# *Time Travelling with Technology (TTT) for People with Dementia*

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# Objectives

1. Understand technology-based reminiscence therapy (RT)

2. Understand structure and implementation of the Time Travelling with Technology (TTT) program

3. Describe methods for evaluating the program

4. Explain potential benefits of technology-based RT

5. Conceptualise possible psychosocial processes engaged in TTT

# Dementia & Alzheimer's Disease

- loss of memory, language, perception, personality, judgement, and problem solving

    - as dementia progresses: mood disturbances, personality changes, agitation, aggression, pacing

- *2$^{nd}$ leading cause of death* in Australia; since 2016, leading cause of death among females

- Currently: *>447K* Australians with dementia

- *250* people diagnosed each day

- there is no cure

# Reminiscence Therapy (RT)

- vocal or silent recall of life events, activities and experiences using personal triggers - photographs, music, objects

- means to talk about memories

- promotes communication, reduces social isolation, improves mood and sense of self worth, sustains relationships

# Google Earth + Liquid Galaxy



Pilot @ Western

Wrap-around screens, hyper real software-rendered images are navigable through space and time, eliciting a sense of agency, envelopment and continuity

# Programs using/evaluating Technology

- Technology, 2D/3D, may boost intervention (Bejan et al 2017; Lazar et al. 2016; Subramaniam & Woods, 2012)

- Photo videos (Yasuda et al. 2009); video sharing via YouTube (O'Rourke et al. 2011)

- Studies often limited by small sample sizes and/or weak design (Lazar et al. 2014)

# Research Questions

1. Is Liquid Galaxy an effective and practical RT medium for people with dementia in aged care?

2. If so, does the immersive nature of a Liquid Galaxy system surpass non-immersive technology-based RT?

# Method & Measures

- Compare high- and low-tech RT (matched MMSE)
- Landmarks pre-loaded: Google Earth, StreetView
- 6 weeks: 1 x 30 min session p/w in groups
- Measures at baseline, and after Session 6
- Behavioural and psychological outcomes:
  - Quality of Life (QoL)
  - Neuro-Psychiatric Inventory-NH (NPI)
  - Observations: carers, family

Set-up at Yallambi
TTT - High-Tech: 5 screens, dynamic
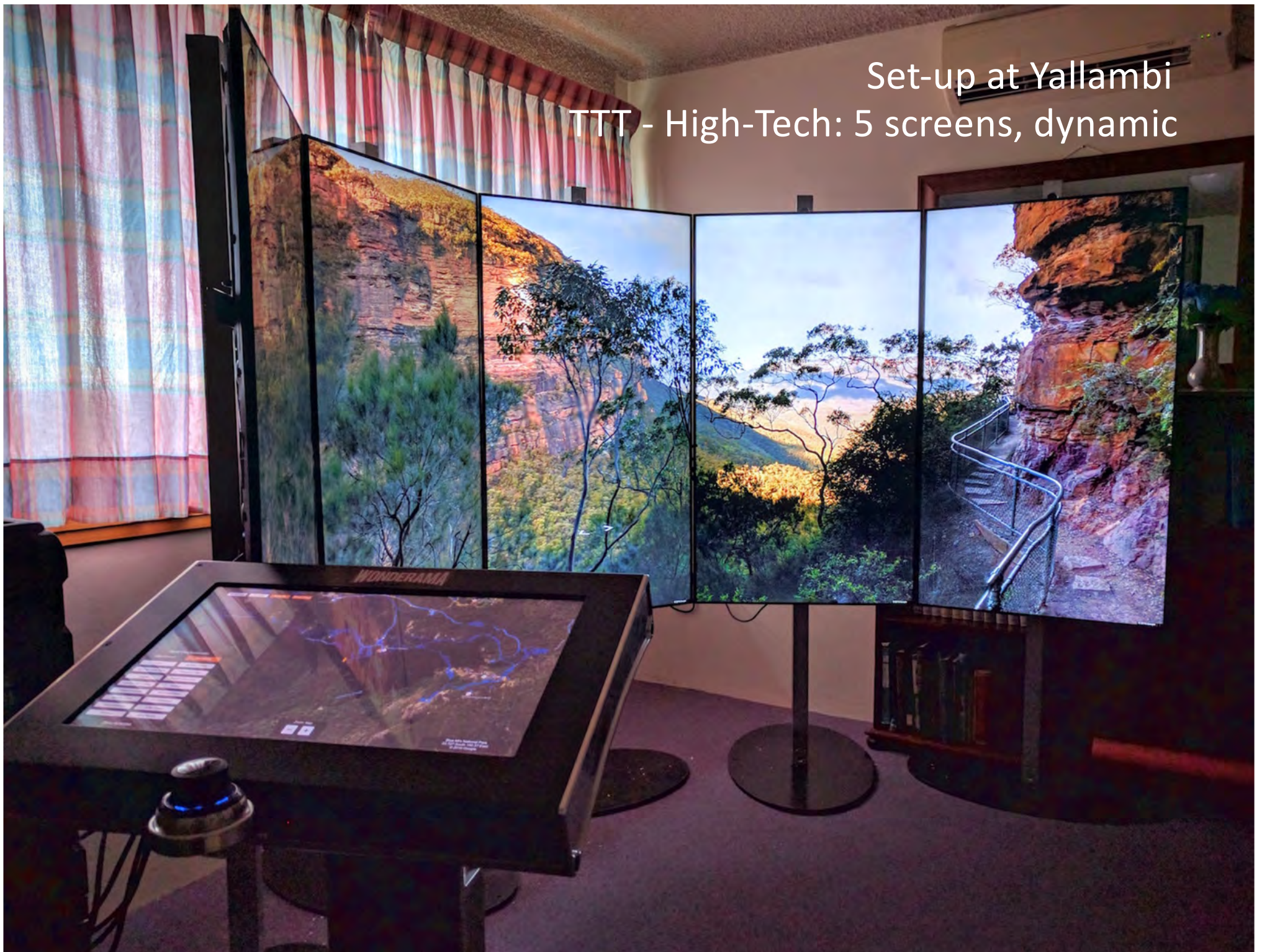
Low-tech static 'postcards'

