



Sustaining undergraduate nursing students' research education

Apoiando a educação em pesquisa dos graduandos de enfermagem

Ayoyando la educación para la investigación de los estudiantes de enfermería de pregrado

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ABSTRACT

Objective: To describe the experience of implementing a research assistant program for Canadian undergraduate nursing students, which aimed to develop written and verbal communication, critical thinking and problem-solving skills, as well as knowledge of various research methods. Engagement in this program was intended to support students' career planning and advancement in research related roles, including administrative and leadership employment opportunities. **Method:** A descriptive design with the report of experience of nursing researchers and career advisers pertaining to: engagement in an 11 one-hour research focused workshop; and the process of supporting students to assume professional and leadership roles. **Results:** Students demonstrated commitment to the training program throughout its phases. They expressed interest in leading practical activities to redefine their professional profile. This experience contributed to building and nurturing intellectual teacher-student relationships. Students are expanding their professional networks and a relationship with a career mentor, while demystifying the research assistant role. Students are developing practical skills and reporting confidence in applying for research assistant positions. **Conclusion and Implications for practice:** Participating in the training program better equips students for choosing their career path, entering the job market, and building a plan for further career advancement. Nursing faculty's genuine desire for and purposeful actions to support a new generation of nurses informed this mutually empowering experience.

Keywords: Education; Education Nursing; Learning; Nursing Research; Students Nursing.

RESUMO

Objetivos: Descrever a experiência da implementação de um programa de treinamento de assistente de pesquisa voluntário para graduandos canadenses de Enfermagem, objetivando o desenvolvimento de habilidades de comunicação verbal e escrita, métodos de pesquisa e análise de dados, pensamento crítico e resolução de problemas, assim como o planejamento de suas carreiras e o avanço de seus papéis relacionados à pesquisa e às oportunidades administrativas e de liderança. **Método:** Estudo descritivo com relato de experiência sobre o processo de treinamento para um novo papel profissional relativo ao engajamento dos graduandos em 11 oficinas, cada uma com duração de uma hora e o processo de apoiá-los para assumir papéis profissionais e de liderança. **Resultados:** Os graduandos demonstraram comprometimento em todas as fases do treinamento. Destaca-se, ainda, o interesse por assumirem a liderança em atividades práticas que redefinem seu perfil profissional. Essa experiência contribuiu para construir e nutrir relações intelectuais docentes-graduandos. Os graduandos expandiram suas redes profissionais e a relação com o mentor de carreira, estão desenvolvendo suas habilidades práticas e relatam confiança em se candidatar para cargos de assistentes de pesquisa. **Conclusão e implicações para a prática:** O treinamento pode instrumentalizá-los para escolhas de planos de carreira, ingresso no mercado de trabalho e a construção de plano para desenvolvimento profissional. O desejo genuíno dos docentes de Enfermagem, apoiando uma nova geração de enfermeiros, culminou nessa experiência de empoderamento mútuo.

Palavras-chave: Aprendizagem; Ensino; Estudantes de Enfermagem; Pesquisa em Enfermagem; Programas de Graduação em Enfermagem.

RESUMEN

Objetivos: Informar sobre la experiencia de un equipo de profesionales de enfermería y desarrollo profesional en la implementación de un programa de asistente voluntario de investigación para estudiantes universitarios canadienses de pregrado en enfermería con el objetivo de desarrollar la comunicación escrita y verbal, métodos de investigación, análisis de datos, pensamiento crítico y habilidades de resolución de problemas, así como en su planificación y avance profesional para funciones relacionadas con la investigación y oportunidades de empleo administrativo y de liderazgo. **Método:** Un diseño descriptivo con el informe de la experiencia de los investigadores de enfermería y desarrollo profesional sobre el proceso de apoyo para la formación de los estudiantes para un nuevo rol profesional. La experiencia se refiere a 11 talleres que durarán una hora sobre los temas relacionados con la investigación. **Resultados:** Los estudiantes demostraron compromiso con la capacitación. Relevante es su interés en liderar actividades prácticas para redefinir su perfil profesional. Esta experiencia contribuyó a construir y fomentar relaciones significativas e intelectuales entre los profesores y los estudiantes. Los estudiantes amplían sus redes profesionales y obtienen una relación con un mentor de carrera. **Conclusión e implicaciones para la práctica:** La capacitación puede equipar mejor a los estudiantes para elegir trayectorias profesionales, entrar en el mercado laboral y elaborar un plan para el avance profesional. Fue el deseo genuino de los profesores de enfermería de apoyar a una nueva generación de enfermeras que culminó en esta experiencia de empoderamiento mutuo.

