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Proposing a model to embed a simulated-person methodology program within higher education

Eva Hava Peisachovich^a , Laura Jayne Nelles^b, Susan Murtha^a, Celia Popovic^c ,
Iris Epstein^a and Celina Da Silva^a

^aFaculty of Health, York University, Toronto, Canada; ^bGeriatric Psychiatry, Mount Sinai Hospital, Toronto, Canada; ^cTeaching Commons, York University, Toronto, Canada

ABSTRACT

This paper provides an overview of a collaborative model with which to equip educators with the tools to apply and embed simulated person (SP) methodology in their teaching. Our aim is to expand opportunities to foster student success through simulation by embedding the training of simulators and faculty within undergraduate education. The development of this model supports the application of SP methodology within higher education and involves a) developing an applied elective course for undergraduate theatre students that will provide them with the opportunity to learn simulation methodology and to develop skills that will prepare them to work in the field of simulation as SPs, b) delivering workshops to educate faculty to work with and effectively utilize SPs as a pedagogical approach for teaching undergraduate students, and c) using fundamental principles of experiential learning to provide educators, SPs, and students with opportunities to work collaboratively across disciplines.

KEYWORDS

Simulation; creative pedagogy; higher education; collaborative-education model; adult learners

Overview

Simulation is an educational method that supports the synthesis of knowledge and the development of insight and professional competence. While most commonly used in health-professional education and evaluation, there is untapped potential for the use of simulation methodology for training novice professionals across disciplines in any teaching institution. The purpose of this project is to raise awareness of a possible model to be embedded within teaching institutions interested in utilising simulated-person methodology.

The proposed model offers a unique, bifurcated approach, consisting of a workshop for educators and an applied theatre course that trains undergraduates to function as simulated persons. The advantages of this approach are myriad: The workshop trains educators from across disciplines in how to devise simulation scenarios and lead simulations in their classes, potentially expanding the use of simulation into disciplines where it is not used or is under-employed. In addition to preparing theatre students for work they may take on after graduation, the course component affords an inexpensive opportunity to provide high-quality

experiential learning to undergraduates. This is noteworthy, as the high costs of simulation traditionally have dissuaded its use in undergraduate classrooms beyond the health-care disciplines. Our proposed approach, which features a broad focus to include humanities and social-sciences disciplines, develops an inexpensive roster of simulators via the elective theatre-department applied course, making it a unique initiative within the academic community. The proposed model is currently being piloted in a pan-university initiative at an Ontario university. The workshop has been offered twice, in spring 2016 and 2017 and preliminary findings are positive. The one-term, three-credit course will begin in September 2018. This initial report describes a model that others may wish to adapt or implement; a research study will be conducted during the inaugural term of the course and findings will be published in due course.

Simulated person methodology

For the purpose of clarity, both simulation methodology and experiential education are defined: *Simulation methodology* (also referred to in this paper as SP methodology) as employed in this model is a learner-centred approach that provides an opportunity for active and interactive learning in a realistic, simulated environment (Hanna & Fins, 2006). *Experiential education* is an approach that bridges theory and practice by providing students with practical experiences and then aids them in reflecting on their experiences and the theoretical knowledge they have learned (Jeffries, 2012). Further, experiential learning provides students with the opportunity to engage both intellectually and emotionally, allowing for greater depth in understanding of content and context. SP methodology and experiential education reinforce that learning is a dynamic process. This process is not about digesting and regurgitating information in order to transfer it from one person to another; rather it allows information to become knowledge as we make meaning from experience (authors withheld to maintain the integrity of the review process).

Through the use of 'simulated persons' who are specially trained to portray specific roles for learning or assessment, the SP methodology approach affords students¹ an opportunity to develop communication and other skills involving human interactions in a safe environment. SPs are trained to provide students with feedback on professional manner, attitude, and interpersonal skills, thus promoting individualised rather than standardised learning. Moreover, feedback is immediate and from the 'person's' point of view.