# Protocol

1. MMSE and match low- and high-tech groups those scoring < 14 and ≥ 14
2. From 'Who Am I' and family, gather landmarks: childhood, school, work, family
3. Load landmarks into system
4. Baseline QoL & NPI
5. Wk 1: Google Earth, generic places of interest
6. Wks 2-3: Customised, Google Earth
7. Wks 4-6: Customised, StreetView
8. Post-test QoL & NPI

# Observations & Results (N=24)

- Enjoyable, engaging, feasible

- Elicited conversation, sense of spatial location



**NPI scale:**

significant improvement in High-tech vs Low-tech
(reduced irritability)

**QoL scale:**

no difference between High- and Low-tech

# Open-ended comments

"Thank you so much for doing this; he loves it; he thinks it's amazing how you have all the big screens and take him to places he knows." (family member)

"…the other day I was wheeling a resident back from a session that is usually quite withdrawn and she said, 'Oh no take me down to the dining room I feel like chatting after that'" (Lifestyle coordinator)

"Yesterday not one remembered."

"Lana, when her daughter came, recounted the whole journey for her. She said, 'I have been to a beautiful place.'"

"Cathy loves it, enjoys it, remembers it."

"Abby loves it. Just to get a smile out of her you're doing well… because she has very… [demonstrates flat affect]. Coming back in the bus yesterday, as we were pulling back up to the unit she said 'that was really good'."
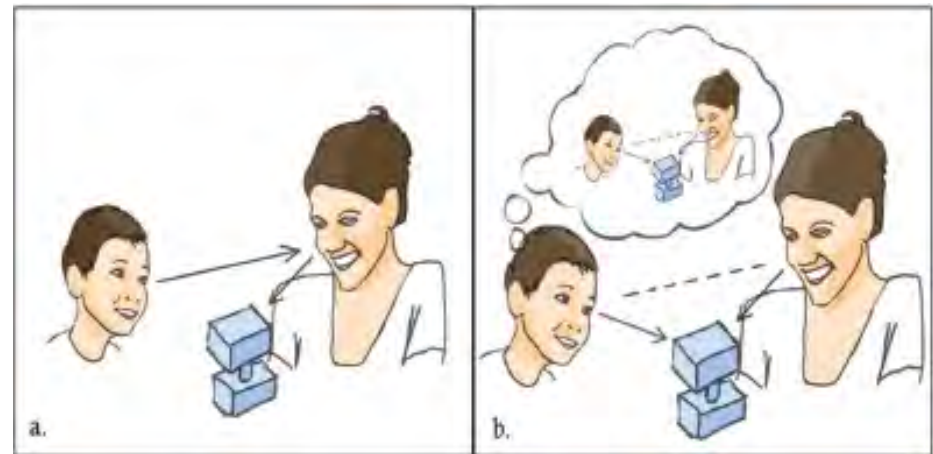
Verbal Engagement
