Virtual Reality Adaptation of Be EPIC: Pre-Implementation Studies of Person-Centered Dementia Care Training

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Abstract

Background and Objectives: Person-centered communication is critical in dementia care, yet personal support workers (PSWs) often lack sufficient training, which can reduce care quality. Be EPIC is an in-person training that teaches learners to build person-centered communication skills using actor-based simulations. A virtual reality (VR) version of Be EPIC was developed to expand access and consistency. Two pre-implementation studies explored factors influencing Be EPIC-VR's implementation by assessing readiness for VR training among managers and realism and usability from PSWs' perspectives.

Research Design and Methods: Study 1 used the Consolidated Framework for Implementation Research (CFIR) to assess readiness for VR training through semi-structured interviews with managers of PSWs (n=9) in long-term and home care settings. Interviews focused on CFIR's innovation, inner setting, and outer setting domains. Guided by Fox's taxonomy of VR research, Study 2 involved PSWs (n=7) who completed a Be EPIC-VR simulation and were interviewed about its realism, usability compared to live actors, and implementation factors related to CFIR's innovation and inner setting domains.

Results: Study 1 identified four themes: external pressures for organizational sustainability, organizational culture supporting staff development, staffing and training logistics, and openness to VR for training. In Study 2, PSWs described VR simulations as immersive and realistic, though some reported limited mobility and headset incompatibility. While managers expressed concerns about the use of VR technology, PSWs noted that clear onboarding and facilitator guidance ensured accessibility. Both groups confirmed sufficient structural resources for implementation.

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Discussion and Implications: Successful implementation of VR-based training in dementia care depends on aligning implementation readiness, organizational culture, and logistical resources. Early end-user engagement and an iterative approach enabled continual refinement of Be EPIC-VR based on managers' openness to VR and PSWs' user experiences. The findings position VR training as a promising method to improve dementia care.

Translational Significance

Virtual reality offers a scalable and interactive approach to dementia care training, but successful adoption requires pre-implementation assessments. The two studies identify implementation readiness factors and end-user insights to guide the transition of Be EPIC into Be EPIC-VR for home care and long-term care settings. Key findings demonstrate solution-oriented approaches for overcoming barriers related to implementation readiness, technology adoption, and logistics. By integrating end-user feedback and iterative adaptation, the findings advance research on how best to integrate VR-based training as a viable tool for workforce skill development and care quality improvement before full-scale implementation.

Keywords: Person-centered communication, Long-term care, Home care, Workforce, Consolidated Framework for Implementation Research (CFIR)

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Background and Objectives

In Canada, personal support workers (PSWs) are unregulated care providers who deliver hands-on assistance with daily activities such as bathing and dressing, primarily in long-term care and home care settings. Although they are integral to the healthcare workforce, PSWs often receive limited formal education and training on addressing the complex communication and behavioral challenges associated with dementia.[1] To address this gap, Be EPIC[2] was created as an interactive and in-person program that trains PSWs with person-centered communication skills. Be EPIC uses experiential learning via trained actors who depict persons living with dementia. Simulation-based learning, paired with critical self-reflection and immediate debriefing/feedback from peers, actors, and trainers, enhances person-centered communication and ensures sensitivity to diversity in care.

Be EPIC's content is grounded in three theoretical perspectives: Kitwood's personhood framework,[3] which emphasizes life history and existing abilities of people living with dementia; the Communication Enhancement Model,[4] which recommends adjusting communication strategies based on actual abilities; and the Need-driven, Dementia-Compromised Behavior[5] theory, which links responsive behaviors to unmet needs shaped by biological and contextual factors. These frameworks foster cultural responsiveness by focusing on life history, tailored communication, and the impact of social context, including intersecting identities. Person-centered communication overlaps with intersectional cultural humility, which is an ongoing process of openness, self-awareness, being egoless, supportive interactions, and self-reflection and critique.[6,7] Both address the psychological needs of persons living with dementia by helping to reduce responsive behaviors and work-related stress for PSWs. Be EPIC's delivery incorporates elements of social cognitive theory,[8] enhancing self-efficacy through goal-setting,

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skill practice, modeling, and gradual behavioral changes.[9,10] While shown to be effective,[2,11] scaling Be EPIC is limited by resource-intensive requirements, including actor recruitment and training, and establishing consistency of delivery across sites and over time.

Virtual reality (VR) is an innovative, scalable method to deploy Be EPIC's simulations with high levels of consistency. VR immerses users in realistic, computer-generated simulations of three-dimensional environments with interactive[12] avatars representing persons living with dementia. Fox and colleagues'[13] taxonomy of VR research classifies VR as an object, comparing human experiences within VR to real-world interactions. Avatars can elicit the same communication and physiological behaviors from users who interact with humans.[13,14] VR simulations provide high experimental control via consistently delivered simulations[15] and facilitate efficient data collection of verbal and non-verbal communication behaviors.[13] VR permits greater demographic representation through the inclusion of culturally diverse avatars.

However, there is limited research on using VR to educate and train PSWs.[16] Existing research using VR for clinical skills training excludes PSWs, targeting health professionals, such as registered nurses and surgeons, and students in medical, nursing, or pharmacy schools.[16–18] In dementia education and training, VR fosters empathy by simulating the experience of living with dementia,[19–21] rather than developing practical skills PSWs need for person-centered communication.

The Current Research – Two Studies

The successful implementation of training innovations, such as VR for care staff, depends on their alignment with existing practices, values, and resources of care organizations.[22,23] To guide the adaptation of Be EPIC into a virtual reality format (Be EPIC-VR), we conducted two pre-implementation studies informed by the Consolidated Framework for Implementation Research

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(CFIR)[24] and Fox's taxonomy[13] of VR research (Figure 1). The first study assessed implementation readiness for Be EPIC-VR across long-term care and home care managers, focusing on CFIR constructs such as compatibility, availability of resources, and openness to innovation. Next, we adapted the in-person Be EPIC program into Be EPIC-VR (Figure 2). The second study explored PSWs' experiences with the VR simulations, focusing on realism, usability, and training relevance. Together, the studies identified implementation considerations critical to supporting the broader adoption of VR-based communication training in long-term care and home care settings.