In addition to its history of use as a validated approach in health-care-professions education and competency-based learning, simulation-based learning is used in business, law, aeronautics, and social work to develop and test professional competencies (Nestel & Bearman, 2014; Stanyon, Goodman, & Whitehouse, 2014). Any field that includes communication, human interaction, and decision-making as competencies can benefit from the valuable practice and feedback on practice afforded by human simulation. The methodology can be used, for example, to simulate trials, interviews, therapeutic or clinical scenarios, conflict resolutions, inter-professional interactions, challenging classroom situations, and business transactions. Any human interaction can be simulated in the classroom for practice, enabling learners to apply and experiment with newly acquired skills, make meaning out of these interactions, and build professional competence that can be transferred to the workplace.

Simulation is also a flexible tool; scenarios can be tweaked and replayed as necessary within a session, providing opportunities to address the specific needs of individual students. Gaps in knowledge or understanding unique to the student are identified through the interaction and through the feedback provided by the educators and the trained simulators, allowing students an opportunity to redo parts of the scenario on an as-needed basis.

While less costly alternatives to simulation do currently exist, they are not without drawbacks. Peer role play, for example, is often used as an inexpensive alternative to simulated learning, but its efficacy can be difficult to measure (Lane & Rollnick, 2007). Further, students report that role play is less useful than simulation (Bosse et al., 2010).

In sum, this methodology offers many advantages for students. Students are able to interact as themselves with real-world situations (scenarios are always based on actual situations from practice), allowing them to practice a skill in a safe, risk-free environment. This pedagogy also recognises that, although the scenarios are not meant to be exact replications, they are 'realistic enough' to encourage students to suspend disbelief and have an authentic experience. Further, the student can receive feedback about performance from both the educator and the simulator.

Digging deeper: A literature review of simulated-person methodology

The literature identifies simulation as an experiential-education approach that supports the synthesis of knowledge and development of insight and professional competence (Epstein & Hundert, 2002; Jeffries, 2012; McGaghie, Issenberg, Petrusa, & Scalese, 2010; Oh, Jeon, & Koh, 2015). It is, therefore, good practice that teaching institutions take a participatory and collaborative approach in the application, development, and use of SP methodology for training novice professionals. Although this methodology offers new pedagogical opportunities, its potential for use in enhancing student learning, assessing competency, and evaluating learning cannot be realised until researchers acquire the knowledge and skills needed to use this educational strategy (Kameg, Howard, Clochesy, Mitchell, & Suresky, 2010). Further, while simulation is effective at the student level, the lasting effect of positive outcomes is unknown (Hanna & Fins, 2006). A systematic review by McGaghie, Issenberg, Cohen, Barsuk, and Wayne (2011) suggests that the addition of deliberate practice may improve long-term outcomes.

Many professions require the application of practical skills that are difficult to learn through didactic methods or peer role play (Bosse et al., 2010; Odhayani & Ratnapalan, 2011). Employers know what they want from their employees and what colleges should be teaching their future employees (Halpern, 2014). They prioritise critical-thinking and analytical skills, which are inextricably related (Jeffries, 2012). However, employers' top priority for employees is the ability to communicate effectively; this is hardly surprising, given that an overwhelming 70% of unforeseen workplace events involve miscommunication as a root cause (Howden, 2012).

In organisations and industries with a relatively high degree of risk, and particularly in health-care milieus, employees with effective communication and interpersonal skills have been shown to achieve outcomes with fewer errors (Sherwood & Horton-Deutsch, 2012). Utilisation of simulation and experiential-learning approaches – which have been shown to enhance application and transfer of knowledge and skills, including communication skills – have therefore been gaining popularity in higher education settings, primarily in the

health-care disciplines (Howden, 2012). Moreover, the ability to communicate effectively is strongly tied to notions of critical thinking and professional competence. Employers want employees who are able to apply knowledge in real-world settings, to analyse and solve problems, to connect choices to actions, and to be innovative and creative. Given that critical thinking is a primary objective of education, educators need to be able to access and embed methods that allow its direct application in order to ensure students have the skills to transition to the workplace or practice arena.

