

BMJ Open Translating caring competencies to remote working environments: a systematic review protocol

Lorelli Nowell ¹, Diane Lorenzetti ^{2,3}, Michele Jacobsen,⁴ Liza Lorenzetti,⁵ Elizabeth Oddone Paolucci^{3,6}

To cite: Nowell L, Lorenzetti D, Jacobsen M, *et al*. Translating caring competencies to remote working environments: a systematic review protocol. *BMJ Open* 2021;**11**:e048459. doi:10.1136/bmjopen-2020-048459

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2020-048459>).

Received 26 December 2020

Accepted 11 May 2021

ABSTRACT

Introduction Caring professions attend to the health, educational and social needs of society rather than its material needs. Caring professionals are a vital part of the world's response to COVID-19, yet the global pandemic and its aftermath have significantly changed the ways in which care is provided. The rapid pivot to remote care, where the essential caring cues and opportunities are not as readily available, has put unprecedented pressure on caring professions. There is currently a lack of clear understanding and accepted standards for teaching caring profession students how to provide care remotely. The objective of this systematic review is to identify and assess the ways in which educators can integrate online learning opportunities to help students develop effective caring practices and translate these into today's remote and virtual care environments.

Methods and analysis This systematic review will consider diverse quantitative, qualitative and mixed-methods studies of innovative online education initiatives and required technology for caring profession education. Articles will be retrieved from academic databases and limited to articles reporting primary data and published in English within the last 10 years. Data extraction procedures will follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses reporting guideline. The methodological quality of all studies will be assessed using the Effective Public Health Practice Project Quality Assessment Tool and/or the Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research. Study characteristics will be tabulated and narratively synthesised to integrate and explore relationships within the data.

Ethics and dissemination No ethics approval is required to conduct this review. Review findings will be disseminated through peer-reviewed publications, conference presentations and be used to inform and guide caring profession education policy, practice and research agendas with the goal of improving education for caring profession students, and care for the patients, clients and learners they serve.

INTRODUCTION

Caring professions, such as education, medicine, nursing, social work and allied health disciplines involve attending to health, well-being and development, and encompass a

Strengths and limitations of this study

- This is the first systematic review to appraise and synthesise existing studies on integrating online learning opportunities to help students develop effective caring practices and translate them into today's remote and virtual care environments.
- We adhere to the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols statement to ensure a systematic and rigorous approach to our review.
- The integration of both quantitative and qualitative data from multiple caring professions will generate evidence from multiple paradigms and disciplines.
- Only English language articles published in the last 10 years will be included, therefore this review may overlook relevant contributions from other widely used languages or those published more than 10 years ago.
- The diverse studies included in this review may include a variety of heterogeneous factors, making synthesis more challenging.

humanitarian and human science orientation, and require human caring processes.¹ These professionals are employed to meet the health, educational and social needs of society rather than its material needs² and are often in close, face-to-face contact with the recipients of their services.³ Caring professionals deliver essential services that provide education, promote health and well-being, and support and advocate for individuals, families and communities in need—services at the heart of the world's response to COVID-19.

The COVID-19 pandemic has shone a spotlight on the importance of access to digital tools in the workplace as caring professionals quickly pivoted to using technology to support their students, patients and clients. Digital skills went from a 'nice to have' to a 'vital skill' as caring professionals were expected to seamlessly bridge technical competence with caring expertise. Caring work is almost always provided in the context of a relationship and



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For numbered affiliations see end of article.

Correspondence to

Dr Lorelli Nowell, Faculty of Nursing, University of Calgary, Calgary, Alberta, Canada; lnowell@ucalgary.ca

therefore social and relational skills are required³ as key components of discipline-specific skillsets. However, rapidly changing technological advancements have altered the skills and competencies required of the present and future work force.^{4,5}

Caring professionals and higher education institutions are facing the challenges of learning to become proficient with technology for communication, connection and collaboration. Though expert professionals may be able to more easily shift their focus from face-to-face to remote and virtual care, and back again, novice caring professionals may struggle with translating their caring or teaching skills to digital environments and resources, causing significant personal and professional repercussions.^{6,7} When technology fails to help deliver the expected care, both patients and care providers may experience anguish.⁷ The growing use of open educational resources in higher education can address some equity and inclusion issues, but also raise new questions about representation, authorship and perspective.⁸ The onset of COVID-19 highlights the urgent need for caring professionals to develop the skills and competencies required to best meet the needs of the public they serve. Without these skills, the negative education, health and social outcomes made more apparent by the pandemic, such as economic inequality, food security and inadequate access to health care⁹ or schooling, may be exacerbated.

