learning, reflection, and feedback?

Table 1: Examples of meaningful learning experiences in nursing.

Role	Situation	Context
Care provider	Patient deteriorating from acute heart failure	Simulation in an academic setting
Health educator	Teenager recently diagnosed with type 2 diabetes	Clinical placement in a community setting
Preceptor	Orientation of a new graduate	Clinical practice in a hospital setting

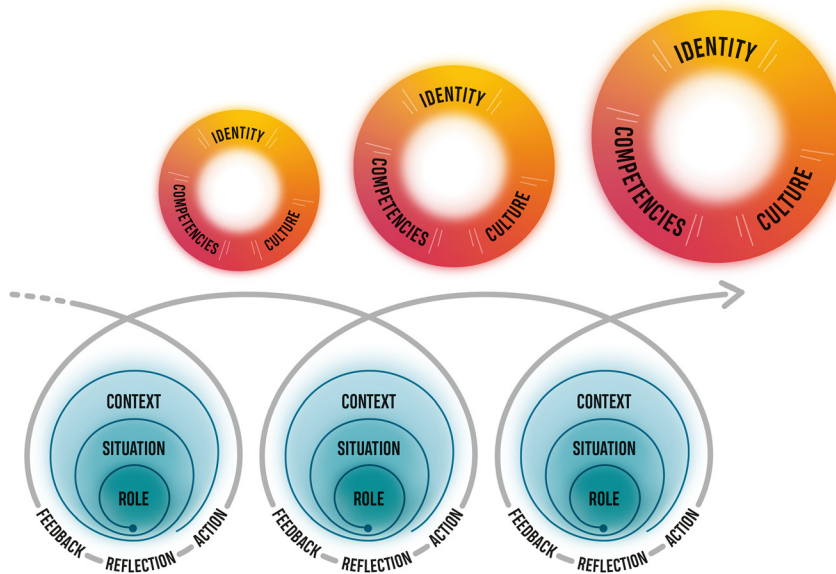


Figure 2: How meaningful learning experiences contribute to student professionalization.

Can these educational practices be implemented to nurture all three dimensions of student professionalization concurrently?

Moreover, we will pursue our investigation of the impact of these learning experiences and educational practices on student professionalization with questions such as the following: What are the consequences of these learning experiences for the development of students' competencies, identity, and culture—and how can they be documented? How do students reconcile tensions and cultural differences that they observe in the various settings that they experience in their learning journey? This work entails methodological developments such as the ongoing construction of a research instrument to measure the dimensions of student professionalization, which is currently being tested with a large sample of health professional students from various disciplines.

Finally, practitioners who engage in professional development are invited to reflect on their professional competencies, identity, and culture. What are the characteristics of their work environment, and what are their impacts on their own professionalization? How can they act as role models for colleagues and help them acknowledge the influence of the organizational context on their professional development? Most importantly, how can they be active change agents to influence existing organizational structures and contribute to a to a healthcare system that is more responsive to patient and population needs?

Conclusion

This paper presented a conceptual framework of student professionalization in higher education, which details three dimensions of professionalization (i.e., professional competencies, professional identity, professional culture), the components of meaningful learning experiences (i.e., roles experiences in situations bounded within specific contexts), and educational practices conducive to professionalization (i.e., active learning, reflection, feedback). In addition to orienting future research efforts, it suggests several avenues to continue the transformation of health professional education in order for students to become change agents responsive to patient and populations needs.