Research that explored SP methodology with nursing students elicited student feedback that was, overall, positive; students agreed that the experiences were realistic, benefit was gained from the SP's feedback, and the challenge level was appropriate (Ebbert & Connors, 2004; Owen & Ward-Smith, 2014; Shawler, 2008). The self-reported benefits noted by students include gains in knowledge, clinical skills, and confidence; when multiple SP interactions were available, students expressed decreased anxiety and increased familiarity and comfort with this teaching–learning environment (Shawler, 2008). In situations where students provided negative feedback, responses were linked to stress from inexperience or a perceived lack of realism and assistance during the simulation (Dzioba, Cant, Cooper, Bogossian, & Phillips, 2014; Ebbert & Connors, 2004), emphasising the need to further refine the methodology. Yet, when compared to students who received exclusively traditional methods of teaching, students who interacted with an SP garnered higher scores in clinical judgement, clinical-skill performance, and communication.

It is well documented that the use of simulation-based methodology provides an active learning environment (Jeffries, 2012; Nestel & Bearman, 2014; Stanyon et al., 2014); debriefing and self-reflection further enhance the skill development of both teachers and learners, providing them with knowledge and skill enhancement (Hardee & Kasper, 2005). From the existing evidence, we hypothesise that SP encounters are also beneficial to the development of professional competence, communication skills, and confidence in practice, as they provide students an opportunity to develop competency in difficult interpersonal situations – such as dealing with angry clients or workplace conflicts, relaying bad news, or asking personal questions of clients – in a safe and supervised environment, without compromising workplace safety (Hardee & Kasper, 2005; Lane & Rollnick, 2007).

Cost-effective method to embed simulation within pedagogical milieus

As budget and funding constraints pervade the education sector, it is important to explore the cost effectiveness of proposed investments. Historically, the costs associated with the use of simulation have been high, which challenged the acknowledgement of its long-term benefits (Lateef, 2010). Yet the cost of simulation can vary from high to low, 'depending on methods, technology, and fidelity of the simulation' (Maloney & Haines, 2016, p. 2). The foremost goal of simulation as a pedagogy is to enhance learning; however, cost effectiveness is crucial to promote this educational technique as a viable option for institutions (Luctkar-Flude, Wilson-Keates, & Larocque, 2012).

There is a noticeable gap in the literature regarding cost effectiveness or evaluations of the investment return of simulation education (Isaranuwatthai, Brydges, Carnahan, Backstein, & Dubrowski, 2014; Maloney & Haines, 2016). Individual organisations often attempt to decrease costs of simulation by using anecdotal approaches or by brainstorming less-expensive means that meet their particular education needs (Chichester, Hall, Wyatt, & Pomilla,

2014). Hiring professional SPs, a foundational component of this methodology, can be expensive; professional simulators are paid between \$15 and \$75 per hour (depending on the project) and additional fees are charged to cover training and administration costs. These high costs have caused institutions to use the methodology less often and less effectively, particularly in undergraduate education. Our model addresses these financial concerns: There is no direct cost to the institution or the faculty using SP methodology in the classroom as the simulators are there as part of their practica.

Proposed methodology: An innovative model to embed simulation within higher education

Educational systems within Canada are under increasing pressure to use innovative and creative ways to transform education while increasing learners' critical thinking and reasoning skills. The application of experiential-education approaches supports the acquisition of these skills and, thus, supports the students' in developing professional competence – 'the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served' (Epstein & Hundert, 2002, p. 226). To be successful in a practice setting, the following are required: professionalism, self-directed learning, leadership, interprofessional communication and collaboration, and cultural competency (Luctkar-Flude et al., 2012).