Global attention has largely focused on risks to students going back to school, infected patients and the frontline responders, with some marginalised populations in society being overlooked.¹⁰ Global efforts cannot ignore socioeconomic, health and education equity, and it is imperative that digital technologies are used to ensure equal treatment and educational opportunities for all.¹¹ As specialised technologies are increasingly being developed and implemented to meet the needs of dynamic work environments, more time and resources are required to ensure that educators and students can efficiently use and master the technical aspects of their evolving roles.¹² Despite this pressing need, the literature lacks coherent, evidence-based direction about how educators can best integrate online learning opportunities to help students develop caring competencies and translate them to a digital working environment. This review will provide direction from across caring disciplines; specifically, those which are unified in requiring social skills to manage and maintain interpersonal relationships as central to their profession.

Caring professional training and education

Historically, caring professional education has been delivered using traditional face-to-face lecture, experiential and group in-class learning and seminar formats. Education was often offered in tandem with work-integrated learning where students work with educators and practicing health professionals in placements to learn the hands-on skills, dispositions and competencies required in the field (eg, K-12 classrooms, hospital settings, counselling centres).^{5,13} However, COVID-19 caused a sudden pivot to remote online teaching and learning contexts where caring professional

training programmes were required to implement alternative strategies to provide students with these valuable experiences and learning opportunities.¹⁴⁻¹⁶ Rather than supplementing in-person instruction/experiences, online learning has become the mainstay, highlighting the need for professional programmes to ensure the capacity of their students to operate confidently in online learning environments. While higher education has increased formal online learning opportunities for students over the last decade,¹⁷ educators often have limited awareness of and proficiency with technology required for today's workforce¹⁸ and few have developed shared epistemic agency for leading these innovations.¹⁹

Educators must enable caring profession students to become confident and effective users of technology. COVID-19 has demanded that teachers and students become comfortable in the use of various technologies to support teaching and learning. More broadly, the COVID-19 pandemic has highlighted the need for educators to introduce students to technologies that have become crucial for providing essential care, communication and learning connections. Educators are confronted with the dilemma of responding and adapting quickly to this increasingly critical emphasis on designing and supporting online educational environments. It is imperative to effectively support ongoing education and training to provide caring professionals with the required skills and competencies to ensure that they are able to persevere through the challenges of the current pandemic and beyond.

GOALS AND OBJECTIVES

The objective of this mixed methods systematic review is to identify the ways in which innovative online education initiatives can best prepare graduates in caring professions for employment and competent and effective practice in the digital economy. We will identify knowledge strengths and gaps, including the applicability and/or transferability of strategies and practices to the wider band of interdisciplinary caring professional education contexts. The research questions that will guide this review are:

1. In what ways have digital technologies transformed the nature of professional education and prepared students to operate in emerging digital economies within the caring professions?
2. In what ways has COVID-19 driven innovation in caring professional education?
3. What educational strategies have proved to be most effective in preparing students to operate effectively in digital economies?

METHODS AND ANALYSIS

This protocol follows the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) statement.²⁰ The mixed methods systematic review will follow the best practice outlines by the Centre for Reviews and Dissemination²¹ by combining the findings

of diverse primary studies within a single review.^{22 23} This review will adhere to the PRISMA-P guidelines for the progress and reporting of systematic reviews.^{20 24}

Inclusion criteria

Studies will be included if they: (1) focus on the education of undergraduate and/or graduate students in the caring profession disciplines (education, medicine, nursing, social work and allied health); (2) describe current strategies to offer online learning designed to prepare students to operate in emerging digital economies and (3) report on the impact of implementing these strategies including student and teacher perspectives, learning outcomes, capacity of students to develop career skills and competencies, and patient or learner perspectives.

Exclusion criteria

Studies will be excluded if they: (1) focus on the continuing education of professionals currently in practice; (2) are commentaries, editorials, letters or non-systematic reviews that do not report on outcomes or impact associated with online education; (3) have not been published within the last 10 years and (4) are non-English language studies. We are limiting our inclusion to studies published within the last 10 years to capture the most recent and relevant online technologies, pedagogies and practices.