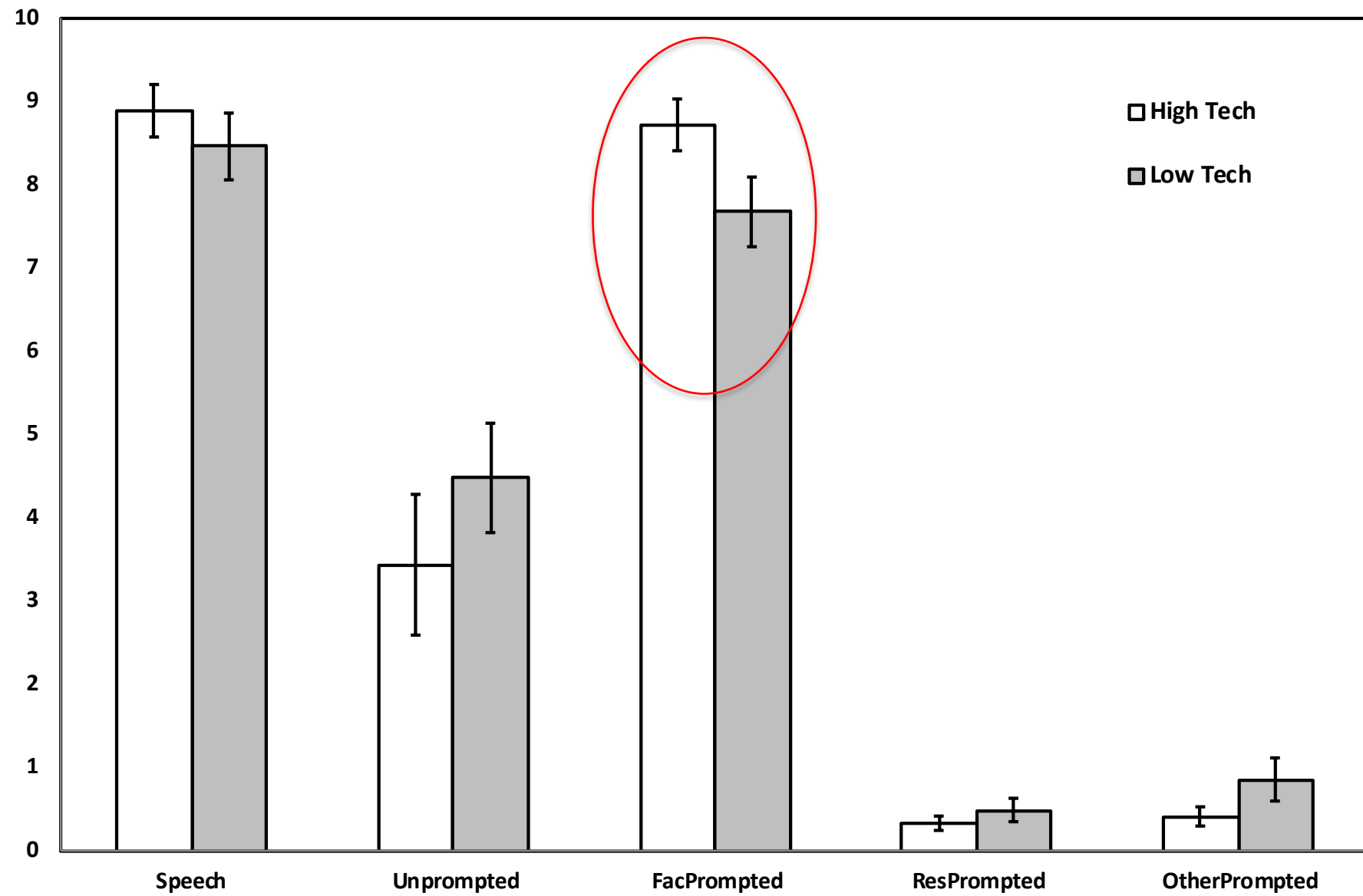
Visual Engagement with...
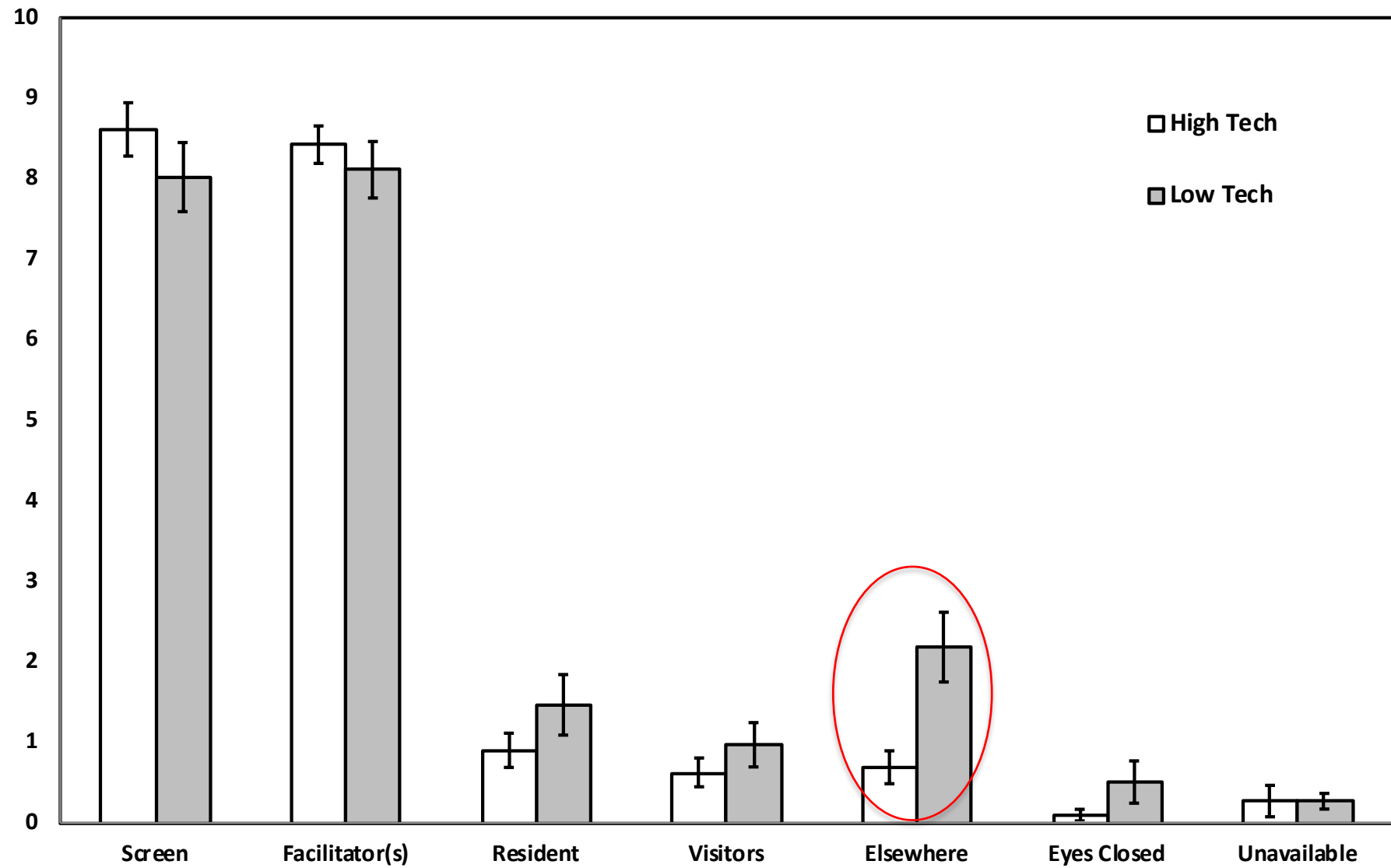
# Conclusions

- Contemporary medium, not merely nostalgia; hyper real

- Dynamic (high-tech): *moving* through space, time

- Joint attention, shared external focus/gaze

# Knowledge Translation & Next Steps

- **Automate** for roll-out, landmark loading

- Tablet and flat screen versions

- Multimodal TTT

- Further understand mechanism: *why* it works – attention; language

- Language as an index; training and evaluation

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*Time Travelling with Technology video:*

https://www.youtube.com/watch?v=YK8NF4-vgaI

# Thank You...

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