

## VOICINGELDER: AN AVATAR PLATFORM FOR OLDER ADULTS INFORMED BY MULTIPLE THERAPEUTIC TRADITIONS

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### ABSTRACT

In the United States and elsewhere, we are being challenged to think of a new phase of life called 'elder hood.' It is critical that we think about how to shape elder hood in ways that are beneficial to both the individual and community. *VoicingElder* is a reminiscence storytelling platform designed for older adults, using an avatar and facial recognition software. Storytelling and reminiscence are enormously important processes in old age because they nurture intergenerational sharing and communication and allow seniors to express and strengthen their identities as they review and share their memories. In *VoicingElder*, the puppeteer (the senior) controls an on-screen avatar through facial recognition and voice input. The avatar may represent the senior's younger self, a relative or an imaginary character. The software instantly translates the senior's facial movements into the facial movements of the avatar. The senior can thus emotionally embody the avatar, bringing a transformative and emotional character to their oral storytelling process. *VoicingElder* is a hybrid therapeutic tool that embraces several therapeutic traditions. Research in drama therapy, therapeutic puppetry, patient centered therapy and avatar therapy all bring different ways to explore the user's psyche, emotion and engagement in depth.

### INTRODUCTION

*VoicingElder* is an avatar platform designed to structure a therapeutic intervention for older adults. This project is informed by research in gerontology, electronic arts, drama therapy, therapeutic puppetry and avatar therapy. This paper will explain the diverse background of *VoicingElder*. Designed by an electronic media artist and a gerontologist, *VoicingElder* reimagines the therapeutic technique of life review in a responsive, interactive design platform. For several decades, many adult care facilities have practiced life review. In a typical life review session, a facilitator guides older adults through structured reminiscence or story telling. Facilitators often use photographs, verbal prompts or objects to elicit the older adult's memories. *VoicingElder* takes this practice one step further by introducing an interactive avatar system. The *VoicingElder* system utilizes facial-tracking camera, combined with custom software and costumed-designed characters. To use *VoicingElder*, the older adult simply tells their life stories as usual, but this time they look directly at the on-screen avatar. The *VoicingElder* software tracks the older adult's facial expression and lip movement and translates that movement onto the avatar. As the older adult is telling their story, they are watching the avatar mimic their facial expression exactly. The older adult thus acts as a puppeteer, controlling the on-screen puppet. The older

adult speaks through the avatar, telling their story in the dramatic space offered by the performance of oral storytelling with a digital puppet. Speaking through the *VoicingElder* avatar turns life review into a performance.

The *VoicingElder* avatars are designed to reflect different states of memory. For instance, the "young girl" model is designed to look like an animated version of the older adult's younger self. *VoicingElder* utilizes the setting and mechanisms of life review as a therapeutic technique. By embracing the performative aspects of storytelling, *VoicingElder* incorporates aspects of drama therapy and therapeutic puppetry. By embracing the concepts of dramatic reality and distancing, *VoicingElder* aims to enhance the practice of life review. Through electronic arts techniques of avatar design and motion-tracking cameras, *VoicingElder* brings electronic arts to a population typically overlooked by electronic arts.

We believe that *VoicingElder* fills a gap in research related to electronic arts and older adult care. According to the US Department of Health and Human Services, the number of older adults over 65 years of age is expected to rise from 43.1 million in 2012 to 71 million in 2030 and will make up 20% of the population. Adults age 65 and over are the fastest growing segment of the population. [1] With this growth, we need to develop new ways to shape elderhood and to encourage positive mental and physical health of the aging population.