Search strategy

We will search the following multidisciplinary databases to identify English language journal articles suitable for inclusion in this review: CINAHL, Education Research Complete, EMBASE, ERIC, MEDLINE, Social Service Abstracts, Social Work Abstracts and Scopus. The search strategy will incorporate database-specific subject headings (as appropriate) and keywords (title/abstract words) from three main concepts: (1) students currently registered in caring profession education programmes in academic institutions (allied health, education, medicine, nursing, social work); (2) pedagogical approaches or technologies to facilitate online learning and (3) outcomes related to preparing students to work in emerging digital economies (eg, learning outcomes and career skills development, as well student, teacher and stakeholder perspectives). A preliminary search strategy for MEDLINE database was completed by the team's health science librarian DL, in consultation with the team (see online supplemental file). This search strategy will be further developed and adapted for different databases. We will also hand search the reference lists of all eligible studies to identify additional studies of relevance to this review.

Study selection

All search results will be exported to Covidence to facilitate data management and the organisation and progress of this review. Studies will be screened in three stages. Prior to screening, reviewers will independently screen a random sample of 50 abstracts using a standardised screening tool in Excel to determine inter-rater reliability.

Screening of the remaining abstracts will commence when inter-rater agreement reaches 90%, at which point titles and abstracts (Level 1) will be independently screened in duplicate by two reviewers. Disagreements will be resolved by a third reviewer. Full texts of potential studies will be obtained for Level 2 screening, which will be conducted in the same manner as Level 1 screening.

Assessment of methodological quality and risk of bias

The methodological quality of quantitative studies will be assessed using the Effective Public Health Practice Project Quality Assessment Tool,²⁵ which can be used to assess multiple study designs and has evidence of validity and reliability. Each of six domains—selection bias, study design, confounders, blinding, data collection methods and withdrawals and drop-outs—are rated as strong, moderate, weak or not applicable. For qualitative studies, we will use the Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research.²⁶ This coherent tool performs well in assessing intrinsic methodological quality.²⁷ Ten domains are assessed as yes, no, unclear or not applicable: philosophy, objective, data collection, data analysis, interpretation of results, theory or cultural location, researcher reflexivity, participant representation, ethical considerations, conclusion. For mixed methods studies, we will use both appraisal tools. These tools will enable us to identify higher quality evidence and practices among the literature. Two reviewers will independently assess the quality of all included studies. Disagreements will be resolved through discussion or adjudication by a third reviewer.

Data extraction

We will use a standardised Excel data extraction tool, which will be pilot tested by the reviewers using a random sample of five studies. Following the pilot test, one reviewer will extract study data; a second reviewer will verify the extracted data for accuracy. The following data items will be extracted: study information (authors, year, country, funding source), study objectives, intervention characteristics, design and methods, participants, descriptions of setting, contextual information (setting), findings and authors' recommendations or tools.

Data synthesis

We expect considerable heterogeneity between studies; thus, meta-analysis may not be appropriate. Data will be synthesised using the guidance from the Centre for Reviews and Dissemination²¹ and Popay *et al.*²⁸ Study characteristics will be tabulated and narratively synthesised to integrate and explore relationships within the data. We will also conduct a sensitivity analysis to examine the influence of studies with a low-quality rating on the robustness of review findings.^{29 30} To do this, our synthesis (with all studies) will be compared post hoc to a synthesis without the methodologically weak studies. The criteria or threshold for low quality (eg, data collection method, sampling) will be established a priori. This comparison

can provide insight into whether the low-quality studies contribute unique information and if they impact the generalisability of the findings.³⁰

Patient and public involvement

Patients and/or the public were not and will not be involved in the design, conduct, reporting or dissemination plans of this research.

ETHICS AND DISSEMINATION

We are taking an integrated knowledge translation/mobilisation approach³¹ to this research in which our team of researcher/knowledge users have worked together to craft our research questions and refine our methodology. Our study team consists of knowledge users who are committed to using their knowledge networks, existing relationships with internal/external policy makers and dissemination pathways to accelerate the mobilisation and uptake of our review findings at local, provincial, national and international levels. The purpose of engaging a diverse interdisciplinary team of researchers and knowledge users to conduct this research is to accelerate, spread and make use of this co-created knowledge, and yield evidence-based recommendations to inform innovative best practices in caring professional education.