In Study 1, we conducted a pre-implementation assessment of readiness for VR-based training among managers of PSWs in long-term care and home care settings. The aim was to identify facilitators and barriers to implementing Be EPIC-VR during its nascent stages. Study 1 used CFIR constructs across innovation, inner setting, outer setting, and implementation process domains.[24] Within the *innovation* domain, we examined Be EPIC-VR's relative advantage over current training, its complexity (i.e., ease of understanding and implementation); and its trialability (i.e., how Be EPIC-VR can be tested initially on a small scale). Within the *inner setting* domain, compatibility was assessed by evaluating alignment with current and future organizational training values and needs. The *outer setting* domain examined external influences on the implementation process. Findings informed the iterative development of Be EPIC-VR's components, which were subsequently tested in Study 2.

Study 2 adopted a stepwise, iterative approach to refine and test the VR components of Be EPIC-VR. Ensuring usability is critical when adapting an in-person simulation into a three-dimensional virtual environment. Using Fox and colleagues' taxonomy of VR research,[13] we examined Be EPIC-VR as an object by first testing the assessment simulations with PSWs, rather

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than building the entire VR components upfront, and comparing them to actor-based simulations and real-world encounters. Additionally, we identified facilitators and barriers to implementing Be EPIC-VR from PSWs' perspectives within CFIR's innovation and inner setting domains.[24] Within the innovation domain, we examined the design and complexity of Be EPIC-VR. Within the inner setting domain, we examined available resources. This process enabled ongoing refinement of VR simulations to meet users' needs.

Together, Studies 1 and 2 represent essential pre-implementation steps in a proof-of-concept approach for using VR to educate and to train PSWs on person-centered communication. They explore the feasibility of VR-based simulations compared to live actors and the organizational and technological factors influencing implementation in dementia care. These insights inform future refinements and evaluations of Be EPIC-VR.

Be EPIC-VR was adapted from the in-person version with key modifications. The following sections outline the similarities and differences between Be EPIC's in-person and VR versions (see Figure 3). Both versions include a two-week training of four modules across two sessions, with Modules 1 and 2 on session one, and Modules 3 and 4 on session two. Both sessions are facilitated by trained instructors. The module content remains identical. Modules 1 and 4 involve data collection, including surveys on communication skills and work competence, along with video-recorded simulated care interactions. Modules 2 and 3 are the training modules, which include content learning, simulation practice with debrief, and group discussion. Module 2 focuses on identifying person-centered communication and supportive nonverbal[23] and language-based strategies[24,25] (e.g., using open-ended questions that rely on semantic memory) and their application during activities of daily living and meaningful activities. It also addresses missed opportunities for person-centered communication and how to avoid stigmatizing language.[26,27]

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Module 3 focuses on responsive behaviors, the different types of delirium, and how to use person-centered communication in those contexts. The simulation vignettes are based on extant research, audio-recordings of conversations between persons living with dementia and formal caregivers from previous research,[24,28,29] and Be EPIC advisory board members' input. The advisory board includes persons with lived experience, employment partners, and researchers.

The following modifications transformed the training to a fully remote, VR-based format. First, the training was conducted in real-time via virtual meeting platforms with group sizes (four instead of eight) to optimize learner engagement. Second, an additional hour was added to the first session to familiarize participants with VR technology. Third, the slide-based didactic content learning in Modules 2 and 3 was replaced with interactive, asynchronous online learning modules. Finally, instead of trained actors, the VR version features avatars with embedded speech recognition and conversational artificial intelligence for natural interactions. The dialogues used in simulations are from the research group's anonymized audio (n=92) and video (n=317) conversational databank[13,29–31,33,42] of interactions between PSWs and both trained actors and persons living with dementia.[11] This allowed us to create avatars who are realistic and not stereotypic,[11] currently represented by a White man and a South Asian woman. Participants interact naturally with avatars and their environments using a fully immersive head-mounted VR headset. To minimize nausea and eye strain, simulations last 20 minutes, with breaks and transitions in scenes marked by a black screen.

Study 1: Implementation Readiness for VR

Research Design and Method

Participants: Nine employers and managers participated in the study: five from two long-term care homes and four from two home care agencies, all located in London, Canada.

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Roles included senior leadership (n=2), administrators (n=3), and clinical leadership (n=4). Eight participants were from for-profit organizations. Ethics approval was obtained from the Western University Research Ethics Board (REB # 118327). All participants provided written consent.

Procedures: Semi-structured, one-hour interviews were conducted with each participant via phone or secure video conference. Interview questions (see Supplementary Material, interview guide A) were guided by CFIR[24] and explored current and future training priorities, openness to VR-based training, and perceptions of Be EPIC-VR's potential for implementation. After presenting an overview of Be EPIC and the planned VR adaptation, participants were asked about its perceived fit with existing training, anticipated advantages, complexity, and conditions for piloting. All interviews were audio-recorded and transcribed verbatim.

Data Interpretation: We used the Framework Method for qualitative data analysis, following the five-step process outlined by Ritchie and Spencer:[25] familiarization, identifying a thematic framework, indexing, charting, and mapping/interpretation. Although CFIR informed the design of our interview guides and initial analytic orientation, two members of the research team began with open coding during the familiarization phase to remain grounded in the language and experiences of participants. This is consistent with prior applications of the Framework Method and CFIR-guided studies, which recommend using open coding early on, even when an a priori framework is in place.[26–28] During the familiarization stage, each researcher independently reviewed two selected transcripts, which involved repeated readings, listening to the audio recordings, and noting strong or contrasting perspectives, initial ideas, and recurring topics. Initial codes generated during familiarization were then organized into a working thematic framework using a combination of deductive coding, based on CFIR constructs (e.g., structural characteristics, available resources, complexity), and inductive coding,

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to capture emergent ideas that extended beyond the CFIR taxonomy. The thematic framework was refined by applying it to two additional transcripts and was discussed in collaborative analytic meetings. Throughout the analysis, the team engaged in reflexive discussions to examine how individual perspectives and prior experiences with dementia care and VR technology could influence coding and theme development. During these sessions, the research team compared coding decisions, identified areas of overlap or divergence, and iteratively refined the framework by collapsing, reordering, or removing codes and themes. Data saturation was reached after analyzing five interviews, at which point no new inductive codes were emerging. Once the framework was finalized and data saturation reached, the remaining transcripts were systematically indexed and charted using a matrix to organize themes by case and code. The entire research team reviewed the completed charting process to verify accuracy, assess coherence across themes, and finalize the interpretation. This mapping and interpretation stage supported the development of broader analytic categories, clarified the relationships between themes, and ensured that both deductively and inductively derived insights were appropriately integrated. By combining the structured lens of CFIR with the flexibility of open coding, the analysis preserved theoretical alignment while remaining responsive to the complexity of participants' experiences.