Involvement in arts programming for older adults has been linked with increased overall activity, decreased trips to the doctor, higher overall physical health, less medication use, fewer instances of falls and fewer health problems. [2] Drama therapy has been linked with increased memory capacity and psychological wellbeing. [3] Because of this, the National Endowment for the Arts, reported that, "In older adults, arts engagement appears to encourage health-promoting behaviors (physical and mental stimulation, social engagement, self-mastery and stress reduction) that can help prevent cognitive decline and address frailty and palliative care through strengths-based arts interventions." They continue, "Intergenerational arts learning offers great promise for leveraging the strengths, skills and experiences of older adults." They stressed a need to increase the research into the effectiveness of different kinds of arts therapies [4]

*VoicingElder* answers the NEA's call to research the effectiveness of arts therapies that harness the unique skills and experiences

of older adults. By drawing on a lifetime of experience, life review aided by *VoicingElder* draws the older adult's life history into a performative context, aided by the avatar platform.

### LIFE REVIEW

Life review is defined as “a systematic, chronological review of one's entire life from early memories through the present and involves evaluation of the meaning of life experiences.” [5 - 8] Life review has been practiced for decades in adult care facilities. Guided by a facilitator, participants recount important stories from their life in a group setting.

First introduced by Butler, life review is based in reminiscence or the natural desire for older adults to tell stories from their life. [9] Placed in a structured therapeutic setting, group facilitators can guide older adults in a systematic and chronological review of their life, aided by photographs, objects and other items to evoke memories. Life review promotes bonding between people, helps older adults to deal with current problems and helps to foster integrated, coherent identity. [10] Research shows that life review has significant effects on late life depression and can work as an alternative to psychotherapy. [11] Some studies have also showed that life review reduces. [12], [13] Life review has been shown to improve relationships between caregivers and seniors, increase staff knowledge of the client's backgrounds and history and help older adults to develop understanding of their sense of self. [14]

Life review is also a beneficial opportunity for intergenerational sharing. In a study by Luepker, researchers included the older adult's family in generating the prompts for the life review process and also video recorded the session for future review. This led to an increased sense of intergenerational sharing and older adults reported more a cohesive sense of self after the interviews. [5]

Korte, Westerhof and Bohlmeijer identify two types of reminiscence in life review: integrative and instrumental. [15] Reminiscence is instrumental when it helps older adults to cope with present problems. Reminiscence is integrative when it includes both positive and negative memories in life review. [13] Oral storytelling is an ancient and cross-cultural tradition that has important benefits for cultural heritage and intergenerational sharing. As a therapeutic technique specifically designed for older adults, life review harnesses the powerful therapeutic potential in narrative stories. *VoicingElder* is interested in the same goals as life review: to promote increased communication between older adults and caregivers and family, to increase the older adult's sense of a coherent self, to improve the quality of life of older adults and to increase intergenerational sharing and continuity of family legacy.

*VoicingElder* builds upon all of the above methodologies and expands upon them in new ways. Life review has been shown to be a successful intervention to address multiple aspects of quality of life in older adults, however, most studies structure life review around stable media such as photographs or physical objects

from the older adult's past. With *VoicingElder*, we believe that many of the benefits of life review can be achieved through the transformative structure of the avatar platform. *VoicingElder* adds an interactive and reflexive element to the performative space of life review. By gazing at their own avatar, the older adult simultaneously is both a performer and a spectator. Their avatar speaks as they speak and moves as they move. By displacing the point of action, the older adult puts their own story at a distance. This technique, known as “distancing,” allows a greater emotional engagement with one's own history, especially with those elements of the past that are difficult to integrate or are painful or too emotional. By introducing a performative element and mechanism for externalizing the sharing of stories, *VoicingElder* takes life review from a narrative therapy into a performance therapy.

### DRAMATIC REALITY & DISTANCING

In drama therapy, patients and therapists use the distance created by an artistic pursuit such as performance, storytelling, music or dance to guide the patient to make sense of their life experiences. [16] Penzdik describes the role of the therapist in drama therapy as transporting the patient through dramatic reality. Dramatic reality is defined as “the manifestation of imagination in the here and now.” [17] Johnson likewise uses a concept called playspace, which he defines as “an enhanced space where the imagination infuses the ordinary.” [18] The content of the role playing or dramatic performance—whatever the patient is exploring in dramatic reality—is transformed through this passage. The patient may have explored difficult memories or expressed something they could not express in their real life. Once a patient leaves dramatic reality, they integrate dramatic reality into their real life.