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References

- Abrandt Dahlgren, M., Hult, H., Dahlgren, L. O., Hård af Segerstad, H., & Johansson, K. (2006). From senior student to novice worker: Learning trajectories in political science, psychology and mechanical engineering. *Studies in Higher Education*, 31(5), 569–586.
- Abrandt Dahlgren, M., Richardson, B., & Sjöström, B. (2004). Professions as communities of practice. In J. Higgs, B. Richardson & M. Abrandt Dahlgren (Eds.), *Developing practice knowledge for health professionals* (pp. 71–88). Edinburgh: Butterworth-Heinemann.
- Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). *How learning works: Seven research-based principles for smart teaching*. San Francisco, CA: Jossey-Bass.
- Bélisle, M. (2011). *Perceptions de diplômés universitaires quant aux effets d'un programme professionnalisant et innovant sur leur professionnalisation en contexte de formation initiale* [Doctoral dissertation]. Retrieved from <https://savoirs.usherbrooke.ca/handle/11143/960>.
- Bélisle, M. (2013). A study of the effects of curricular innovations on student professionalization in higher education. In *Conference of the European Association for Research on Learning and Instruction*. Munich, Germany.
- Bélisle, M. (2018). *La professionnalisation des individus dans un programme de formation universitaire en approche par compétences*. [Research Report].
- Bélisle, M., Boyer, L., Lechasseur, K., Goudreau, J., & Bouchard, L. (2014). A portrait of professionalizing practices in competence-based health programs. *Conference of the International Society for the Scholarship of Teaching and Learning*. Québec, Canada.
- Bélisle, M., Goudreau, J., Boyer, L., & Bastidas, P. (2017). Becoming a nurse: Student and teacher perceptions of professionalization in a competency-based program. In *Conference of the European Association for Research on Learning and Instruction*. Tampere, Finland.
- Bélisle, M., Mazalon, E., Bélanger, M., & Fernandez, N. (2020). Les stages cliniques dans les formations en alternance: Étude de la portée quant à leurs caractéristiques et leurs retombées sur la professionnalisation. *Pédagogie Médicale*, 21(1), 21–38.
- Blanchet Garneau, A., & Pepin, J. (2015). A constructivist theoretical proposition of cultural competence development in nursing. *Nurse Education Today*, 35(11), 1062–1068.
- Boyer, L., Pepin, J., Dubois, S., Descôteaux, R., Robinette, L., Déry, J., ... Deschênes. (2020). Adaptation and validation of a nursing competencies framework for clinical practice on a continuum of care from childhood to adulthood: A Delphi study. *Nurse Education Today*, 93, 104530.
- Boyer, L., Tardif, J., & Lefebvre, H. (2015). From a medical problem to a health experience: How nursing students think in clinical situations. *Journal of Nursing Education*, 54(11), 625–632.
- Charette, M., Goudreau, J., & Bourbonnais, A. (2019). How do new graduated nurses from a competency-based program demonstrate their competencies? A focused ethnography of acute care settings. *Nurse Education Today*, 79, 161–167.
- Deschênes, M.-F., Goudreau, J., & Fernandez, N. (2020). Learning strategies used by undergraduate nursing students in the context of a digital educational strategy based on scrip concordance: A descriptive study. *Nurse Education Today*, 104607. <https://doi.org/10.1016/j.nedt.2020.104607>.
- de Swardt, H. C. R., van Rensburg, G. H., & Oosthuizen, M. J. (2014). An exploration of the professional socialisation of student nurses. *Africa Journal of Nursing and Midwifery*, 16(2), 3–15.
- Eraut, M. (1994). *Developing professional knowledge and competence*. London, United Kingdom: The Falmer Press.
- Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., ... Zurayk, H. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *Lancet*, 376(9756), 1923–1958.
- Gohier, C., Anadón, M., Bouchard, Y., Charbonneau, B., & Chevrier, J. (2001). La construction identitaire de l'enseignant sur le plan professionnel: Un processus dynamique et interactif. *Revue des sciences de l'éducation*, 27(1), 3–32.
- Goudreau, J., Boyer, L., & Létourneau, D. (2014). Clinical nursing reasoning in nursing practice: A cognitive learning model based on a think aloud methodology. *Quality Advancement in Nursing Education – Avancées en formation infirmière*, 1(1), 4.
- Goudreau, J., Pepin, J., Dubois, S., Boyer, L., Larue, C., & Legault, A. (2009). A second generation of the competency-based approach to nursing education. *International Journal of Nursing Education Scholarship*, 6, Article 15.
- Goudreau, J., Pepin, J., Larue, C., Dubois, S., Descôteaux, R., Lavoie, P., & Dumont, K. (2015). A competency-based approach to nurses' continuing education for clinical reasoning and leadership through reflective practice in a care situation. *Nurse Education in Practice*, 15(6), 572–578.

