

# Symposium

**Digital divide theory: What is old is new again in an era of health technology and artificial intelligence** M. Bults (the Netherlands), C. Daum (Canada) (Convenors). *Gerontechnology* 25(s)

**Participants (in alphabetical order):** G. Bin Noon (Canada), M. Bults (the Netherlands), C. Daum (Canada), M.E.M. den Ouden (the Netherlands), S.W.M. Groeneveld (the Netherlands), G.C. Kloek (the Netherlands), D. van der Linden (the Netherlands), L. Liu (Canada), A. Miguel Cruz (Canada), P.P. Morita (Canada), A. Rios Rincón (Canada), H. Ross (Canada), S. Salim (Canada), A. Simard (Canada), A.M. Tinga (the Netherlands), T. Van Katwyk (Canada). These participants include members of *Cross-Cultural responsive and accessible Technologies for Societal impact (CCTS-network)* (<https://uwaterloo.ca/aging-innovation-research-program/cross-cultural-responsive-and-accessible-technologies>). **ISSUE** Responsive and accessible technologies for societal impact allow older adults to participate in society. Technology can assist older adults in their day-to-day lives. Furthermore, technology, including artificial intelligence (AI), can facilitate diagnosis and preventive screening, manage chronic conditions through monitoring vital signs and activity patterns, and encourage social and leisure activities to help people stay active and connected. The use of technology (e.g., remote monitoring and care) has the potential to ease the pressure on health and social care providers who serve older adults. However, this use of technology, including AI, raises questions about equitable access and has ethical implications. Moreover, although there is a rapid development of innovative health technologies, acceptance among older adults (especially those with lower socioeconomic position or limited digital literacy skills) and implementation in daily life and organizations is challenging. These technologies are changing the landscape of health care and social work practices. Rapid development of AI will bring about new disciplines and career opportunities. This evolution calls for future-proofing our next generations of scholars and service providers. **CONTENT** The purpose of this symposium is to present and discuss perspectives and challenges in education and practice by interdisciplinary researchers with backgrounds in rehabilitation, engineering, public health, social work, and nursing from Canada and the Netherlands. These countries share demographic characteristics including the growing population of older adults and increasing gaps between the rich and poor. We will critically reflect on dimensions of the digital divide theory<sup>1,2</sup> to consider issues and new elements regarding responsive and accessible technology for older people, i.e. physical and material access, motivation, skills access and usage access. The symposium begins with a comparative analysis of the digital divide in remote and underserved communities in Canada and the Netherlands and explore strategies to address the divide (Morita, Bin Noon, Salim, Bults, den Ouden, van der Linden, Daum, Ross, Simard, Miguel Cruz, Liu). Next, we examine educational strategies that prepare health and social work professionals for technology-rich work environments using examples of successful curriculum innovation in the Netherlands and Canada (den Ouden, Tinga, Kloek, Morita, Rios Rincón, Groeneveld). The symposium concludes with an interactive workshop that explores ways to empower older adults and care partners in meaningful conversations regarding technology and their future of care (Groeneveld, Van Katwyk). **CONCLUSION** The symposium will provide participants with inspiration, reflection, insights and tools for the adoption and implementation of responsive and accessible health technologies for older adults using international perspectives.

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2. Lythreath S, Singh SK, El-Kassar AN. The digital divide: A review and future research agenda. *Technological Forecasting and Social Change*. 2022 Feb 1;175:121359.

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# Symposium

**The digital divide in remote Indigenous and underserved aging communities** P.P. Morita (Canada), G. Bin Noon (Canada), S. Salim (Canada), M. Bults (the Netherlands), M.E.M. den Ouden (the Netherlands), D. van der Linden (Netherlands), C. Daum (Canada), H. Ross (Canada), A. Simard (Canada), A. Miguel Cruz (Canada), L. Liu (Canada). *Gerontechnology* 25(s)

**Purpose** Older adults in rural and remote communities, such as Canada's North, face unique challenges in accessing digital technologies<sup>1,2,3</sup>. In Europe, underserved aging communities face similar challenges, which include unreliable Internet access, costly Internet service, and low digital health literacy<sup>2</sup>. These issues are heightened in First Nations Communities in Canada<sup>3</sup>, and immigrant older populations in Europe living with mental health challenges. These populations find themselves on the wrong side of the digital divide, currently with limited access to digital health initiatives when compared to other regions. The absence of basic IT infrastructure and connectivity in remote regions compounds this issue. Additionally, algorithms and AI models in digital solutions are typically developed using patient data that do not reflect the characteristics and clinical needs of underserved communities. **Methods** This practical presentation brings together expertise from Canada and the Netherlands to examine three use cases: (1) the deployment of Medly, a remote management program in northern First Nations communities in Canada<sup>3</sup>, (2) monitoring technologies for older adults in Canada, (3) online only mental health treatment in The Netherlands. International and interdisciplinary participants will propose strategies to address the digital divide. **Results and Discussion** The digital divide in First Nations communities and underserved aging populations in Europe risks widening if sophisticated technologies, such as AI do not consider the preferences and needs of communities with unique cultures and histories. When deploying Medly, Ross's team observed that older patients were unfamiliar with the concept of managing their own health, which presented a barrier to the deployment of digital health solutions. Their study demonstrated that digital therapeutics for heart failure, when combined with culturally safe and respectful in-person clinics and relationship building, can result in positive management of heart failure in First Nations communities<sup>3</sup>. Dr. Heather Ross leads the TRANSFORM HF program, where engineers, scientists and clinicians work in tandem with Indigenous health experts and patients to develop point-of-care diagnostics, wearables, and AI technologies to monitor and proactively treat people with heart failure in their homes. In the second use case initiative, our team tested a locating technology app. Local health professionals identified that community members were hesitant to use the app due to concerns about how the use and sharing of personal information. These concerns were rooted in historical oppression by non-Indigenous law enforcement. Indigenous protesters, who are now older adults, had tried to protect a sacred burial ground. This cohort is more reluctant than non-Indigenous older adults to use the technology which could trigger trauma associated with monitoring and surveillance. In the third use case, a network of professionals in mental health organizations in The Netherlands, are conducting a feasibility study on the use of online-only intervention. This study focuses on how new technological interventions can be implemented in practice, in close collaboration with people with mental health challenges and their network. We will present the end-users' experiences with this new intervention (e.g. strengths, limitations, and suggestions for improvement).