Results

Readiness for VR Training

Four themes emerged as factors contributing to readiness for VR training within CFIR domains: external pressures for organizational sustainability (outer setting domain), organizational culture supporting staff development (inner setting domain), staffing and training

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logistics (inner setting and innovation domain), and openness to VR for training (innovation domain). Table 1 provides an overview of the key themes and their CFIR constructs.

1. External pressures for organizational sustainability

Market pressures (outer setting domain) in the for-profit sector positively influenced managers' readiness to implement Be EPIC-VR. Managers from two for-profit organizations reported the need to remain competitive and attract clients by offering high-quality care delivered by skilled PSWs.

"It's a very competitive marketplace for our business. We're a for-profit company, we are in the business to make money. But our concept of how we make money is we are the best at what we do, and that will differentiate us in the marketplace. So, to be the best, we have to have a high-quality well-trained workforce to obviously deliver the best care." (M4)

Both for-profit and non-profit organizations shared that government legislation (outer setting domain) was a key factor influencing Be EPIC-VR's implementation, as it dictates the mandatory training available to staff. Managers shared that Ministries "*can be very regimented and strict about who can do what"* (M9). They noted the alignment of Be EPIC-VR with legislative training requirements:

"Many of our training requirements are dictated by our legislation [...] it dictates that we must review responsive behaviors, which is usually correlated to dementia. So, there is strong oversight, so I think [Be EPIC-VR] would fit well and it would be an opportunity to do something different than what we do every year." (M7)

2. Organizational culture supporting staff development

Managers shared a tension for change within their organizations (inner setting domain) to shift from task-oriented to person-centered dementia care. This shift was seen as conducive to

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implementing Be EPIC-VR, which focuses on person-centered communication. A manager from a not-for-profit organization stated:

"I think the communication piece is actually very critical. I know that's a huge component of the Be EPIC piece, but I think that sometimes because [PSWs are] focused on the task, right? That [Be EPIC-VR] might actually work in because it does make them focus on that more than the physical function." (M7)

Moreover, managers expressed interest in using Be EPIC-VR to help staff address responsive behaviors.

"I want my PSWs to have [Be EPIC-VR] because that's our struggle nowadays because our residents are changing and then their disease is progressing, their dementia. So sometimes [PSWs] are not so successful doing care because the resident is [displaying responsive behaviors], or the resident is very resistive." (M5)

Most managers reported that an organizational culture (inner setting domain) prioritizing staff well-being and ongoing skill development was key to Be EPIC-VR's implementation. Managers who supported PSW education and well-being were generally more open to implementing a new training program like Be EPIC-VR. One manager highlighted the empowering effect of ongoing education: *"I find a lot of training comes from making them feel empowered…if you make the caregiver believe that he or she is capable of handling that, they will perform better, right?"* (M2). Another manager described how training promotes a sense of accomplishment and builds staff confidence:

"PSWs are the first responders in the unit, so I feel like the more you train them they become more efficient and they feel valued, and the more information you give them, they see the ways they care for residents in a different perspective and it improves the resident care […]

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so the more you train them, they become experts and they share and at the end of the day, it's good for the residents and the staff and family members." (M3)

3. Staffing and training logistics

Available resources (inner setting domain), such as funding, staffing, and infrastructure within organizations, were key factors influencing Be EPIC-VR's implementation. All managers confirmed necessary infrastructure, such as a quiet training space, stable internet, and a computer with camera and microphone: *"We're good with the internet and we do have a room, it's dedicated to education and has a whiteboard and everything"* (M8).

All managers identified financial resources as a barrier to implementing Be EPIC-VR. They highlighted the need to weigh the program's benefits against its impact on budgets and PSW workloads:

"Budget is a part of the consideration for me to make a decision as to how we implement [Be EPIC-VR], whether or not we implement in the organization […] we need to understand the financial budget implication, the time and resource implication and whether or not we're adding more to the pile of things [PSWs] need to do, even if it's a good way." (M6)

For-profit organizations also stressed that evaluations are required to justify investing in upskilling PSWs:

"Actual good, strong evaluation is critical because it is going to be a fairly significant investment. So, if it's going to be a significant investment, you better have some pretty tangible and defined payoffs, or a business like mine won't buy in. You're going to have to sell it as something that makes our clients' lives better." (M4)

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All managers identified backfilling PSWs for Be EPIC-VR training as a barrier, worsened by ongoing staffing and recruitment challenges.

"We're going to be getting into more of a crisis with staffing. We seem to have a harder time finding people to work […] it would be an issue if there was like ten people we would have a hard time back-filling ten people on the same day, just because of staffing levels." (M9)

Fortunately, managers acknowledged that Be EPIC-VR's remote delivery and small-group format enhance trialability by offering flexibility within workflows and addressing resource constraints.

"If it was five people who were going to take it, it's not like you have to pull five people off the floor to do it at the same time. From a staffing perspective, I think it would be beneficial that way." (M7)

4. *Openness to VR for training*

Overall, managers expressed openness to using VR, acknowledging Be EPIC-VR's advantage over passive, traditional training methods and its immersive design that supports active learning (innovation domain). Managers called for engaging, and care-focused training:

"It has to be interesting. It has to be engaging. You have to try to get [PSWs] interested. We have to do all of these [trainings] every year, which is not necessarily new information, it's just, we have to do it. So it gets a bit, I'll say old because how many times can you read the Bill of Rights […] I think it's trying to find ways to be creative, to get the information they need to be successful in the job to be successful in interactions with residents […] teach them what they need to learn, but in a new and exciting way, as opposed to sort of the boring way that we do things." (M7).

