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Be EPIC-VR Impact Report

Background

Personal support workers (PSWs) play a crucial role in dementia care, yet their formal training overlooks complex dementia-related communication impairments and responsive behaviours. Our team created **Be EPIC-VR**, an innovative dementia-specific, person-centered communication training program for frontline healthcare workers that uses virtual reality. Person-centered communication (PCC) addresses unique unmet needs of persons living with dementia (PLWD) by incorporating their life histories and preferences during care¹, and includes recognizing, negotiating, facilitating, and validating PLWD²⁻⁸. **Care without person-centered communication is task-focused**⁹. It results in expressions of distress and refusing care by PLWD¹⁰, and elder abuse and standard of practice breaches, as noted in the Canadian Armed Forces report during the COVID-19 pandemic's first wave¹¹.

Be EPIC-VR focuses on assessing the [E]nvironment, using [P]erson-centered communication, focusing on client/resident relationships ([I] matter too), and incorporating the [C]lient's/resident's abilities, life history and preferences during care. Be EPIC-VR's content and delivery integrate the attributes of cultural humility (openness, self-awareness, being egoless, supportive interactions, and self-reflection and critique).

Key Features of Be EPIC-VR

1. Be EPIC-VR blends asynchronous and synchronous learning for self-paced study using immersive VR with real-time interactions with avatars for skill-building. Training includes **interactive modules** where participants learn what it looks like, sounds like, and feels like to be person-centered and to receive person-centered care.
2. Be EPIC-VR uses advanced speech recognition and **conversational artificial intelligence** to allow users to communicate with avatars naturally in real-life care scenarios.
3. Be EPIC-VR's custom-built simulations are realistic and include **avatars from racialized backgrounds** -reflecting the diverse Canadian population. Participants practice skills/newly learned content in VR simulations and receive immediate feedback on their strategies' effectiveness through avatar responses, simulation clues, peers and Be EPIC-VR facilitators.

Be EPIC-VR is designed to promote equity, diversity, and inclusion

It achieves this by including avatars that were designed carefully to depict persons living with dementia from racialized groups. This ensures that the training addresses the diverse needs of persons living with dementia and is culturally responsive. In addition, the **remote delivery of Be EPIC-VR reaches a broad and representative audience of healthcare staff from**

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FSC is a forward-thinking centre for research and collaboration dedicated to preparing Canadians for employment success. We believe Canadians should feel confident about the skills they have to succeed in a changing workforce. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure, and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead. The Future Skills Centre was founded by a consortium whose members are Toronto Metropolitan University, Blueprint ADE, and The Conference Board of Canada

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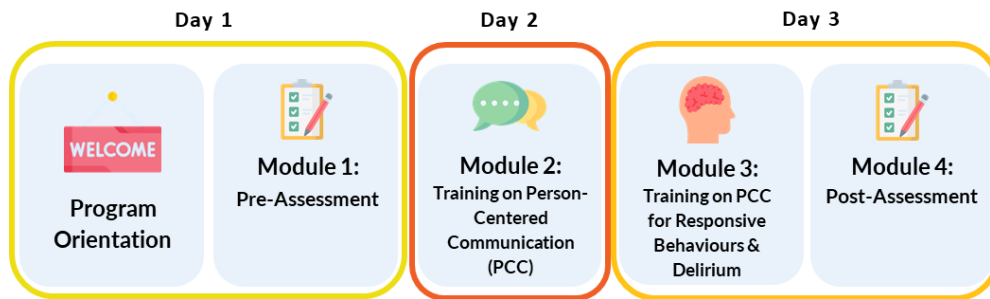


diverse locations, cultural backgrounds, and linguistic backgrounds. This remote deployment eliminates the resource demands associated with in-person training, such as finding and training actors to depict persons living with dementia for the simulations. This accessibility is a crucial advantage, ensuring that a wider audience of healthcare staff can benefit from Be EPIC-VR.

Detailed Overview of Training Days

Be EPIC-VR is an 11-hour training over 3 days*.