The proposed model – which trains student actors to work as simulators and faculty to design effective simulation scenarios and work with simulators – will aid in achieving these objectives by exposing students to meaningful, realistic human encounters such as they may encounter in the workplace. Further, the model benefits all parties: students receive valuable practical experience, either by taking the course and acting as SPs or through the simulation experience in the classroom; educators are trained, allowing them to effectively implement the methodology in their classrooms; and the institution is provided high-quality and inexpensive educational opportunities.

The model's interdisciplinary-education approach highlights the significance of human interactions in day-to-day practice and in developing professional competencies and the ability to engage in a safe and collaborative manner across a spectrum of professional disciplines (Rodehorst, Wilhelm, & Jensen, 2005). The wider, interdisciplinary focus of this initiative – supported by the participation of researchers with expertise in higher education pedagogy, experiential-learning approaches, and simulation-based methodology – provides similarly wide benefits. For example, frequently students enrolled in a programme in a professional discipline learn solely with students within the same programme. However, this initiative mirrors professional practice, as the individual is required to work with professionals from multiple disciplines. Further, theatre students acquire performance skills specific to simulation, work that they are often engaged in after graduation, while non-theatre students, through simulated classroom activities, benefit from the opportunity to put their knowledge into practice. Both groups enhance their interpersonal and reflection skills.

The design of the simulated-person methodology workshop

The first step in our bifurcated initiative, the workshop, was developed to educate educators in the effective use of simulation methodology and pedagogy; this methodology enhances classroom practices by integrating simulated persons in curriculum delivery. The workshop is tailored towards educators interested in using simulation and experiential learning in the classroom; this interactive learning experience provides educators with training and guidance on incorporation of simulation into courses. Educators learn to (a) develop simulation-based learning, (b) facilitate meaningful student engagement, and (c) collaborate with trained simulators from the theatre department to bring simulation into their curriculum. Further, the workshop fosters educators' innovation in the use of simulation and confidence in its application.

By the end of the workshop, faculty members who participate should be able to

- discuss benefits and challenges of planning and implementing simulation in the classroom;
- apply principles of experiential learning and recognise when it is applicable in higher education;
- identify potential resources and supports for planning and implementing simulation in the classroom;
- outline key elements of simulation methodology, pedagogy, and scenario design;
- assess how to decide when and how to apply the SP methodology effectively; and
- outline the considerations for embedding the simulated scenario within the overall educational context.

In sum, this experiential-learning initiative provides faculty members with the tools to apply and embed SP methodology in their teaching and to work with simulators in the context of a teaching–learning setting. This experiential-learning initiative also provides opportunities to foster student success for both the acting students and the students who study under the educators trained in the workshops. The benefit to students is that they gain hands-on practice and enjoy increased opportunities to develop interpersonal skills. This further provides opportunities for curriculum synergies between learners. Within our institution, the Experiential Education Hub and Teaching Commons will support the practicum by matching faculty with student simulators and offering workshops for faculty who would like to use simulation in their classrooms.

Proposed design of the undergraduate course for training simulators

Training the educators within the context of this model is but one part of the equation; in order for the project to be sustainable, a steady supply of well-trained, inexpensive simulators is required. In order to accomplish this we have designed a course that will provide sustainability to the model (see Figure 1). Students taking the course will be assigned to faculty through a practicum component of the course and will receive three credits. The course, which will be open to theatre students and other undergraduate students, explores the applied-performance practice of simulation as a methodology of experiential learning. Theory and practice is applied in an on-campus, interdisciplinary practicum that provides all students with work skills in performance, professional competence and communication, and approaches to cultural competency.