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Managers appreciated Be EPIC-VR's design features, particularly practicing newly learned content within a fully immersive environment. These features were recognized as a way to enhance engagement and reduce distractions while learning:

> *"I think it would be better because of having that hands-on and it's interesting as well. I mean if someone's listening to me talk for four straight hours, there's going to be at least a couple moments where they're going to tune out, thinking about the grocery lists. But this is more involved, you're in there, you cannot tune out.*" (M1)

Managers further believed that the three-dimensional environment's realism may elicit physiological and emotional responses from PSWs: *"I feel like it just makes everything into real life…You have the realistic experience and for a minute you even forget it's not real because you get so drawn into it and your mind responds so well"* (M3). Moreover, they felt that PSWs are offered an emotionally safe space to gain person-centered communication skills before applying them in real-world settings: *"It would allow them to explore some possibilities in a safe environment. Maybe a non-judgmental environment"* (M8).

Finally, some managers expressed concerns about hesitancy among less tech-savvy as a potential limitation to successful implementation: *"There are going to be PSWS who aren't really tech-savvy; even getting them on a Zoom call might be a struggle" (M9)*. Despite this, managers remained optimistic, noting that knowledge gaps and hesitancy around VR could be addressed through education and support:

> "*I can't think of any reason why we wouldn't implement it across the board. It'll take a bit of an education process because new things scare people […] hopefully it will be just another part of our arsenal of tools to do quality training*." (M4)

Study 2: Testing Be EPIC-VR experience

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Research Design and Methods

Participants: Seven PSWs (6 females) from three long-term care homes in London, Canada participated in the study. Five PSWs identified themselves as White, one as Black, and one as Hispanic. The average age was 53.6 years (range: 37-62 years); the average work experience as a PSW was 22.08 years (range: 5.92 – 43 years). All participants completed the Be EPIC in-person training (in 2019/2020) and were recruited to compare VR simulations with actor-based simulations. Ethics approval for this study was obtained from the Western University Research Ethics Board (REB# 120713). All participants provided written consent.

Procedures: Each PSW completed a VR onboarding module, followed by a Be EPIC-VR assessment simulation (part of Modules 1 and 4) using an avatar whose gender matched that of the live actor they were working with during the assessment in the in-person version of Be EPIC. Be EPIC-VR training is conducted seated within a stationary virtual boundary to prevent dizziness or falls. After the simulation, a one-hour, semi-structured interview was conducted to explore their experiences. Interviews (see supplementary material, interview guide B) were guided by Fox's taxonomy[13] of VR research and focused on perceptions of realism, usability, and comparison to participants' real-world experiences and the in-person version of Be EPIC. Additional questions, guided by CFIR,[24] focused on facilitators and barriers to implementation within innovation and inner setting domains. Interviews were audio-recorded and transcribed verbatim.

Data Interpretation: Data were analyzed using the Framework Method[25] guided by both Fox's taxonomy of VR research[13] and CFIR[24]. This included inductive and deductive coding, iterative theme development, and regular team-based review and reflexivity practices to ensure analytic rigor. Data saturation was reached after analyzing five interviews, at which point no new

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inductive codes were emerging. Fox and colleagues' taxonomy was used to guide analysis of PSWs' experiences with the VR simulation. These VR-specific themes were ultimately mapped to relevant CFIR constructs. CFIR domains informed analysis of perceived facilitators and barriers to future implementation of Be EPIC-VR.

Results

PSWs provided insights on two topics. First, they shared their user experience with Be EPIC-VR to assess the realism of the VR simulation compared to Be EPIC's in-person actor-based simulation. Guided by Fox and colleagues' taxonomy on VR research, two themes emerged: immersion in the virtual environment and accuracy of avatars. Second, PSWs shared implementation considerations. Guided by CFIR, two themes emerged: accessibility (innovation domain), and available resources (inner setting). Table 2 summarizes the themes and their corresponding frameworks.

Topic 1: User Experience with Be EPIC-VR

1. Immersion in the virtual environment

Nearly all PSWs reported a strong sense of "immersion" (feeling fully surrounded) and "presence" (the perception of "being there") in the virtual environment, and shared that the VR space was realistic and similar to the real care environment: *"It was really immersive, and I liked it because it was similar to a physical room like I see I'm right there with [the avatar] [...] as if I'm right in there with him"* (PSW2). However, some PSWs reported that their sense of immersion was limited by restricted physical movement, as they remained seated during the VR experience (see Research Methods and Design section). *"I definitely felt like you could be in that room. So maybe 60%. But physically being able to move in that room was like maybe 40%. [I]*

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couldn't move forward too far because you would have the [virtual boundary] come on." (PSW5)

2. Accuracy of the avatar's characteristics

PSWs responded positively to the avatars' visual appearance, noting their realism and expressiveness, which resembled the live actors in the in-person training. The avatars were described as visually convincing: *"I realize [the avatar's] not a real person, but it looked pretty real"* (PSW3). Participants also noted facial expressions as realistic: "I think it's exactly the same, because you can see they move the eyes" (PSW7).

When comparing the avatar experience to the live actors in the in-person training, most PSWs felt it was very similar: *"the live or the physical experience I had last time was like in person to person and this one is kind of similar, only that it's virtual. It was just like the real experience"* (PSW2). They noted that conversations with avatars closely mirrored interactions with persons living with dementia: *"Sometimes it took like a minute before [the avatar] responded, that's similar to a person. It's like I'm doing work in VR"* (PSW2).

However, a few PSWs preferred the in-person version, noting that VR limited their ability to move physically and use touch during the care interaction: *"it's the touch and moving around, like me as a person moving around...the real [in-person version] is actually, you know, much better" (PSW3).* Another PSW noted the absence of physical cues to support their communication: *"you can't always get [a person living with dementia] to understand 'okay I want you to sit down', but if you are able to sit down and say 'sit down with me' then okay"* (PSW1).

When asked about the realism of the avatars' verbal responses and behaviors, PSWs shared mixed experiences. Most PSWs found the avatar's responses to be realistic and comparable to

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people living with dementia. One PSW noted: *"Trying to communicate with him [the avatar] and talk to him, it's the same as like when you're talking to someone with the dementia" (PSW6).*

However, a few PSWs felt that some avatar responses were unrealistic, especially when they were repetitive and lacked variation. One PSW noted: *"I really don't think it was that realistic because it [the avatar] kept saying the same thing over and over. A real person would say other things like 'go away' or 'I really don't want to get up right now' and all she kept saying was 'huh huh huh'"(PSW4).*

Topic 2: Implementation Considerations by PSWs

Two themes influenced the implementation of Be EPIC-VR from PSWs' perspectives: accessibility (innovation domain) and available resources (inner setting domain).