- **Module 1** (Day 1) includes an overview, a custom-built onboarding to use the head-mounted headset and interact in the VR environment, and data collection (survey plus video-recording an assessment simulation between each user and an avatar with dementia).
- **Module 2** (Day 2) includes identifying PCC and language-based and nonverbal strategies supporting PCC, as well as using PCC with activities of daily living and dementia-related communication difficulties.
- **Module 3** (Day 3) focuses on responsive behaviours, identifying different types of delirium, often similar in presentation to dementia, and using PCC to address responsive behaviours and symptoms of delirium.
- **Module 4** (Day 3) mirrors module 1 ending with debriefing/feedback on Be EPIC-VR.
- Modules 2 and 3 combine asynchronous and synchronous training components.
 - The **asynchronous components** include highly interactive activities that involve problem-solving real-life dilemmas.
 - The **synchronous component** includes practicing the newly learned skills from the asynchronous component **using VR simulations**. The simulations involve avatars depicting moderate-stage Alzheimer's dementia. The simulation experience ends with debriefing that includes users' reflections on their interactions with avatars and feedback from peers and Be EPIC-VR trainers. The simulations replicate **real-life scenarios where users interact with avatars depicting persons living with dementia**. Real-world conversational data was used to create dialogue scripts for the VR avatars, ensuring that interactions felt natural and realistic. These avatars can speak, move within the environment, and display emotions. Speech recognition and conversational artificial intelligence are integrated to enable natural interactions between users and the avatars within the VR environment.



***Note: The Be EPIC-VR team is very open to customizing the schedule to meet the scheduling needs of each site.**

The Impact of Be EPIC-VR

Dr. Savundranayagam and her team created the Be EPIC and Be EPIC-VR training programs, which teach frontline care workers to use person-centered communication when supporting PLWD. It is noteworthy that the team has created 158 knowledge translation products related to Be EPIC and Be EPIC-VR. This includes 11 peer-reviewed publications, 87 presentations (36% invited), 20 media interviews, 14 written and audio plain language summaries, 2 videos and a pitch deck. One video describes the components of Be EPIC-VR, <https://youtu.be/Q5Ool3kXRWg>; the second video describes the impact of Be EPIC-VR, <https://www.youtube.com/watch?v=R3Tnz21PZHg>. These materials were essential in achieving the most significant outcomes from the Be EPIC-VR trial: [its adoption by Ontario Health \(West\)](#) in January 2024 and [Alzheimer Society Peel](#) in March 2024. The team is working with policymakers to deem Be EPIC-VR as a recommended training by Behavioural Supports Ontario. **This marks the first major steps toward scaling Be EPIC-VR.**

The following is a [summary of the results](#) stemming from the pragmatic trial related to Be EPIC-VR. Guided by the Consolidated Framework for Implementation Research (CFIR) and Fox's taxonomy of VR research, the projects funded by Future Skills Centre used an effectiveness-implementation hybrid design to assess the effectiveness of Be EPIC-VR and to assess factors influencing its implementation in home care and long-term care (LTC) settings. Phase 1 (2022) involved beta-testing Be EPIC-VR with personal support workers (PSW) had previously completed the in-person version of Be EPIC. Phases 2-3 involved a pre-post design assessing Be EPIC-VR's implementation with managers, who are key healthcare decision makers in home care and LTC homes. Phases 2-3 included pre- and post-implementation interviews and pilot-testing of Be EPIC-VR with managers. Phase 2 was completed in April 2023. Phase 3 included an immediate post-interview (May 2023) and a 5-month follow-up interview (Oct. 2023). Phase 4 included pilot-testing Be EPIC-VR with PSW (Aug. 2023). Phase 5 included testing Be EPIC-VR's effectiveness using an immediate training group and a waitlist control group (Sept-Dec 2023). A total of 52 participants received the Be EPIC-VR training (8 managers and 44 PSW). This implementation timeline highlights the team's recruitment success. [Data collection of all 5 phases is complete. Analyses of phases 1-3 are complete.](#)