Palabras clave: Aprendizaje; Educación; Estudiantes de Enfermería; Investigación en Enfermería; Programas de Gradación en Enfermería.

INTRODUCTION

For the past 30 years, Canadian nursing faculty have been interested in supporting students in acquiring research skills, both in and out of the classroom. Through progressive course assignments and other opportunities, students develop original research questions, implement appropriate research design, and ethically conduct research projects¹. This trend in students' education in research has evolved such that students focus on their own research interests; however, they sometimes work as co-investigators in partnership with a professor².

It is expected that healthcare teams and institutions not only undertake evidence-based practice, but also have the scientific knowledge and related experience to actively engage in the creation of new knowledge. These are the same institutions that employ nursing graduates, who themselves are expected to have acquired these skills. Currently, due to funding cuts, few paid research assistant (RA) opportunities exist for faculty to teach and prepare students to support research activities in practice and learning environments. As a result, faculty have identified the need for alternative strategies for undergraduate nursing students, in a Canadian School of Nursing, to learn about research activities and engage in research experiences. As a solution, nursing faculty and career development professionals created and delivered a volunteer RA training program (VRATP) to provide this much needed opportunity for undergraduate nursing students.

The purpose of the VRATP was to assist undergraduate nursing students with the development of skills in written and verbal communication, critical thinking, and problem-solving skills, as well as research methods all of which are transferable to their career planning and advancement for research related roles, including, administrative and leadership employment opportunities. These skills have immediate benefits to the students, in enhancing their university experience, promoting their overall learning environment, and supporting their consideration for graduate education.

This program is congruent with the Canadian University's 2020-2025 Academic Plan³, which is committed to: (a) broaden its national and global reputation through increased research, graduate studies, post-doctoral researchers, and a renewed focus on the overall student experience, (b) enhance classrooms and other learning spaces, and, (c) renew the focus on collaboration and interdisciplinary approaches to learning. As well, this initiative addresses the three key priorities outlined in the University Draft Academic Plan related to: student experience, the production of scholarly, research, and creative (SRC) activities, and innovation. The VRATP creates an exceptional extracurricular, academic, social, and cultural teaching and learning experience, and a robust culture of inquiry, which encourages students to think creatively. The VRATP brings innovation to life through education, research, and learning opportunities and experiences offered to students, while strengthening interdisciplinary connections and reinforcing the

university's strong commitment to building a robust teaching and SRC culture.

This initiative adds to the consolidated work of 24% of our nursing faculty who have responded to undergraduate students' requests to acquire research-related experiences with faculty, collaborations which have produced several scholarly products, such as book chapters, peer-reviewed articles, and abstracts for scientific meetings with undergraduate students as co-authors. It is noteworthy to mention that, in such intellectual partnerships established by faculty mentor and student-mentee, students' scholarly writing and critical thinking skills, including interest in evidence-based nursing, have significantly increased⁴⁻⁶. Specifically, previous findings suggest mentees and mentors were motivated by complementary goals related to intellectual relationships. Zanchetta et al.⁴ identified the combined contexts, self-reflective, critical dialogue, shared assumptions and ideas worked to ignite a critical awareness of their potential and self in their professional world.

For this initiative, a team of 12 faculty at a Canadian School of Nursing with a strong interest in the enhancement of quality nursing education and research through evidence-based education innovations, designed an extra-curricular volunteer RA training program. Evidence-based practice skills are required for accreditation at Canadian undergraduate nursing programs and are part of competencies required by provincial and territorial nursing associations. Implementation and immediate evaluation of the VRATP aimed to acquire baseline evidence on the feasibility and acceptability of such a program to support future applications for education research grants. It serves as a landmark in the School's desire to create a dynamic, research intensive environment for its students for a new PhD program. Moreover, undergraduate nursing students have expressed an extensive interest in expanding their education beyond the classroom to pursue their own professional aspirations and to consolidate their career plans.

The School's Associate Director-Scholarly, Research, and Creative Activity conducted a short online survey of students (n=210) in all undergraduate programs in 2017 to inquire about their interest in research. Eighty percent (n=168) reported their interest in learning to conduct research projects as one way to advance their nursing knowledge, career, and possible application for graduate studies, 70% stated that having a research mentor would be beneficial to help them to engage in research activities, and, 56.6% indicated high interest in applying to research scholarships to support their own research activities. In response to the students' needs, the VRATP was created. The program also aligned with the emphasis on promoting research and evidence-based practice in undergraduate programs.