1. Accessibility

PSWs appreciated Be EPIC-VR's user-friendly design, including the VR onboarding module and clear graphics. Additionally, support from facilitators enhanced accessibility (innovation complexity) by helping users feel confident navigating the technology: *"You helped me out with everything and at the beginning, I was like 'is it going to work? Am I going to do this?' But once you put me through everything, I really enjoyed it"* (PSW2). However, some PSWs raised concerns about the compatibility of the VR headsets (innovation design), particularly for glasses wearers who struggled with fit and visibility: *"Part of the vision was murky or cloudy because of the way it was pushing on the glasses. So, my lenses weren't flush for me to look through at times"* (PSW5).

2. Available resources

Most PSWs reported their organization had sufficient resources for Be EPIC-VR implementation, including training space and the technological infrastructure. *"We have laptops*

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that we use. We have desktops and we have tablets." (PSW5). Only two PSWs shared that workplace devices were either outdated or restricted to registered staff, limiting accessibility:

> *"Our computers were pretty old so usually the laptops and computers are just for the registered staff, so we don't have a lot of that. [The organization] is getting more in, like the recreation [staff] use a lot of the tablets and streaming for the residents but as a PSW, we don't [have access]."* (PSW3).

All PSWs emphasized the need for leadership support to implement Be EPIC-VR, including access to technical assistance. They also noted that having an education coordinator would be helpful to facilitate implementation. However, some PSWs reported that this type of support was not available at their organization.

Discussion and Implications

Previous research using VR in healthcare training has largely excluded PSWs and primarily focused on healthcare professionals like registered nurses and medical students[16]. To address this gap, we use an iterative, stepwise approach, informed by CFIR[24] and Fox and colleagues' taxonomy[13] of VR research, to adapt the in-person Be EPIC program into Be EPIC-VR. We conducted two linked studies that explored readiness, user experiences, and implementation considerations critical to successfully integrating VR-based training for PSWs. Both studies show that the successful implementation of VR training depends on aligning the innovation with organizational context and ensuring a user-friendly and engaging learning environment.

Implementation Readiness and External Pressures

The findings underscore the value of aligning innovations with organizational goals that address external pressures, such as market competition, and tailoring implementation plans to specific organizational contexts.[22] Distinguishing oneself is crucial in the highly competitive

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healthcare market, where there are several players ranging from small, family-owned operations to large organizations, especially in the for-profit sector. Operators of for-profit organizations highlighted the need to invest in and strategically use workforce training to gain a competitive edge. The investment in new training must judiciously balance cost with the potential value it brings to the organization, enhancing both the care quality and the organization's public perception in the marketplace. Managers also viewed Be EPIC-VR training as an opportunity to recruit talent who seek employers that invest in their development and use evidence-based training. Such strategic training initiatives enhance the capabilities of care staff and improve overall resident/client care, thereby positioning the organization as a leader in a competitive field.

Organizational Culture Supporting Staff Development and Safety

Both studies highlight the importance of the inner setting characteristics, including organizational culture,[29] for successfully implementing training approaches like Be EPIC-VR. Leaders in care organizations prioritize staff well-being and development to address recruitment and retention. Dementia-specific training is essential for staff preparedness and workplace safety—both critical given legislated safety obligations and the challenges of supporting persons living with dementia who exhibit fluctuating behaviors.

Managers recognized effective communication as a critical yet often underdeveloped skill among PSWs. Communication training equips staff to interpret and respond to residents/clients' responsive behaviors,[30] often misinterpreted as resistance or aggression instead of expressions of unmet needs. Managers emphasized effective communication as crucial to improving safety for both residents and staff, viewing VR technology as a safe way to practice these skills, increasing their openness to VR-based training.

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Managers supported implementing Be EPIC-VR due to its interactive, engaging approach and relevance for direct care staff. They recognized that immersive, realistic simulations could effectively elicit physiological and emotional responses from PSWs practicing person-centered communication. Although managers were generally open to VR training, some expressed concerns about the innovation's complexity and varying technological skill levels among staff, anticipating that less tech-savvy individuals might feel apprehensive. We addressed this by providing a VR onboarding in Study 2. Notably, PSWs did not share managers' concerns and reported feeling comfortable and confident using VR, citing the onboarding and facilitator support.

Organizations that valued ongoing training and PSW empowerment were receptive to implementing Be EPIC-VR. Supporting PSWs' professional growth is beneficial for staff morale, resident care outcomes, and overall safety.[29] By enhancing PSWs' communication skills, organizations can foster a safer environment, enhance job satisfaction, and reduce burnout, ultimately improving workforce retention.[31] The alignment of organizational priorities with staff needs highlights the importance of organizational culture in successfully adopting innovative training methods like Be EPIC-VR.

Innovative Design and Realism of Be EPIC-VR

A critical consideration when adapting in-person training into VR is ensuring simulations realistically reflect real-world care interactions. Study 2 investigated PSWs' experience with VR by comparing Be EPIC-VR's assessment simulations to actor-based simulations and their real-world clinical encounters. Most PSWs reported a strong sense of immersion and, confirming the manager's expectations, highlighted that the realistic care setting and avatars enhanced their practice of person-centered communication. They noted that the realistic interactions in VR, such

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as engaging meaningfully with avatars and lifting objects such as a photograph, contributed positively to their learning. Additionally, VR provided consistent scenarios compared to the inherent variability of actor-based simulations,[12,14] while also eliminating the physical and emotional strain actors face when repeatedly simulating challenging roles (e.g., episodes of delirium). Moreover, VR's inherent safety[16] permits learners to explore complex care interactions without fear of causing harm, fostering a learning environment that encourages experimentation and risk-taking.

However, some PSWs noted challenges affecting the accessibility and realism of the VR simulations, reflecting technological limitations at the time of data collection. Discomfort with the headset for glasses wearers was addressed by adding facial interfaces and comfort straps. Others cited the inability to touch the avatars, which we addressed by informing PSWs beforehand that Be EPIC-VR emphasizes verbal over physical interactions. Additionally, some PSWs felt restricted due to limited movement, as simulations were conducted seated for safety. PSWs had mixed perceptions regarding communication with avatars; some appreciated the structured interactions for targeted skill practice, while others found these interactions less natural than real-life encounters. This feedback informed iterative improvements to Be EPIC-VR, including enhancements to conversational artificial intelligence and design adjustments to improve realism and physical accessibility.