Phase 1 – The transformation success of Be EPIC-VR

There is limited research on implementing VR to train frontline healthcare workers. The first phase compared the simulation experiences of Be EPIC-VR with Be EPIC-in person and real-world clinical encounters. We also explored factors influencing the future implementation of Be EPIC-VR in LTC home settings. Thematic analyses revealed two themes contributing to the simulation's realism: the immersive nature of the virtual environment and the accuracy of the avatar's visual, verbal, and behavioural characteristics. PSW highlighted the importance of sufficient technological infrastructure and workplace personnel who can assist with Be EPIC-VR implementation. The findings highlight the potential for scaling Be EPIC using VR and provide insights [into the iterative process involved in translating an in-person training into a VR training program.](#)

Phase 2 & 3– Assessing openness and success for the Be EPIC-VR implementation

The second phase included pre-implementation interviews with managers to identify **facilitators and barriers to implementation**. Our analysis focused on three CFIR domains: innovation, individual and inner setting. Three themes were linked with the successful implementation of Be EPIC-VR: organizational context, organizational readiness, and staffing. Managers expressed a pressing need for training within their organization and a notable desire for change. Managers identified a need for dementia-specific training for PSW, which evolved from limited training during the COVID-19 pandemic, and a need for care practices to change. Specifically, there was a need to train PSW on how to address responsive behaviours and communication difficulties to enhance the quality of care. Indeed, this organizational context influenced the organizational readiness for Be EPIC-VR, which was evidenced by the following subthemes: relative priority for Be EPIC-VR, relative advantage of Be EPIC-VR, readiness for remote delivery, and openness to VR technology. Managers reported a strong willingness to prioritize Be EPIC-VR's implementation because it aligned with organizational goals to reduce and address responsive behaviours. The innovative aspects of Be EPIC-VR offered a relative advantage compared with existing training programs. Specifically, managers valued the hands-on VR simulations, the ability to practice new skills in a safe environment, and personalized feedback. All managers believed their organizations had sufficient resources to support remote delivery, including stable internet connections, dedicated training spaces, and computers for trainees. Moreover, managers expressed openness to VR as an innovative training method, but some had concerns about how less tech-savvy staff may perceive Be EPIC-VR. Finally, staffing was the major barrier affecting Be EPIC-VR's implementation. Overall, **the analysis highlighted the organizational readiness and support for Be EPIC-VR, with an emphasis on its relative advantage and willingness of organizations to prioritize its implementation.**

We integrated pre-implementation interviews findings into our implementation plan. First, we ensured that organizations were prepared for remote training. Second, we addressed concerns about less tech-savvy staff by providing a technology orientation where participants could familiarize themselves with the VR environment before training. Third, we addressed staffing challenges by having one manager at a time from each organization participate in Be EPIC-VR to ensure sufficient staff presence 'on the floor'. This strategy was used in Phases 4-5 with PSW. Overall, the findings enabled effective planning and leveraged the need, organizational readiness, and available resources while addressing barriers. This approach drove the adoption and the impact of Be EPIC-VR in improving care practices of PSW. Additionally, our findings offer valuable insights for researchers and practitioners working to implement new virtual reality interventions in home care and LTC settings.

The third phase included **analysis of interview data collected immediately and 5-months after Be EPIC-VR implementation with managers**. Themes related to the effectiveness of Be EPIC-VR include a) the transferability of learning to care practices, b) self-reflection and personal/professional growth, c) safe learning environment, and d) addressing knowledge gaps. Managers reported that Be EPIC-VR enhanced dementia care practices of their staff by providing strategies applicable to real-life situations, enabling staff to address responsive behaviours effectively, and ensuring the safety of both staff and residents.