This transformation offered by dramatic reality has been described by Landy as distancing. Landy writes, “Drama therapy is a powerful method of healing because it provides a way to re-experience pain, sometimes overwhelming pain, through the safety of aesthetic distance. In its most pure sense drama therapy is play, a representational process of moving in and out of the looking glass.” [19] In Landy's description of the looking glass, he references the same idea as dramatic reality.

In drama therapy, there is an aesthetic distance between the patient and the object or process before them. Jones (1996-drama as therapy) also identifies distancing as a crucial component of drama therapy. [20] In theater, the concept of distancing comes originally from Brecht. [21] In Brecht's employment of distancing, the audience was hindered from passively identifying with the characters in the play. When the actors disregard the “fourth wall” of the stage, the audience can not simply passively accept that they are watching a play. The audience is thus alienated or distanced from the actors. Brecht's technique created conscious, active engagement. [21] As a technique of drama therapy, distancing creates a space – dramatic reality – in which to explore one's memories or life

problems by consciously engaging with, role-playing and re-enacting them. Facilitated by a therapist, this journey through dramatic reality can have positive, transformative effects. *Narrative therapy*, developed by White and Epston, focuses on creating distance between the patient's sense of self and their life stories. By focusing on the benefits of "telling and re-telling" life stories, narrative therapy externalizes life problems and moves away from "problem-laden" stories. [22] Patients can use narrative therapy to develop "thick stories" that strengthen their sense of self by creating distance between their self and the problems they face. [23 - 26]

In *VoicingElder*, as the older adult tells their stories, they are gazing at the avatar of themselves. This emotional and physical distance allows them to be at once the speaker of the story and an observer, speaking through the outside position of the avatar. In this dramatic reality, it is the puppet who is speaking, not the older adult. Because the older adult is brought into the dramatic reality of performance of their life story, they are distanced from their own life review. This process allows them to consciously integrate positive and negative memories and strengthen their sense of self in relation to their life history.

### THERAPEUTIC PUPPETRY

One form of drama therapy that is particularly important to explain the basis of *VoicingElder* is puppet therapy. The on-screen avatar is essentially a puppet that the older adult controls simply by speaking and acting normally. Yet because they can enter the performative space as a puppeteer, they can benefit from the transformative aspects of entering dramatic reality to tell their life stories. Researchers have suggested that puppets may be beneficial for patients with mental illness. [27 - 30] Therapeutic puppetry is defined as the use of puppets to aid physical and emotional healing and can include the use and construction and observation of puppet performance. [31]

Particularly useful to explain the background of *VoicingElder* is the concept of the puppet as a psychodynamic object. In this model, the puppet represents parts of the self. By acting out their complex emotions using the puppet, the patient re-creates their internal state in an external form, helping to craft a more coherent self and resolve "splits." [27] Holmes similarly suggests that puppets can help patients achieve "autobiographical competence." [32] White & Epstein suggest that puppets help patients to create "thick" stories that incorporate lost or fragile memories, as opposed to the "thin" stories of the self that can overly dwell on shortcomings and stigma.

Although many studies with therapeutic puppetry focus on children, therapeutic puppets have been shown to be an effective therapy for adults with severe mental illness. [33], [34], [35], [36] One classic study in therapeutic puppetry for children demonstrated that role-playing with puppets reduced children's fears and increased their comfort before and after a hospital

procedure. [37] Many studies have demonstrated the effectiveness in puppet therapy for reducing anxiety. *VoicingElder* is a form of therapeutic puppetry that uses an interactive virtual puppet so that the older adult does not have to learn how to operate a puppet. By simply moving their body normally, the older adult controls the puppet. As it represents aspects of their self, the puppet can serve to incorporate lost parts of the self and integrate them into a coherent whole. This echoes the benefits of life review that have been empirically demonstrated. By utilizing research in puppet therapy, drama therapy and life review, *VoicingElder* is designed to work based on the mechanisms that make these forms effective therapies.