Implementation Logistics

Successful implementation relies on addressing logistical issues of technological infrastructure, scheduling, and costs. Most managers indicated that their organizations were ready to implement VR-based training, citing access to computers and strong internet connections, which was confirmed by most PSWs. While managers sought more details on

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implementation requirements, PSWs noted the need for technical support during implementation. Therefore, we offered managers the opportunity to trial Be EPIC-VR in the future and included technical support for staff as part of the training package.

A significant barrier was limited time, resulting from staffing shortages and higher resident/client care demands, which constrained opportunities for training without disrupting care provision. We mitigated these issues by including flexible scheduling and allowing organizations to send one staff member per training. Furthermore, VR offers logistical advantages over actor-based training, allowing scalable and remote access without the need for complex scheduling and physical spaces.[13,15] Thus, Be EPIC-VR expands training opportunities to a broader range of employees by accommodating diverse schedules and learning paces within organizational workflows.

Financial constraints represented another significant barrier. For-profit managers considered Be EPIC-VR as a strategic investment, whereas not-for-profit organizations, especially small organizations, expressed concerns that successful implementation required external funding through grants, partnerships, or government programs. In response, we prioritized end-user engagement, strengthened organizational collaborations, and pursued knowledge mobilization with policy decision-makers. Managers across for-profit and not-for-profit organizations stressed the need to balance staff training needs with the benefits of new programs. Given resource constraints, they recommended gradual implementation, prioritizing staff who work closely with persons living with dementia who exhibit responsive behaviors.

Collectively, the two studies at the pre-implementation phase highlight external pressures, organizational culture, innovative design, and logistics as key factors shaping readiness for Be EPIC-VR. By addressing identified barriers and leveraging facilitators, care organizations can

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enhance their capacity to adopt innovative training programs that improve PSWs' skills. The integration of VR into training represents a promising avenue for transforming dementia care practices and supporting the workforce in delivering person-centered care.

Limitations and Future Directions

These studies are limited by their small sample sizes, which may not be representative of all staff or care organizations. Participants' prior experience with technology and VR may have influenced their perceptions, and those with less technological proficiency may face greater challenges not fully captured in this study. Additionally, the study focused on the initial user experience with the assessment simulations in Be EPIC-VR and did not assess the effectiveness of the training.

Future research should involve longitudinal studies to evaluate VR training's effects on PSWs' communication skills and resident/client care quality. To transition VR from a novel approach to a standard educational tool, studies must demonstrate clear improvements in caregiver skills, which can promote investment and integration into regular training curricula.

Additionally, integrating advanced sensory technologies, such as haptic feedback and gesture recognition, can enhance realism and address limitations identified by participants. For VR to be successfully integrated into healthcare training programs, user interface issues must be addressed to ensure that the technology is accessible and effective for all users, irrespective of their familiarity with digital tools. This includes optimizing VR equipment to accommodate users who wear glasses and ensuring that the technology does not introduce barriers to adoption due to discomfort or usability challenges. Continued refinement aligned with end-user needs positions VR as a transformative healthcare training tool.

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Conflict of Interest

The authors declared no potential conflicts of interest for the research, authorship and/or publication of this article.

Data Availability

Application for accessing data can be sent to: msavund@uwo.ca. The study was not preregistered.

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References

1. Norris G, Savundranayagam MY, Teachman G, Vafaei A. The continuous learning needs of personal support workers who care for people living with dementia in long-term care. *Educ Gerontol*. Published online 2025:1-14. doi:10.1080/03601277.2025.2515564
2. Savundranayagam MY, Basque SR, Johnson K. Feasibility of a dementia-focused person-centered communication intervention for home care workers. *Clin Gerontol*. 2020;43(2):181-192. doi:10.1080/07317115.2019.1694116
3. Kitwood T. *Dementia Reconsidered: The Person Comes First*. Open University Press; 1997.
4. Ryan EB, Meredith SD, MacLean MJ, Orange JB. Changing the way we talk with elders: Promoting health using the communication enhancement model. *Int J Aging Hum Dev*. 1995;41:89-107. doi:10.2190/FP05-FM8V-0Y9F-53FX
5. Whall AL, Kolanowski AM. The need-driven dementia-compromised behavior model-- a framework for understanding the behavioral symptoms of dementia. *Aging Ment Health*. 2004;8(2):106-108. doi:10.1080/13607860410001649590
6. Foronda C. A theory of cultural humility. *J Transcult Nurs*. 2020;31(1):7-12. doi:10.1177/1043659619875184
7. Chowdhury D, Baiocco-Romano L, Sacco V, Hajj KE, Stolee P. Cultural competence interventions for health care providers working with racialized foreign-born older adults: Protocol for a systematic review. *JMIR Res Protoc*. 2022;11(7):e31691. doi:10.2196/31691
8. Bandura A. *Social Foundations of Thought and Action : A Social Cognitive Theory / Albert Bandura.*; 1986.
9. Gonzalez VM, Goeppinger J, Lorig K. Four psychosocial theories and their application to patient education and clinical practice. *Arthritis Care Res*. 1990;3:132-143. doi:10.1002/art.1790030305
10. Savundranayagam MY, Brintnall-Peterson M. Testing self-efficacy as a pathway that supports self-care among family caregivers in a psychoeducational intervention. *J Fam Soc Work*. 2010;13(2):149-162. doi:10.1080/10522150903487107
11. Savundranayagam MY, Kamalraj P. Person-centered communication among formal caregivers of persons with dementia. In: Preedy VR, Martin CR, eds. *The Neuroscience of Dementia: Diagnosis and Management.* 1st ed. Elsevier Inc.; 2020.
12. Persky S. Employing immersive virtual environments for innovative experiments in health care communication. *Patient Educ Couns*. 2011;82(3):313-317. doi:10.1016/j.pec.2010.12.007
13. Fox J, Arena D, Bailenson JN. Virtual reality: A survival guide for the social scientist. *J Media Psychol*. 2009;21(3):95-113. doi: 10.1027/1864-1105.21.3.95
14. Johnsen K, Raij A, Stevens A, Lind DS, Lok B. The validity of a virtual human experience for interpersonal skills education. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. CHI '07. Association for Computing Machinery; 2007:1049-1058. doi:10.1145/1240624.1240784
15. McCall C, Blascovich J. How, when, and why to use digital experimental virtual environments to study social behavior. *Soc Personal Psychol Compass*. 2009;3(5):744-758. doi: 10.1111/j.1751-9004.2009.00195.x
16. Philip G, Savundranayagam MY. Applications of virtual reality and its effectiveness in healthcare training: a scoping review. *Health Technol*. Published online December 26, 2024. doi:10.1007/s12553-024-00936-6