End-of-grant approaches to knowledge dissemination will be mindful of COVID-19 impacts on travel and will include virtual presentations at international, national and local meetings and conferences. All team members, including graduate students, will be invited to participate in the publication of the review findings in a high impact, peer-reviewed journal. We will leverage the connections of our knowledge users to develop an infographic, a short video, and an interactive website about digital technologies and educational innovations for caring professional education. Furthermore, the findings from this synthesis project will be leveraged into a future research on implementation and evaluation of evidence-based digital technology and education innovation within caring professional education.

Author affiliations

¹Faculty of Nursing, University of Calgary, Calgary, Alberta, Canada

²Health Sciences Library, University of Calgary, Calgary, Alberta, Canada

³Department of Surgery, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada

⁴Worklund School of Education, University of Calgary, Calgary, Alberta, Canada

⁵Faculty of Social Work, University of Calgary, Calgary, Alberta, Canada

⁶Department of Community Health Sciences, University of Calgary, Calgary, Alberta, Canada

Twitter Lorelli Nowell @lorelli_nowell and Michele Jacobsen @dmichelej

Contributors LSN and DL were responsible for the conceptualisation of the research question, approach and rationale. LSN and DL developed the methods to be used for this review. LSN, DL, MJ, LL and EOP provided initial research into existing literature and developed the introduction to this manuscript. LSN prepared the first draft of the manuscript, which was reviewed and revised by DL, MJ, LL and EOP. All authors read and approved the final manuscript.

Funding This work was supported by the Social Sciences and Humanities Research Council and the Government of Canada's Future Skills program grant number (872-2020-0026).

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

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ORCID iDs

Lorelli Nowell <http://orcid.org/0000-0002-5401-4462>

Diane Lorenzetti <http://orcid.org/0000-0001-8423-3458>

REFERENCES

- Watson J, Foster R. The attending nurse caring model: integrating theory, evidence and advanced caring-healing therapeutics for transforming professional practice. *J Clin Nurs* 2003;12:360–5.
- Wallis D. Satisfaction, stress, and performance: Issues for occupational psychology in the 'caring' professions. *Work Stress* 1987;1:113–28.
- Barron DN, West E. The emotional costs of caring incurred by men and women in the British labour market. *Soc Sci Med* 2007;65:2160–71.
- Dunlap JC, Learning LPR. unlearning, and relearning: Using Web 2.0 technologies to support the development of lifelong learning skills. In: Magoulas GD, ed. *Einfrastructures and technologies for lifelong learning: next generation environments*. Hershey, PA: IGI Global, 2011.
- Future Skills Center. Co-operative education and work-integrated learning Canada [online]. Available: <https://www.cewilcanada.ca/> [Accessed 18 Dec 2020].
- Almerud S, Alapack RJ, Fridlund B, et al. Caught in an artificial split: a phenomenological study of being a caregiver in the technologically intense environment. *Intensive Crit Care Nurs* 2008;24:130–6.
- McGrath M. The challenges of caring in a technological environment: critical care nurses' experiences. *J Clin Nurs* 2008;17:1096–104.
- Veletsianos G. Open educational resources: expanding equity or reflecting and furthering inequities? *Educ Technol Res Dev* 2020;1–4.
- Bottan N, Hoffmann B, Vera-Cossio D. The unequal impact of the coronavirus pandemic: evidence from seventeen developing countries. *PLoS One* 2020;15:e0239797.
- Dorn Avan, Cooney RE, Sabin ML. COVID-19 exacerbating inequalities in the US. *Lancet* 2020;395:1243–4.
- Wang Z, Tang K. Combating COVID-19: health equity matters. *Nat Med* 2020;26:458.
- Spencer JA. Electronic documentation and the caring nurse-patient relationship. *Int J Hum Caring* 2010;14:29–34.
- Bogo M. Field education for clinical social work practice: best practices and contemporary challenges. *Clin Soc Work J* 2015;43:317–24.
- Dewart G, Corcoran L, Thirsk L, et al. Nursing education in a pandemic: academic challenges in response to COVID-19. *Nurse Educ Today* 2020;92:104471.
- Roskvist R, Eggleton K, Goodyear-Smith F. Provision of e-learning programmes to replace undergraduate medical students' clinical general practice attachments during COVID-19 stand-down. *Educ Prim Care* 2020;31:247–54.
- Van Nuland S, Mandzuk D, Tucker Petrick K, et al. COVID-19 and its effects on teacher education in Ontario: a complex adaptive systems perspective. *J Educ Teach* 2020;46:442–51.

