



# The Impact of Interactive Gaming Platforms on Dementia Care: A Pilot Study

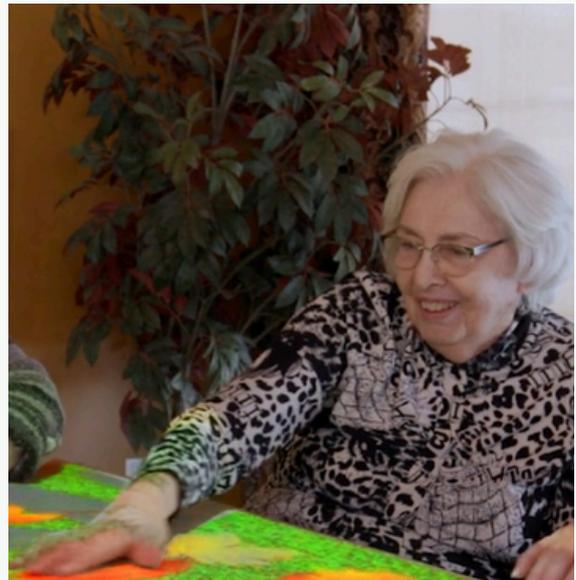
Michal Herz, PhD



## Impact Report

2024

# Executive Summary



This white paper presents the findings of a pilot study conducted in a Japanese care home (You&I Senior Care Chain, Tokyo), examining the effects of the Obie interactive gaming platform on residents with advanced dementia.

The study observed improvements in motor functioning, cognitive abilities, and social interactions among participants, highlighting the potential benefits of such technologies in dementia care.

The research underscores the urgent need for innovative approaches to support the wellbeing of individuals living with dementia and demonstrates how meaningful engagement can potentially reduce challenging behaviors.

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# Introduction

## Background on Dementia Care

The complex nature of dementia necessitates the development and implementation of innovative care strategies for several reasons:

### 1 Diverse Needs

Individuals with dementia have varying cognitive abilities, personal histories, and preferences. One-size-fits-all approaches often fall short in addressing these diverse needs.

### 2 Limited Efficacy of Pharmacological Interventions

While medications can help manage some symptoms, their effectiveness in improving overall quality of life is limited. Non-pharmacological interventions are increasingly seen as crucial complements to drug therapies.

### 3 Caregiver Burden

Advances in technology and our understanding of dementia allow for more personalized care strategies that can adapt to an individual's changing needs and abilities over time.

### 4 Cognitive Stimulation

There is growing evidence that cognitive stimulation can help maintain mental functions and potentially slow the rate of decline in some individuals with dementia.

## 5 Social Isolation

Many individuals with dementia experience social withdrawal, which can exacerbate cognitive decline and reduce quality of life. New approaches are needed to foster social connections and engagement.

## 6 Personalized Care

Advances in technology and our understanding of dementia allow for more personalized care strategies that can adapt to an individual's changing needs and abilities over time.

Innovative approaches, such as interactive gaming platforms, virtual reality experiences, and adaptive sensory environments, offer promising avenues for enhancing dementia care. These technologies can provide personalized, engaging experiences that stimulate cognitive function, encourage physical activity, and promote social interaction.

# The Importance of Engagement in Reducing Challenging Behavior

Engagement is a critical factor in promoting wellbeing and reducing challenging behaviors in individuals with dementia. Challenging behaviors, such as agitation, aggression, wandering, and resistance to care, are common in dementia and can significantly impact both the individual and their caregivers. The relationship between engagement and behavior is multifaceted:

## 1 Reducing Boredom and Frustration

Meaningful engagement provides stimulation and purpose, potentially reducing behaviors that stem from boredom, frustration, or a lack of meaningful activity.

## 2 Emotional Regulation

Engaging activities can help individuals with dementia regulate their emotions, potentially decreasing anxiety and agitation.

## 3 Sense of Control

Participatory activities allow individuals to exercise choice and control, which can be empowering and reduce resistant behaviors.

## 4 Cognitive Stimulation

Engaging the mind through appropriate activities may help maintain cognitive function and reduce confusion, which can be a source of challenging behaviors.

## 5 Physical Outlet

Activities that involve physical movement can help channel energy positively, potentially reducing restlessness and wandering behaviors.

## 6 Social Connection

Engagement often involves social interaction, which can fulfill the basic human need for connection and potentially reduce socially inappropriate behaviors.

## 7 Distraction from Discomfort

Engaging activities can provide a positive focus, potentially distracting from physical discomfort or environmental stressors that might otherwise lead to challenging behaviors.

## 8 Maintenance of Circadian Rhythms

Structured engagement throughout the day can help maintain normal sleep-wake cycles, potentially reducing sundowning behaviors and improving overall wellbeing.