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17. Gilmartin-Thomas JFM, McNeil J, Powell A, et al. Qualitative evaluation of how a virtual dementia experience impacts medical and pharmacy students' self-reported knowledge and attitudes towards people with dementia. *Dementia*. 2020;19(2):205-220. doi:10.1177/1471301218770270
18. Kay R, Goulding H, Li J. Assessing the impact of a virtual lab in an allied health program. *J Allied Health*. 2018;47(1):45-50. https://www.jstor.org/stable/48722023
19. Lee S. A showcase of medical, therapeutic and pastime uses of virtual reality (VR) and how (VR) is impacting the dementia sector. In: Rea PM, ed. *Biomedical Visualisation : Volume 3*. Advances in Experimental Medicine and Biology. Springer International Publishing; 2019:135-141. Accessed September 1, 2020. https://doi.org/10.1007/978-3-030-19385-0_10
20. Antoniou PE, Sidiropoulos EA, Bamidis PD. DISCOVER-ing beyond OpenSim; Immersive learning for carers of the elderly in the VR/AR era. In: Beck D, Allison C, Morgado L, et al., eds. *Immersive Learning Research Network*. Springer International Publishing; 2017:189-200.
21. Slater P, Hasson F, Moore K, Sharkey F. Simulated based dementia training: Impact on empathic understanding and behaviour among professionals and carers. *Clin Simul Nurs*. 2021;55:43-51. doi:10.1016/j.ecns.2021.04.004
22. Groot Kormelinck CM, Janus SIM, Smalbrugge M, Gerritsen DL, Zuidema SU. Systematic review on barriers and facilitators of complex interventions for residents with dementia in long-term care. *Int Psychogeriatr*. 2021;33(9):873-889. doi:10.1017/S1041610220000034
23. Serhal E, Arena A, Sockalingam S, Mohri L, Crawford A. Adapting the Consolidated Framework for Implementation Research to create organizational readiness and implementation tools for Project ECHO. *J Contin Educ Health Prof*. 2018;38(2):145-151. doi:10.1097/CEH.0000000000000195
24. Damschroder LJ, Reardon CM, Widerquist MAO, Lowery J. The updated Consolidated Framework for Implementation Research based on user feedback. *Implement Sci*. 2022;17(1):75. doi:10.1186/s13012-022-01245-0
25. Ritchie J, Liz Spencer. Qualitative data analysis for applied policy research. In: Bryman A, Burgess R, eds. *Analyzing Qualitative Data*. Routledge; 1994:173-194.
26. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci*. 2009;4. doi:10.1186/1748-5908-4-50
27. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol*. 2013;13(1):117. doi:10.1186/1471-2288-13-117
28. Warner G, Lawson B, Sampalli T, Burge F, Gibson R, Wood S. Applying the consolidated framework for implementation research to identify barriers affecting implementation of an online frailty tool into primary health care: a qualitative study. *BMC Health Serv Res*. 2018;18(1):395. doi:10.1186/s12913-018-3163-1
29. Davy CP, Windle A, Harvey G. Fostering an aged care organizational culture that supports innovation. *JBI Evid Implement*. 2024;22(4):405-417. doi:10.1097/XEB.0000000000000465
30. Williams KN, Perkhounkova Y, Herman R, Bossen A. A communication intervention to reduce resistiveness in dementia care: A cluster randomized controlled trial. *The Gerontologist*. 2017;57(4):707-718. doi: 10.1093/geront/gnw047
31. Savundranayagam MY, Docherty-Skippen SM, Basque SR. Qualitative insights into the working conditions of personal support workers in long-term care in the context of a person-

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centered communication training intervention. *Res Gerontol Nurs*. 2021;14(5):245-253. doi:10.3928/19404921-20210708-01

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Tables

Table 1. Themes from manager interviews from Study 1 mapped to CFIR.

Themes	CFIR Domains & Constructs	Subthemes	Role in Implementation
1. External pressures for organizational sustainability	Outer Setting: External Pressure	Market pressures ('competitiveness')	Facilitator
		Legislative training standards	Facilitator
2. Organizational culture supporting staff development	Inner Setting: Tension for Change	Need for person-centered dementia training	Facilitator
	Culture	Value staff well-being	Facilitator
		Value well-trained staff	Facilitator
3. Staffing and training logistics	Inner Setting: Available Resources	Structural resources	Facilitator
		Funding (e.g., backfilling)	Barrier
	Innovation: Trialability	Implementation trialability (e.g., small group format)	Facilitator
4. Openness to virtual reality as a training tool	Innovation: Relative Advantage	Advantage over status quo	Facilitator
	Design	Program design	Facilitator
	Complexity	Limited VR knowledge	Barrier

Note: CFIR = Consolidated Framework for Implementation Research

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Table 1: Study 2. Key themes from PSW interviews mapped to frameworks.

Topic (Framework)	**Theme**	**CFIR Domain & Construct**	**Subthemes**	**Role in Implementation**
User Experience with Be EPIC-VR (Fox et al.'s taxonomy of VR research)	Immersive nature of the virtual environment		Strong sense of presence and realism Limited ability to move physically (e.g., walking)	
	Accuracy of avatar characteristics		Realistic visual appearance Limited non-verbal behaviors (e.g., touching) Mixed impressions of avatar verbal responses	
Implementation Considerations by PSWs (CFIR Domains and Constructs)	Accessibility	Innovation: Complexity	User-friendly design Facilitator support	Facilitator
		Innovation: Design	VR Headset compatibility	Barrier+
	Resources	Inner Setting: Available Resources	Training space & technology access	Facilitator+

Note: CFIR = Consolidated Framework for Implementation Research. "+" indicates this finding was also reported by managers in Study 1.

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Figures

Figure 1: Flowchart. Transformation Process for Be EPIC.