One manager expressed, *“It really is a very interesting concept of learning. I think that it pushes you beyond what you’d normally think about”*. They acknowledge the importance of looking for clues in residents’ rooms before initiating conversations. All managers found learned something new, regardless of experience in person-centered communication, highlighting Be EPIC-VR’s relative advantage. Personal and professional growth are fostered through Be EPIC-VR’s emphasis on self-reflection, benefiting the personal lives of staff members as they gain insight into their communication. This was evidenced by the following quotations from experienced managers: *“I’m 40 years in the field, so I’m gonna say there’s nothing that I’ve had that was more successful in making me understand who I am as a caregiver.” “You learn more about yourself and how you provide care and you become more self-aware.”* Managers recognized Be EPIC-VR as a catalyst for pushing beyond traditional learning boundaries by offering a safe learning environment where they can practice new skills to improve quality of care. Managers reported that Be EPIC-VR addressed knowledge gaps and adapted to changing demographics of both staff and PLWD. They specifically commented on Be EPIC-VR’s ability to reach a wide audience, including those whose first language is not English. They reported continuous learning and skill refinement with each VR simulation, leading them to *“strongly support and recommend” Be EPIC-VR to their PSWs. They “believe this is going to make changes with the quality of care that residents are going to receive”*.

Phase 4 &5 - Testing the effectiveness of Be EPIC-VR

Analyses are underway for focus group data in **Phases 4-5** with PSW and indicate similar findings as managers. Quantitative analysis of Phases 4-5 data indicated significant increases in the perceived communication skill and in competence of PSW in caring for persons living with dementia. Qualitative analyses of the focus group data indicate that:

1. Be EPIC-VR **empowered frontline staff** by acknowledging their role in care delivery. This is reflected in the “I” in Be EPIC, which refers to “I [caregiver] matter” and evidenced by the following:

“I really believe that it’s us frontline staff. It’s the PSWs at heart...We’re the ones that need [Be EPIC-VR] the most.”

2. Participants valued the **practical application** of new learning.

“I’ve learned a lot of this [type of content] over and over again in different venues. [Be EPIC-VR] is neat because you can put it into perspective immediately. So that’s, I think, what is very unique about this. Like you’re able to practice what you’re learning as you’re going.”

3. They also valued **experiential learning**:

“You can answer questions on the computer all day long [...] But [in Be EPIC-VR], you’re literally doing as you learn.”

4. Be EPIC-VR **fills the strong need for dementia-specific communication training**. PSW described increased awareness of the impact of their communication with a person living

with dementia, along with increased confidence in providing person-centered care and developing better relationships. The strategies mentioned to be useful included allowing persons living with dementia more time to respond, approaching and engaging them, addressing care refusal, awareness of the environment, and reducing use of stigmatizing language.

- a. *[Be EPIC-VR] was really good [...] I'm catching myself now doing those things and retraining my language towards it."*
- b. *"I am finding I'm actually referring back [to Be EPIC-VR for real life interactions] and just like if we have a moment of, you know, pause or whatever, I'm trying to think 'What's my next step here? Like where are we in this conversation?'"*
- c. *"I've been able to kind of switch my language has been really cool for me because you never notice the words you're using or the key terms that you have until you kind of go into a session. So, finding different language for communicating with your resident, not just about them, has been really nice for me because now not just am I having that humanizing, dignifying language to my staff, I can also do that with my residents now. And like it was already before, but now it's a little bit better where there's different key terms."*

5. Participants valued the **cultural and linguistic sensitivity that was built into Be EPIC-VR**. Specially, they appreciated that the content and delivery respected the needs of participants with English as a second language.

"We needed more of this, especially us that don't [have] English [as] our first language. [...] It's good that there's some learning like this to enhance more of our speaking and language skills."

6. Participants valued the **constructive feedback from Be EPIC-VR facilitators**.

"[Having] someone tell me what did I do or what did I say wrong? Like, it's good because we want that. We want to be corrected, not for the bad, but for the good, for to be a better PSW, right? So it's actually the perfect opportunity for us to grow more."

Finally, 98% of participants found the training to be useful and stated that they would recommend the training to others. Nearly 80% had already recommended the training to others during post-training data collection. This was a factor that helped us with recruitment. Regardless of the range in experience and education level of the PSWs, Be EPIC-VR helped improve their competencies in providing person-centered dementia care.

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