The objective of this article is to report the experience of implementing a research assistant program for Canadian undergraduate nursing students, which aimed to develop written and verbal communication, critical thinking (i.e. actively conceptualizing, analyzing, and/or evaluating information)

and problem-solving skills (i.e. process of finding a solution to a problem), as well as knowledge of various research methods. Engagement in this program was intended to support students' career planning and advancement in research related roles, including administrative and leadership employment opportunities.

METHOD

The VRATP was a knowledge transfer process of facilitators' expertise to the future RAs. Knowledge transfer is defined as a planned action to apprehend, gather, collect and share forms of implicit knowledge for other individuals, placed in an organization, transforming it into explicit forms of knowledge. Champions of ideas share them with other potential users considering the need of an underlying change process^{7,8}. Inspired by this conceptual perspective, professional experts were invited to become part of the facilitators' team. The experts included nursing faculty members with extensive research experience and professionals in career development. Eager to support this initiative, a student enrolled in a Master's program who had research experience and an undergraduate year 2 (an international student) volunteered to assist in the program planning and delivery. To facilitate communication among facilitators and selected applicants, as well as to allow posting and immediate access to supportive documentation, the development team utilized the university's e-learning management system with restricted access to external users.

Program description

The VRATP was initially offered to 17 nursing students from years three and four of the Collaborative Nursing Degree Program and year two of the Post-Diploma Degree Program. It was delivered by nursing faculty and staff from the Career & Co-op Centre during the 2020 winter session break reading week, so that the program did not conflict with semester courses. The program consisted of two components: 30 hours of in-classroom training (that included 11 hours of face-to-face workshops and work in informatics laboratory, as well as 19 hours of completion of exercises at home, self-study, and online module activities) and a minimum of 30 hours of research internship (hands-on experiences; Spring-Summer 2020). The *first component* of the program was delivered by 10 tenured and two tenure-track nursing faculty from within the School of nursing. Different instructional techniques (lecture, exercises in computer lab, online tutorial, video, and simulation) were used to convey information and to practice these research skills (i.e. conducting literature searches, engaging in a literature review, data collection, data extraction, data analysis, knowledge translation activities). This component also covered career development content delivered by two staff from the Career & Co-op Centre, who closely worked with nursing faculty to customize videos and other resources to develop students' skills in the process of showcasing their specific research-related skills in the prospective job market. The career plan related learning

objectives were to: (a) develop the confidence and strategies to initiate a professional network in students' own field; (b) hone students' ability to articulate own skills and accomplishments when interacting with industry professionals; and (c) (re)connect with professionals and colleagues. The *second component* provided an opportunity to apply the newly acquired practical research skills through an assignment as a volunteer RA to one of the faculty members' program of research. This component incorporated the students' RA work on a voluntary basis, in a mentor-trainee relationship with a faculty member on a specific research study.

Student selection

Information about the VRATP was circulated to undergraduate students in fall 2019. Students interested in taking part in the program were requested to submit as application material, a three-minute personal testimony video responding to the questions: "Why does this research training fit with your career plan?" and "What makes you the best candidate for this program?" The main criteria of selection were objectivity, appropriateness and clarity of the responses to the questions expressing students' motivation and intended engagement in the training. For the first cohort, in total, 21 students submitted an application, 5 of them withdrew their application in the week of training, and 17 students participated in the training first component.

Program implementation

In the first component, students attended an 11 one-hour face-to-face workshop. The following topics were addressed: (a) use of reference management system (Endnote, Footnotes); (b) how to conduct a search for articles through use of library database and other mediums; (c) how to read research articles and review and synthesize literature; (d) understanding what is evidence in evidence informed practice; and being able to identify and extract this information; (e) how to create and use a data extraction table; (f) how to read and follow study protocols (protocols for data extraction, intervention delivery, data collection, data entry); (g) how to prepare materials for a presentation (i.e. abstract/poster) – general principles; (h) how to present at a conference; (i) understanding and engaging in role of co-author/co-presenter and to differentiate from lead-author/lead-presenter; (j) handling and protecting confidential and sensitive data; and, (k) introducing a study to participants, recruitment, and obtain informed consent. Students also conducted independent readings reviewing contents of year two research methods course and expanding literature reading that were considered as hours of training; and were advised to attend a free, online training workshop on statistical analysis offered by the Registered Nurses' Association of Ontario. In addition, students completed 19 hours of exercises at home, self-study, exercises with data analysis and management software and online module activities.