Alt Text: Flowchart titled "Transforming Be EPIC" showing the process of scaling Be EPIC into a virtual reality version. Steps include assessing need, prototype testing with iterative design reviews, product development, beta-testing, and refining until successful tests lead to product evaluation.

Figure 2: Be EPIC-VR training program.

Alt Text: Diagram of the Be EPIC-VR training program showing two days of modules. Day 1 (6 hours) includes onboarding, surveys, communication assessment, asynchronous learning on person-centered communication, VR practice, and feedback. Day 2 (5 hours) covers responsive behaviours and delirium, further VR practice, debrief, surveys, and final reflection.

Figure 3: Comparing Be EPIC in-person with VR

Alt Text: Comparison chart showing similarities and differences between Be EPIC and Be EPIC-VR. Both are two-day training programs focused on person-centered communication with practice, feedback, and reflection. Be EPIC-VR additionally incorporates virtual reality simulation and asynchronous learning modules.

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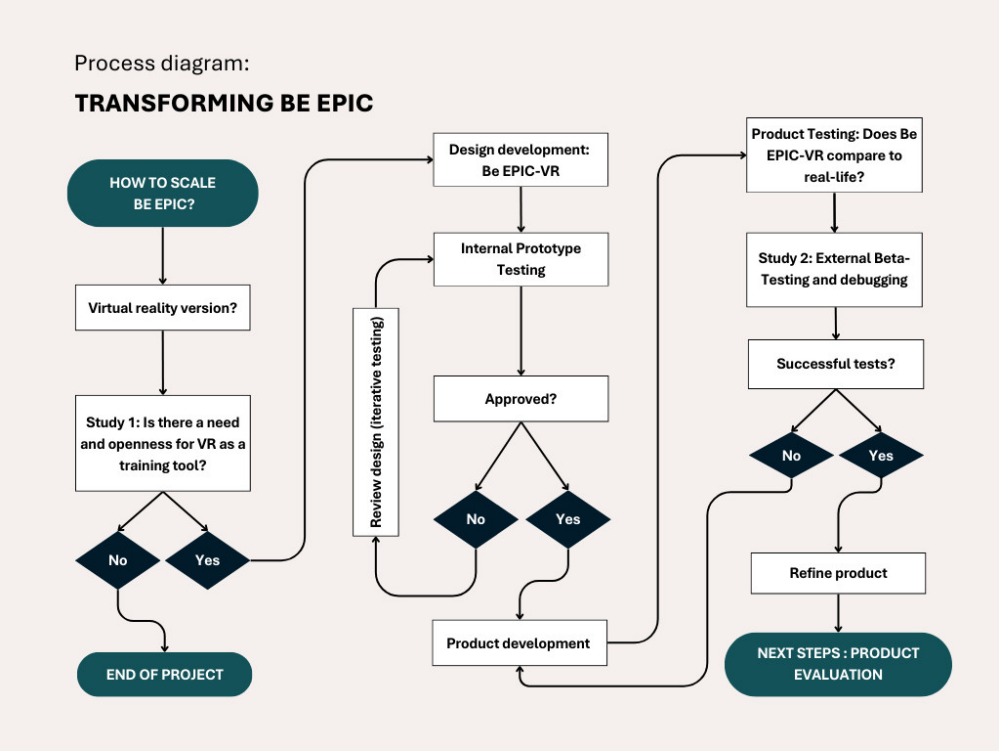

Figure 1: Transformation Process for Be EPIC.

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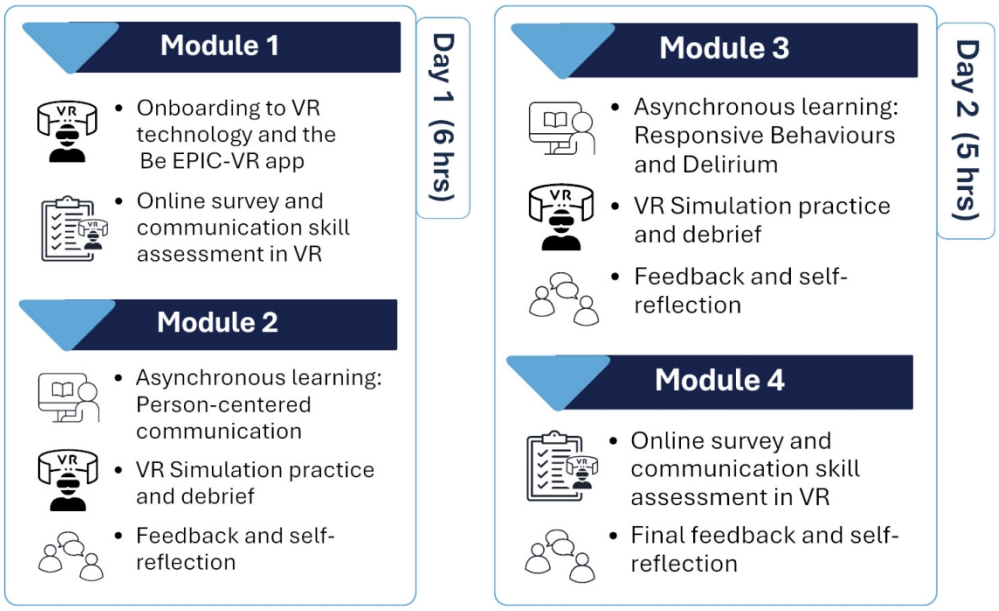

Figure 2: Be EPIC-VR training program.

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In-Person	Be EPIC	Virtual Reality (VR)
4 modules	Modules	4 modules + VR onboarding
Didactially via slides presentation	Learning	Asynchronously via online learning modules
Live simulations with trained actors representing persons living with dementia	Practice	VR simulations with avatars representing persons living with dementia
Live simulations with trained actors representing persons living with dementia	Assessments	VR simulations with avatars representing persons living with dementia
10 hours: session 1 (5 hours), one week later, session 2 (5 hours)	Timeline	11 hours: session 1 (6 hours), one week later, session 2 (5 hours)
In-person with 8 learners on site of the organization	Format	Virtual meeting with 4 learners from different organizations
2 rooms for 8+ people and simulation equipment	Requirements	Per learner a quiet space, laptop, VR Headset, and internet access

Figure 3: Comparing Be EPIC in-person with VR

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