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**Keywords:** Rural health, Indigenous health, digital resources, underserved communities, comparative analysis

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# Symposium

**Bridging the gap: Preparing healthcare professionals for a digital future** M.E.M. den Ouden (the Netherlands), A.M. Tinga (the Netherlands), G.C. Kloek (the Netherlands), P.P. Morita (Canada), A. Rios Rincón (Canada), S.W.M. Groeneveld (the Netherlands). *Gerontechnology* 25(s)

**Purpose** Educational programs, healthcare, and social work services need to continuously innovate their practices to address the ageing in global populations. Increasing numbers of people with chronic diseases and co-morbidities, along with increased disparities and digitization of our societies, impact healthcare and social work services. The use of emerging technology can help with these challenges. For instance, technologies can bridge the gap between the increasing demand for care in times of staff shortages. However, to reach this potential, application and use of such technologies need to be incorporated into educational programs to future-proof professionals and prepare these leaders to successfully integrate technologies into practice<sup>1</sup>. **Method** This presentation explores educational strategies that prepare healthcare professionals for technology-rich work environments. We present examples of successful curriculum innovation in The Netherlands and Canada, including: 1) competency scan to assess technology-related skills and attitudes among students, educators, and professionals, guiding targeted educational interventions.; 2) use of Generative AI in the classroom, exploring the balance between preparing health professionals to use new pervasive tools while ensuring academic integrity; 3) creation of a digital story that integrates concepts of occupational participation, technology, and the digital divide; 4) classification framework for technology to support educators and learners in understanding and applying technology in social work practice. **Results and Discussion** A competency scan was developed based on literature, expert interviews and data collection in 900 teachers and health care professionals. The final version includes 26 items regarding: 1) attitude; 2) technological self-efficacy; 3) intention to use; 4) facilitating conditions; 5) knowledge; 6) skilled use; 7) critical assessment; 8) advising the organization. In a follow-up study in the Netherlands among teachers and students, respondents had positive attitudes and strong willingness to learn about technology. However, self-assessed competence scores were notably lower. These findings highlight the need for targeted educational support and underscore the importance of embedding technology competencies in professional training and preparing our future health professionals for the AI transformation. In a separate initiative, students engaged in a digital storytelling assignment that explored occupational participation, technology, and the digital divide. Their projects reflected diverse and often marginalized populations. Students demonstrated creativity and conceptual depth, while also enhancing their digital literacy and confidence in using multimedia tools to communicate complex ideas around equity, inclusion, and technology in occupational therapy. A third example is a technology classification system co-developed with social work professionals and based on literature. The classification includes five categories representing different functions that technology can fulfill in social work: 1) part of service delivery, 2) stimulating access and collaboration, 3) workflow and process optimization, 4) early signs identification and prediction, 5) professionalization. These examples illustrate how tailored instruments, creative assignments, and functional frameworks can be leveraged to embed technological literacy and critical thinking into professional education. To truly prepare the next generation for the digital age, we must move beyond access and enthusiasm—toward intentional, inclusive, and context-sensitive integration of technology in curricula and practice.

## References

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**Keywords:** Education, technology, competencies, curriculum, future-proof

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# Symposium

**Supporting ethical conversations regarding technology and the future of care for older adults: Participatory tools for care and reflection** S. Groeneveld (the Netherlands), T. Van Katwyk (Canada). *Gerontechnology* 25(s)

**Purpose** As healthcare for older adults becomes increasingly influenced by technologies, the ethical implications of this transformation demand critical and inclusive reflection<sup>1</sup>. A key challenge is how to open the playing field so that all stakeholders, from older adults to caregivers and technologists, can meaningfully participate in discussions about the use of these technologies. Open dialogue and social elements could help to cope with the digital divide<sup>2</sup>. We will consider some of the basic principles of participatory action research in our considerations of care, reflection, and technology. **Method** This practical presentation brings together expertise from the Netherlands and Canada to explore how we can empower everyone involved in the care of older adults including older adults themselves, as well as (in)formal caregivers such as family members, nurses, social workers, and occupational therapists, and also managers, IT specialists, and designers, to engage meaningfully in conversations regarding technology and the future of care for older adults. Building on principles of participatory action research, we will present a set of conversational tools co-created with older adults, caregivers, researchers, ethicists, and artists. These tools, ranging from short films and poetry to scenario-based exercises inspired by speculative fiction, invite participants to imagine future care practices and critically reflect on the values embedded in them<sup>3,4</sup>. For example, a short film on data use in care has repeatedly shown to spark rich value-based discussions among care professionals, care recipients, and other stakeholders. **Results and Discussion** Our aim is to enable all those involved in the care of older adults to move beyond being passive users of technology and become active participants in shaping how it is adopted and embedded in practice<sup>5</sup>. In doing so, this work aligns closely with ISG's themes of preserving autonomy, enhancing quality of life, and guiding care innovation, grounding these goals in the real needs and perspectives of older adults through open dialogue.

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**Keywords:** Ethics, speculative fiction, participatory action research, technology, conversational tools

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