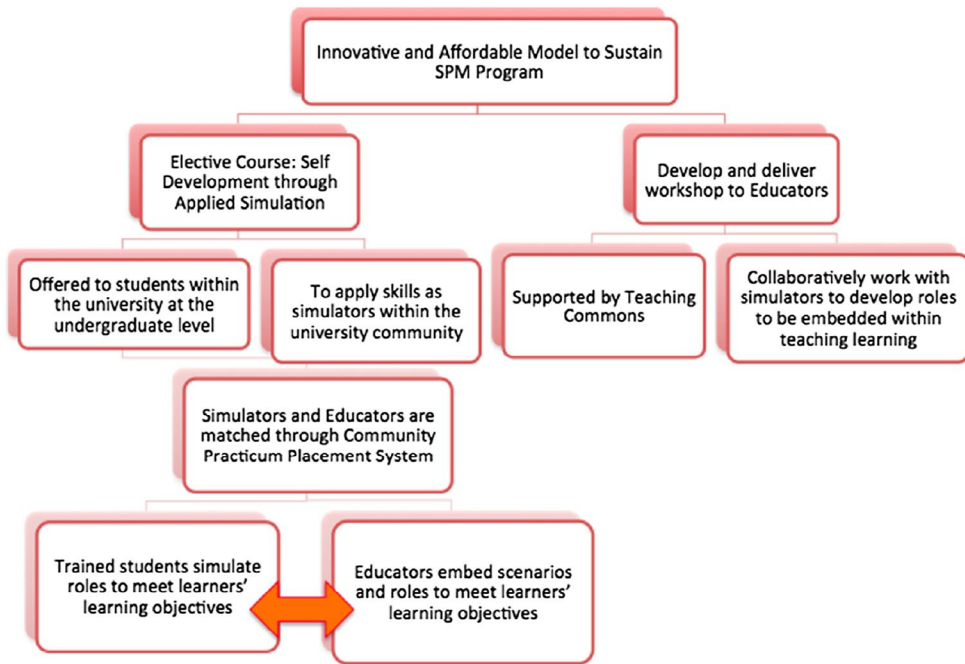


Figure 1. Proposed Model to Embed Simulated Person Methodology within Higher Education.

Students are engaged critically and practically in simulation theory, research, and pedagogy and will gain practical experience in the burgeoning field of simulation. The course examines experiential-learning pedagogy; elements of applied performance; performance-supported learning objectives; standardisation; theory and practice of structured debriefing, critical reflection and reflective practice; models of effective feedback; the ethics of playing other; and engagement in emotional labour. Through a variety of individual, paired, and group studio exercises taken from performance practice, students will develop the skills required for simulation, as well as skills in applied curriculum development, role writing, and facilitation. The course is integrated with experiential- and interdisciplinary-learning objectives across campus and exposes students to other disciplines. Reflective practice and structured debriefing are essential elements of simulation pedagogy and of the course.

Further, students will learn about theories and methodologies involved in the performance practice of human simulation and how it is used as an experiential-learning tool in a variety of disciplines such as law, social work, health care, business, and psychology. Students from the course may perform a variety of roles, such as a person visiting a psychologist for therapy, a person being visited by a community-health nurse, a person interested in developing an investment portfolio, or a person being cross-examined by a lawyer. These interactions will make up the practicum portion of the applied theatre course. Through the practicum, the students will be matched to faculty who have been trained in simulation through our workshops; this process will be supported by the Teaching Commons at our university. These practicum-course students will then provide learners from a range of university departments an opportunity to apply their knowledge and skills. They will do so by

'performing' the structured roles for which they have been trained, allowing students from other departments to interact with course content in a practical way.

The expected enrolment is 50 students per term. Currently, the course is proposed to be available once during the academic year, but additional sections of the course could be offered as demand grows for simulated-learning opportunities across the university. Within our institution, the practicum will be supported by the university's Teaching Commons and Experiential Education Hub, where staff will support the matching of simulators to faculty who have participated in the workshop and who have developed scenarios for classroom use.

Preliminary workshops

As previously noted, as a first step in designing our model, we piloted two workshops that used student actors as simulators and trained both student actors and faculty in the methodology. Feedback gathered from the workshop's participants through surveys given after each workshop will be incorporated in the design of the applied theatre course.