- 17 Hachey A, Wladis C, Conway K. Is the second time the charm? Investigating trends in online re-enrollment, retention and success. *JEO* 2012;9.
- 18 Oblinger DG, Hawkins BL. The myth about online course development: a faculty member can individually develop and deliver an effective online course. *Educause Rev* 2006;41:14–15.
- 19 Jacobsen M, Brown B, Lambert D. *Technology-enhanced learning environments in higher education: A review of the literature [online]*. University of Calgary, 2013. <https://prism.ucalgary.ca/handle/1880/52244>
- 20 Moher D, Liberati A, Tetzlaff J, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med* 2009;6:e1000097.
- 21 Centre for Reviews and Dissemination. *Systematic reviews: CRD's guidance for undertaking reviews in health care*, 2009.
- 22 Gough D. Qualitative and mixed methods in systematic reviews. *Syst Rev* 2015;4:181.
- 23 Pope C, Mays N, Popay J. How can we synthesize qualitative and quantitative evidence for healthcare policy-makers and managers? *Healthc Manage Forum* 2006;19:27–31.
- 24 Page MJ, McKenzie J, Bossuyt P, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews [Internet]. *BITSS* 2020.
- 25 Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol* 2008;8:45.
- 26 Joanna Briggs Institute. *JBI critical appraisal checklist for qualitative research*. Australia: Joanna Briggs Institute, 2017.
- 27 Hannes K, Lockwood C, Pearson A. A comparative analysis of three online appraisal instruments' ability to assess validity in qualitative research. *Qual Health Res* 2010;20:1736–43.
- 28 Popay J, Roberts H, Sowden A. *Guidance on the conduct of narrative synthesis in systematic reviews*. Lancaster, UK: ESRC Research Methods Programme, 2006.
- 29 Boeije HR, van Wesel F, Alisic E. Making a difference: towards a method for weighing the evidence in a qualitative synthesis: weighing evidence in qualitative synthesis. *J Eval Clin Pract* 2011;17:657–63.
- 30 Carroll C, Booth A. Quality assessment of qualitative evidence for systematic review and synthesis: is it meaningful, and if so, how should it be performed? *Res Synth Methods* 2015;6:149–54.
- 31 Graham ID, Kothari A, McCutcheon C, et al. Moving knowledge into action for more effective practice, programmes and policy: protocol for a research programme on integrated knowledge translation. *Implement Sci* 2018;13:22.

Supplementary File

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <1946 to December 15, 2020>

Search Strategy:

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- 1 exp education, medical, graduate/ or education, medical, undergraduate/ or education, nursing/ or education, nursing, baccalaureate/ or education, nursing, diploma programs/ or education, nursing, graduate/ or teacher training/ (152632)
 - 2 ((clinician* or doctor* or health profession* or medical student* or nurs* or physician* or psychologist* or psychiatrist* or social work* or teacher*) adj3 (educat* or professional development or train*)).tw,kf. (101954)
 - 3 1 or 2 (226009)
 - 4 Telemedicine/ or Educational Technology/ or informatics.tw,kf. (41786)
 - 5 telemedicine/ or remote consultation/ (29366)
 - 6 exp Therapy, Computer-Assisted/ (66286)
 - 7 ((care or consultation* or educat* or healthcare or learning) adj3 (computer* or digital or electronic or online)).tw,kf. (15071)
 - 8 (digital therapeutic* or digital technolog* or ehealth or e-health or e-support* mobile health or mhealth or m-health or remote consult* or teleconsult* or tele-consult* or telehealth or tele-health* or telemedic* or tele-medic* or telepsychiatr* or tele-psychiatr* or teletherap* or tele-therap*).tw,kf. (35571)
 - 9 (online instruction or online learning or online teaching or digital econom*).tw,kf. (2166)
 - 10 ((education* or information*) adj3 technolog*).tw,kf. (22885)
 - 11 4 or 5 or 6 or 7 or 8 or 9 or 10 (161050)
 - 12 3 and 11 (6078)
 - 13 limit 12 to english language (5780)
 - 14 limit 13 to yr="2010 -Current" (3702)