### AVATAR THERAPY

*VoicingElder* is not the first therapeutic technique to use avatars. Therapists have explored using the immersive virtual world SecondLife as a site for psychotherapy. [38] [39] And researchers have had success using avatar-based interventions for depression. [40] Recent interest includes using avatars and virtual reality to reduce pain in hospitalization, anxiety and depression. [41] Virtual reality therapy is now commonly used to treat post traumatic stress. [42],[43] Virtual reality therapy allows patients to explore trauma and difficult situations in a safe and controlled environment. In a recent study, researchers used dynamically controlled avatars to bring to life patient's visual hallucinations. By providing a face for the patient's mental image of their hallucination and by controlling that image in real time, the therapist was able to embody the persona of the patient's hallucination. The experience for the patient is that they are speaking directly to their hallucination. In conversation, the therapist gradually cedes control of the persecutory illusion to the patient. In the dramatic reality offered by their avatar platform, the patient was able to practice taking control over their own hallucination.

This technique was deemed effective in reducing the frequency and intensity of persecutory illusions. [44], [45] While researchers have used avatars in many different ways to increase the efficacy of therapy, *VoicingElder* is unique in that it places the older adult at the center of the therapeutic intervention. *VoicingElder* is person-centered because it allows the individual to narrate their own life stories. As opposed to many of the avatar-based therapies in which a therapist controls an avatar or an otherwise normal therapy session is held in a virtual environment, with *VoicingElder* the older adult controls their own avatar.

### PERSON-CENTERED CARE

Healthcare and allied healthcare professionals have been increasingly moving toward a holistic model of care that emphasizes the older adult's perspective and their individually defined experiences and needs. The concept of person-centered care builds on a fundamental respect of subjectivity and personhood that personalizes care, emphasizing the person's past, present and emerging life history as well as respecting people's values, culture, priorities and preferences. The person-centered

model moves away from the medical-oriented and professional driven models of care to a perspective that promotes individual autonomy in all settings. A person-centered approach uses a social, humanistic and holistic perspective on how to understand and promote the best possible life and care for people. [46], [47] Older age is an appropriate time for evaluating one's life and this can be accomplished through a life review – a purposeful, constructive effort to review one's life and gain perspective. *VoicingElder* initiates a life review process by engaging with recent developments that focus on the individual's role in the development and implementation of their own care – person-centered care. Utilizing the concepts of drama therapy, distancing and dramatic reality, *VoicingElder* sets up a structured life review session in which the older adult narrates their own life stories in a performative setting.

*VoicingElder* promotes person-centeredness by creating a platform that facilitates the growth of each individual and promotes reflection, healing and generativity. In the *VoicingElder* experience each participant is responsible for their own transformation; setting their own guidelines for how they would like to share their life experiences. No two people will experience *VoicingElder* in the same manner. The integration of drama therapy, puppet therapy, avatar therapy and life review creates a unique and valuable person-centered experience that can improve overall well-being and quality of life for older adult participants.

## CONCLUSION

*VoicingElder* is in a pilot phase of development. With the help of an electronic arts design team, we are constructing multiple avatars and developing software to animate the avatars in real-time based on input from facial-tracking cameras. The research background of *VoicingElder* is based on drama therapy, puppet therapy, avatar therapy and life review. When tested, *VoicingElder* will be implemented in life review sessions at an older adult care facility in Richmond, Virginia. *VoicingElder* uses standard therapeutic techniques such as distancing, externalization, dramatic reality, "thick" life descriptions and building coherent and integrated identity. Many of the therapies mentioned here embrace the power of self-narrative to build better coping skills, reduce anxiety and depression and promote intergenerational storytelling. *VoicingElder* promotes these same techniques by giving older adults the opportunity to tell their life stories in real-time responsive avatar system.

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