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# The Risk of Apathy in Dementia

Apathy is a common and serious concern in individuals with dementia. It is characterized by a lack of motivation, reduced emotional responsiveness, and decreased social engagement. Apathy can significantly impact quality of life, accelerate cognitive decline, and increase caregiver burden. Addressing apathy is crucial in dementia care, as it can lead to improved overall well-being and potentially slow the progression of cognitive impairment.

# Interactive Gaming Platforms in Senior Care

Interactive gaming platforms designed for seniors offer numerous potential benefits:

## 1 Cognitive stimulation

Engaging games can help maintain mental acuity and potentially slow cognitive decline.

## 2 Physical activity

Motion-based games encourage movement, improving mobility and coordination.

## 3 Social interaction

Multiplayer games foster communication and social bonds among residents.

## 4 Emotional well-being

Enjoyable activities can boost mood and reduce symptoms of depression and anxiety.

## 5 Personalized care

Adaptive gaming systems can cater to individual needs and abilities.

# Pilot Study

Obie Interactive Gaming Platform ([www.obieforseniors.com](http://www.obieforseniors.com)) – Obie is an interactive projection-based gaming platform designed to enhance cognitive, physical, and social engagement in various user populations, including individuals with dementia. By creating dynamic, responsive play environments, Obie encourages users to interact with projected images through motion, offering a stimulating and adaptive experience that promotes motor skills, mental acuity, and emotional well-being.

## Methodology

- Setting: You&I Senior Care Chain, Tokyo, Japan
- Participants: 12 residents (10 women, 2 men) with advanced dementia
- Intervention: Short (approximately 10-minute) engagement with Obie platform
- Assessment: Pre- and post-engagement observations using staff-developed scales

# Key Findings

## 1 Overall Improvement

9 out of 12 participants showed improvement in at least one measured area.

## 2 Liveliness

The most significant improvement was observed in liveliness, potentially reducing apathy.

## 3 Expression

Increased expressiveness was noted, with some residents showing improved cheerfulness.

## 4 Motor Functioning

Improvements in hand movement, staggering, articulation, and reaction to stimuli.

## 5 Cognitive Functioning

Positive changes in forgetfulness, attentiveness, judgment, and vocabulary.

## 6 Social Interactions

Enhanced positive attitude, cooperativeness, and conversation frequency.

# Detailed findings

Scale	Measurement/ participant	F1	F2	F3	F4	F5	F6	F7	F8	F9	Total
Motor Functioning	Hand movement	X	X	X							3
	Staggering									X	1
	Articulation	X									1
	Reaction to sound and light			X						X	2
Cognitive Functioning	Forgetfulness			X							1
	Attentiveness			X							1
	Judgment	X									1
	Vocabulary		X	-		X			X		2
	Liveliness	X		X	X	X	X				5
Social Interactions	Positive Attitude					X					1
	Cooperativeness						X				1
	Cheerfulness			X		X					2
	Expression		X	X		X		X			4
	Number of interactions		X						-		0
	Conversation frequency						X				1
		4	4	6	1	5	3	0	1	2	25

# Discussion

## Implications for Dementia Care

- Potential of interactive gaming to address apathy and improve overall well-being
- The importance of personalized, engaging activities in care settings

## Limitations and Future Research

- Small sample size and short duration of the pilot study
- Need for longer-term studies with larger populations
- Potential for investigating specific game designs and their impacts

# The Value of Staff-Developed Observational Tools

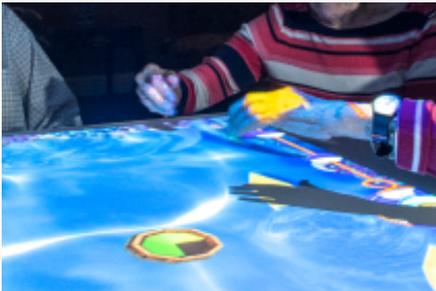
Care staff-developed observational tools can significantly contribute to the sense of purpose among caregivers. By actively participating in the assessment process, staff members:

1. Gain a deeper understanding of residents' needs and progress
2. Feel more invested in the care outcomes
3. Develop a stronger sense of ownership in the care process
4. Improve their observational and analytical skills
5. Contribute to evidence-based care practices

This involvement can lead to increased job satisfaction, better team cohesion, and ultimately, improved care quality for residents.

# Conclusion

The pilot study demonstrates the potential positive impact of interactive gaming platforms like Obie on individuals with advanced dementia. While further research is needed, these initial findings suggest that such technologies may offer a promising approach to enhancing the quality of life and care for dementia patients.



## Obie enhanced motor functions

Significant improvements in hand movements, response to sound and light, and speech clarity



## Obie improved cognitive functions

Significant improvements in memory and attention, judgement and clarity, and smiling frequency



## Obie boosted social interactions

Significant improvements in activity participation and conversations with staff

## Contact

Obie for Seniors by EyeClick

[obieforseniors.com](http://obieforseniors.com) | [contact@eyeclick.com](mailto:contact@eyeclick.com) | 914 219 0279