RESULTS

Immediate evaluation - first cohort

Seventeen students completed the program's first component. A survey of three open-ended questions was provided to them. Formative qualitative evaluation techniques were used to collect a developmental view of the training and assess the strengthening possibilities⁹. The questions focused on students' attitudes towards the work of a RA, the content delivered, and the training's potential effect on their future employment as a RA. All students gave anonymous input for all of the questions. The general theme of the answers was demystification of RA work. Students believed that they have gained the knowledge to successfully practice as a RA and feel confident in applying for RA positions. Students suggested that practicing RA tasks with activity examples will help them reinforce their learned skills and concepts.

Furthermore, four special attendees involved in the volunteer RA program brought an international perspective to the classroom: one was an international student from Iran, another a current student, an immigrant from Nigeria, and two were visiting researchers from Brazil (a PhD student and a postdoctoral fellow). These participants stated that the knowledge acquired from this program provided them with a new perspective on research designs, methodology, data analysis software, and knowledge dissemination. They reported that they have begun to share the knowledge they have acquired with colleagues from their home countries.

Reported outcomes

In addition to the immediate outcomes identified by the participants in the VRATP, specific outcomes have been reported three months following the in-class sessions that relate to communicating and leveraging academic and work accomplishments. This has been demonstrated through the strengthening of students' resumes or curriculum vitae to secure employment or applications to graduate school. In total, three undergraduate students have successfully applied for graduate studies. As well, one student has since applied and secured part-time employment. One participant withdrew her participation in the second component due to a job offer as a registered nurse.

Students also demonstrated application of transferable written and verbal communication, research methods, data analysis, critical thinking, and problem-solving skills. Examples of evidence include the creation and submission of abstracts (n=2) to scientific conferences, and working with mentors in: co-authoring (n=13) on the drafting and editing of manuscripts for submission to peer reviewed scholarly journals; creation of quantitative data management systems (n=1); data coding (n=1), entry (n=1), extraction (n=4), management of raw data (n=1); and as well as, qualitative (n=2) and quantitative data analysis (n=2); engagement in literature reviews (n=9); grant application (n=3); recruitment (n=1); remote data collection (n=1); research ethics board applications/review (n=6), and verbatim transcription (n=1).

In addition to the outcomes related to undergraduate learning, the VRATP has been a useful tool to engage students in advanced research skills tailored to graduate studies. Specifically, one Master of Nursing graduate student focused on the development of mentorship, teaching, supervising, and grant writing education. This student was provided with the opportunity to lead one of the undergraduate in-class research sessions to develop facilitation skills, and critically think through and problem solve student questions. This student was supervised by a faculty member who provided feedback immediately following the session. The student was also provided with the opportunity to lead the writing of a grant application. Even though the grant application was not successful, the student identified this opportunity as being one of the most significant learning experiences of her academic career, as it strengthened her writing and verbal communication skills, provided her with a broader picture of the research process, and has made her a more thoughtful and analytical thinker. This student has since been hired as a research manager at a large tertiary hospital and has credited her experience with the VRATP as being largely responsible for preparing her for this new position.

Finally, our team has received a number of requests from faculty members who were not involved in the VRATP to access students for paid RA positions. As a result, one student from our initiative has been employed in a paid RA position.

At the beginning of the second component, the application component, the pandemic erupted. It had a direct impact on student availability for a volunteer RA position, as many of them have been called into institutions to work in clinical internship roles. This limited availability has resulted in a slight delay for some students to begin the volunteer to RA roles. For RA roles that can be conducted virtually, there has not been a concern of viral spread with student participation. The challenge, rather, has been student availability of time to participate in this extracurricular activity. Faculty have understandably accommodated student RAs time constraints, to support students work commitments and the needs of the healthcare system.

DISCUSSION

Based on initial and follow-up feedback received from students, it appears the pilot version of the VRATP was a success. However, this program will need to be evaluated for long term outcomes, and continued assessments are already in progress to assess program sessions and hands-on opportunities. Following the in-class sessions, it was anticipated that participants would have the opportunity to directly engage in research activities. However, due to unforeseen circumstances related to the pandemic, all research activities that require in-person contact were postponed. This resulted in modifications to provide student research experiences. The VRATP development team is assessing the impact of the pandemic on students' research experience. This pandemic has clearly reinforced the essential role of nurses in understanding and participating in research to provide excellence in evidence

informed practice. The outcomes of this experience will be used to refine future iterations of this program.