Notably this data, while preliminary, proved promising enough to encourage further development. The feedback received was overwhelmingly positive with 75% of participants rating the workshop programme and medium of groups as excellent. Additionally, 75% of participants indicated that the workshop was excellent in terms of advancing expertise in SP methodology (Peisachovich et al., 2017). In the post-survey, 50% of participants rated the workshop as good in helping develop confidence to implement SP methodology in their teaching. One participant noted,

The workshop was amazing ... I thought it was great to have the simulated people there to learn about their role ... because you have to take that into consideration when you are writing these scenarios ... Often times we are given theoretical direction, but no one is really there to give us feedback in terms of if we are actually doing it correctly or not. Lastly, also going through those dry runs with the SPs, I felt were invaluable.

These findings convince us of the value of further inquiry and implementation.

Conclusion

Although SP methodology is expanding in Canada within health-care disciplines and is increasingly used in professional settings in other disciplines such as business and law to train staff in interpersonal communication, it is underutilised as a teaching methodology at the undergraduate level in disciplines outside the health professions. The proposed model takes a participatory and collaborative approach in the application, development, and use of simulated-person methodology in higher education. We suggest that this model will contribute to increased student engagement through experiential learning within the university and enhanced collaboration among different disciplines across programmes within higher education. In meeting employers' need for workers who can think critically and communicate effectively the enhancement of professional competence among learners becomes a key objective here, too.

Note

1. Please note that we differentiate between *learners* and *students*; we use *learners* to refer not only to students but also to the educators and simulators who learned through the workshops.

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Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Eva Hava Peisachovich is an Assistant Professor at the School of Nursing at York University. Her research programme involves developing capacity and expertise about innovative educational strategies to foster student success and enhance the student experience and transition to the workplace and clusters around two main foci: competency- and evidence-based research and knowledge mobilisation in support of various experiential-education approaches in developing professional competence, especially in higher education milieus and simulation methodology and innovations in pedagogical context.

Laura Jayne Nelles has worked in medical education and human simulation for 14 years and is experienced in curriculum development, knowledge to practice and the creation of instructional content for e-learning. She is the Theatre Educator in Residence for the Humanities and Medicine Programme at University of Toronto. Her work focuses on phenomenological, pedagogical and neuro-scientific aspects of performance training and the embodied knowledge that is a result of practice. She continues to work in the theatre training and coaching theatre professionals.

Susan Murtha is an Associate Professor and from 2012 to 2017 Associate Dean of Teaching and Learning in the Faculty of Health. In collaboration with information technology, the teaching commons, and other Faculties, she has worked to develop the infrastructure for implementing and delivering high quality, web-enhanced, blended, flipped, and fully online courses by promoting and integrating the pedagogical and technical supports instructors need to successfully transform their existing courses. She brings to her portfolio her love and appreciation of research to provide the evidence that informs decisions around best practices for teaching and learning in general and elearning in particular.

Celia Popovic is the Director of the Teaching Commons at York University. Before coming to Canada in 2011, Celia worked in several universities in the UK. She has experience of simulated person methodology in several contexts including medicine. She is an experienced researcher and educational developer with a passion for innovative and effective teaching methodologies.

Iris Epstein is an assistant professor at the School of Nursing at York University. Her research work focuses on the concept of geography of health and exploring outcomes emerging between health, technology and places. She has been teaching nursing students in different places (classroom, clinical lab and online) for over a decade and is interested to explore how these different places affect students experiences.

Celina Da Silva is Assistant Professor at the School of Nursing, York University. She developed, refined and tested a high fidelity simulation (HFS) intervention geared to teach undergraduate nursing students a conflict resolution skill. Her primary research interests align with the development and implementation of complex education interventions through a programmatic approach using the Medical Research Council Framework. Her additional research interests lie in interprofessional education, self-regulated learning and the application of cognitive load theory in the design of education interventions.

ORCID

Eva Hava Peisachovich  <http://orcid.org/0000-0003-0023-3886>

Celia Popovic  <http://orcid.org/0000-0003-4396-8364>

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