- Greenwood, E. (1966). The elements of professionalization. In H. M. Vollmer, & D. L. Mills, *Professionalization*. Englewood Cliffs, NJ: Prentice Hall.
- Hager, P., Gonczi, A., & Athanasou, J. (1994). General issues about assessment of competence. *Assessment & Evaluation in Higher Education*, 19(1), 3–16.
- Larue, C., Pepin, J., & Allard, É. (2015). Simulation in preparation or substitution for clinical placement: A systematic review of the literature. *Journal of Nursing Education and Practice*, 5(9), 132–140.
- Lavoie, P., Deschênes, M.-F., Nolin, R., Bélisle, M., Blanchet Garneau, A., Boyer, L., ... Fernandez, N. (2020). Beyond technology: A scoping review of features that promote fidelity and authenticity in simulation-based health professional education. *Clinical Simulation in Nursing*, 42, 22–41.
- Lavoie, P., Michaud, C., Bélisle, M., Boyer, L., Gosselin, É., Grondin, M., ... Pepin, J. (2018). Learning theories and tools for the assessment of core nursing competencies in simulation: A theoretical review. *Journal of Advanced Nursing*, 74(2), 239–250.
- Lavoie, P., Pepin, J., & Cossette, S. (2017). Contribution of a reflective debriefing to nursing students' clinical judgment in patient deterioration simulations: A mixed-methods study. *Nurse Education Today*, 50, 51–56.
- Lavoie, P., Pepin, J., Cossette, S., & Clarke, S. P. (2019). Debriefing approaches for high-fidelity simulations and outcomes related to clinical judgment in baccalaureate nursing students. *Collegian*, 26(5), 514–521.
- Lessard, C., & Bourdoncle, R. (2002). Qu'est-ce qu'une formation professionnelle universitaire? Conceptions de l'université et formation professionnelle. *Revue Française de Pédagogie*, 139, 131–154.
- Maclellan, D., Lordly, D., & Gingras, J. (2011). Professional socialization: An integrative review of the literature and implications for dietetic education. *Canadian Journal of Dietetic Practice and Research*, 72(1), 37–42.
- Maginnis, C. (2018). A discussion of professional identity development in nursing students. *Journal of Perspectives in Applied Academic Practice*, 6(1), 91–97.
- Marañón, A. A., & Pera, M. P. I. (2015). Theory and practice in the construction of professional identity in nursing students: A qualitative study. *Nurse Education Today*, 35(7), 859–863.
- Merisier, S., Larue, C., & Boyer, L. (2018). How does questioning influence nursing students' clinical reasoning in problem-based learning? A scoping review. *Nurse Education Today*, 65, 108–115.
- Pepin, J., Goudreau, J., Lavoie, P., Bélisle, M., Garneau, A. B., Boyer, L., ... Lechasseur, K. (2017). A nursing education research framework for transformative learning and interdependence of academia and practice. *Nurse Education Today*, 52, 50–52.
- Prince, K. J. A. H., van Eijs, P. W. L. J., Boshuizen, H. P. A., van der Vleuten, C. P. M., & Scherpbier, A. J. J. A. (2005). General competencies of problem-based learning (PBL) and non-PBL graduates. *Medical Education*, 39, 394–401.
- Rochette, A., Brousseau, M., Vachon, B., Engels, C., Amari, F., & Thomas, A. (2020). What occupational therapists' with a professional master say about their competencies enactment, maintenance and development in practice? A two-phase mixed methods study. *BMC Medical Education*, 20, Article 191.
- Salisu, W. J., Dehghan Nayeri, N., Yakubu, I., & Ebrahimpour, F. (2019). Challenges and facilitators of professional socialization: A systematic review. *Nursing Open*, 6(4), 1289–1298.
- Schmidt, H. G., van der Molen, H. T., te Winkel, W. W. R., & Wijnen, W. H. F. W. (2009). Constructivist, problem-based learning does work: A meta-analysis of curricular comparisons involving a single medical school. *Educational Psychologist*, 44(4), 227–249.
- Sorel, M., & Wittorski, R. (2005). Des définitions qui s'imposent. In M. Sorel, & R. Wittorski (dir.), *La professionnalisation en actes et en questions* (pp. 183–210). Paris: L'Harmattan.
- Tardif, J. (2006). *L'évaluation des compétences. Documenter le parcours de développement*. Montréal: Éditions de la Chenelière.
- Vaatstra, R., & De Vries, R. (2007). The effect of the learning environment on competences and training for the workplace according to graduates. *Higher Education*, 53, 335–357.
- Vachon, B., Foucault, M. L., Giguère, C., Rochette, A., Thomas, A., & Morel, M. (2018). Factors influencing acceptability and perceived impacts of a mandatory eportfolio implemented by an occupational therapy regulatory organization. *Journal of Continuing Education in the Health Professions*, 38(1), 25–31.
- Zarshenas, L., Sharif, F., Molazem, Z., Khayyer, M., Zare, N., & Ebadi, A. (2014). Professional socialization in nursing: A qualitative content analysis. *Iranian Journal of Nursing and Midwifery Research*, 19(4), 432–438.