As well, a second training was implemented in October 2020 with 24 students and a third implementation of the VRATP was implemented in February 2021 with 28 students, in which modifications were applied. As the pandemic remains an ongoing concern, these sessions were delivered virtually. An evaluation research (mix-method design) started on November 2020 to follow up the outcomes in these three consecutive cohorts of trainees. The research evaluates the program in terms of process (i.e., delivery of the planned sessions) and outcome (i.e., asking: what was the impact on students and student satisfaction; was the program more successful with certain student cohorts than with others; what aspects of the program gave participants the greatest benefit; enhancement of critical thinking skills and problem-solving abilities). Expected results will be used to supplement future grant applications.

This initiative brought many contributions to the School of Nursing's community and nursing profession. For the school as an organization, the specific contributions are various such as: (a) the practical component can be seen as alternative in-site placement opportunity; (b) opportunity to review the current types of academic credit for students since the training hours could be recorded as professional development hours; (c) help to build and nurture meaningful, intellectual relationships between faculty and students, which can lead to an academic reference for future applications to graduate school. It is noteworthy that across Canada, similar initiatives exist but not in the form of a short intensive volunteer RA training program for undergraduate students.

For faculty, the VRATP has provided access to a group of students, who are eager to learn and engage in research activities. These new relationships strengthen faculty's investments in novice RAs to develop scholarship skills. Moreover, the VRATP has the potential to create a pool of prospective RAs, who are ready to be hired in paid positions supported by faculty research grants. Both faculty and the RAs have an added opportunity to share their scholarly expertise with the new generations of scholars and future practitioners. By supporting and mentoring the students, faculty scholars are 'paying it forward', building the capacity of informed nurses, who are able to successfully engage in interprofessional teams, with the intent to raise the quality of healthcare experience for patients and their families. Expanding nursing knowledge to advance practice is undergirded by solid knowledge and experience on engagement in the research process, which includes, not only undertaking research activities, but also reading and implementing the scholarly research of other researchers. Further consideration for the nursing faculty is to consider whether building research skills should be a voluntary option or a requirement of the nursing program. This idea, however, may have its challenges, as the nursing program curricula are tightly packed with nursing clinical practice-related courses.

For students, aside from the learning aspect, they are building or expanding their professional networks, which will benefit them in future endeavours. There also exists the possibility of building upon a career mentor-mentee relationship, which is mutually meaningful. It can equip students better, to choose their career path, enter the job market, build a plan for career advancement (i.e., networking, communications skills, etc.). The training prepares the students to work as competent RAs not only in nursing research, but also in interprofessional research collaborations, which in turn increases the number of opportunities for research and knowledge development. Students also get a perspective on their future career options by being exposed to different researchers and their varying methods.

Our School of nursing is located in one of the most multicultural and multi linguistic cities in Canada. Therefore, the VRATP has the potential to (mid or long term) renew and increase cultural and ethnic diversity in the profile of the prospective graduate students. Moreover, we believe that such a new cohort of trained RAs can also support the upcoming changes in the process of making the community of nursing researchers more inclusive. The ultimate contribution may accelerate students' access to research awards and scholarship upgrading modes of knowledge generation for academic education.

Noteworthy to comment on offering as an alternative way of submitting an application by an audio recording to address possible issues of shyness, introversion and social anxiety among students. Ultimately, it promotes social inclusion. One way in which this can be addressed again for future iterations of this program is for faculty as well as student peers to approach these students to encourage them to engage in the program.

Regarding the possibilities of knowledge transfer to the training of Brazilian nursing students, it is noteworthy to say that four Brazilian visiting researchers were involved in the development of the training program. Two of them, nursing professors from two federal universities located in the Centre-west region and third, a professor from a federal university located in the Northeast region, in their postdoctoral fellowships, participated in the preparation of the questionnaire of immediate and long-term evaluation and participated in the training sessions, respectively. The fourth, a PhD nursing student from another federal university, located in the Southeast region, and an awardee of Emerging Leaders of the America Program- Government of Canada¹⁰, attended. Both reflected about their experiences, classroom observations, and the possibilities of transferring this innovation to extra-curricular education to respond to Brazilian nursing students' motivation to learn about research. It is noteworthy that in Brazilian universities, there are scientific initiation programs, which are short-term paid positions with a limited number of positions aiming to awaken the scientific vocation and support new talent among undergraduate students¹¹.

Since Canadian and Brazilian nursing programs have been collaborating in the areas of advancement of education, practice, social development, and scientific collaboration¹²⁻¹⁷, the

participation of these Brazilian nurses also allowed considerations for possible initiatives of knowledge transfer. The transfer of the training structure and logistics seems feasible and necessary to upgrade the current approach to train future nursing researchers. Their knowledge transfer can target identified innovations. First, this innovative method of students' recruitment using a wide invitation with the student's community led applicants to consider within a career perspective the prospective role of a RA. A second feature was the composition of a team of nurse researchers who held expertise in different paradigms of science and research and worked in an integrative manner. In addition, the intensive, continuous training pace allowed trainees to remain engaged in the presented themes. Finally, visitors observed this creative way to keep high motivation among students, as facilitators constantly stimulated students to foresee their own participation in future scientific events, engagement in scholarly publications, and networking with the health researchers' community.

Two behavioural observations were noteworthy to them in their reflections on the changes on the culture of educating for research. First, the students deliberately wrote about their learning reflections, which were shared among them and the facilitator in the debriefing/course immediate evaluation session. Second, students launched conversations with the facilitator about writing plans of a scholarly report of experience. Visitors also observed novelty in facilitators' performance within an academic culture of synchronism and hard work to promote the science of nursing. The commitment, engagement and efforts to optimize material and human resources in the facilitators' work for planning, developing and evaluating the training was appealing to the visitors. Despite no concrete benefit to them, their professional accountability to the education initiative showcased their profile as role models and leaders to achieve a common objective.

Potential benefits of using the same innovations in Brazilian university context were identified. This type of extracurricular education may awaken in students the need to reflect on their academic life, bring forward ideas about a scientist's career plan, and improve their own performance in the application/selection processes. Implementing the training can help nursing programs uncover and boost the revelation of new talents, as well as approximate them to existing nursing research groups. The transfer seems to be easy due to the creation of an online community where facilitators and students could communicate among themselves, share relevant information about research-related news, documents, material for lectures, and recommended readings and announcements of interest. Caution regarding the existing challenges faced by Brazilian public universities does exist due to limitations in the accessibility to structural and material resources mainly in technological support by informatics labs and availability of data analysis software to a collective use.

CONCLUSION AND IMPLICATIONS FOR

PRACTICE

The development of competencies and skills is among the top research priorities for nursing research since more robust studies are needed to advance nursing knowledge in many areas of practice¹⁸. Specifically, skills related to methodology of nursing research and expertise in advanced nursing were identified as key nursing priorities, of which the VRATP addresses. Advances are intrinsically linked to one's readiness to implement evidence-based nursing practice, which one of its key predictors is the intrinsic motivation also documented among nursing students¹⁹. The experience brings stimulation to expand knowledge targeting new goals in plans to advance their professional career.

Educating a new generation of nursing researchers contributes to achieving the ambitious goal to have "development of research skills" as an integral part of students' career plans as a demystified asset. This may have significant implications for students and faculty to redesign broad education opportunities for the 21st century more than ever, which is expected to be transformative, empowering and meaningful. The preparation to enter into a global nursing research community that challenges preconceived and immutable knowledge *status quo* is a crucial goal. To allow nursing students to see themselves as individuals in-the-world and as global citizens, education should transform lives and connect generous minds and curious spirits. Such transformation can be understood in nursing by this eloquent quote:

Transformative learning is a contextual, cyclic and highly cognitive and affective deep structural mental shift that involves a meaningful interactive, integrative and democratic construction process to arrive at new insight and changed perspective. The process is triggered by uncomfortable challenges in one's worldview, which stimulates expanded awareness and self-reflection. The process advances the development of metacognition and an autonomously thinking citizen with a transformed perspective, who is socially just and globally competitive."^{20:96}.

The VRATP, transferring knowledge from faculty to students, is another step in this pathway chosen⁴ by our School of Nursing to develop students' intellectual potential^{5,6}. From, "I do not know what to do..." to "Yes, I am actually doing..." stages, a new narrative of nursing education is being built and shared within our nursing academic community. Our growing engagement in this process is worthy to be replicated in other academic organizations who may be wondering how to collectively foster in students the appreciation for the wholeness of nursing, its science and its art.

Ultimately, it is nursing faculty's genuine desire and purposeful actions to support the development of the current and future nursing of knowledge producers that inform this mutual empowering experience. Six months after the training, students

have completed their practicum as a volunteer RA practicing within a range from 30 to 600 hours. Certificates of completion were issued and several students remain collaborating with research mentors.

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