

Supplementary Materials: A Long-Term User Study of an Immersive Exergame for Older Adults with Mild Dementia during the COVID-19 Pandemic

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This document includes the questions of the semi-structured interviews for the paper: *A Long-Term User Study of an Immersive Exergame for Older Adults with Mild Dementia*.

1 HRQOL and DEMQOL

MEASURES	SESSIONS	CONTROL GROUP					TEST GROUP					MEAN		SD	
		CG ₁	CG ₂	CG ₃	CG ₄	CG ₅	TG ₁	TG ₂	TG ₃	CG ₄	TG ₅	CG	TG	CG	TG
HRQoL	<i>Session 1</i>	0	1	1	1	1	1	1	2	2	3	0.8	1.8	0.45	0.84
	<i>Session 2</i>	0	-	2	2	-	1	-	1	1	3	1.33	1.5	1.15	1
	<i>session 3</i>	0	-	2	0	2	-	1	3	2	2	1	2	1.15	0.82
DEMQOL-PROXY	<i>Session 1</i>	92	90	90	107	117	93	102	100	88	118	99.2	95.4	12.24	10.92
	<i>Session 2</i>	88	91	97	107	-	90	-	78	81	99	95.75	82.75	8.38	8.73
	<i>Session 3</i>	106	94	100	88	83	-	104	89	116	115	94.2	101	9.18	12.03

Table 1: Descriptive values from the HRQOL and DEMQOL-Proxy questionnaire.

2 CSDD

We found a significant difference between the post measures of CSDD values in the CG and the TG, which shows higher depression scores for CG (Wilcoxon Signed-Rank test at 0.05 significance level, $p = 0.043$, $W=18$).

3 Game-Related Interviews

In this section, we will enumerate the questions that were asked in the semi-structured interviews directly after the last game session.

3.1 Participants

1. How would you describe your game experience? / game experience
2. How was your attachment to the game? / game engagement
3. How much fun or boredom did you have while playing? / enjoyment
 - (a) If you got bored, what could have been changed to counteract that?
 - (b) Would more / different videos have helped? Or were the game mechanics themselves boring?
4. How did you feel when you were in the places you saw? / presence

5. How would you describe your visits to the touristic locations? / presence
6. How do you feel about the camera in your hand? / interaction with game mechanics
7. Did you feel different after playing than right before? Did you feel happier, or less happy?
8. What are your thoughts on the game in general?
 - (a) What did you like about the game?
 - (b) What did you not like?
9. Would you participate in a fitness game study again? / repeatability
 - (a) If yes, why?
 - (b) If no, why not?
10. Would you recommend this game to others? / generalization
 - (a) If yes, to whom and why?
 - (b) If no, why not?
11. What would make the game better? / game mechanics

3.2 Caregiver

1. How would you describe the mental (e.g. emotional) well-being of the participant before the study? / psychological
2. How would you describe the mental (e.g. emotional) well-being of the participant after the study? / psychological
3. How would you describe the cognitive (e.g. memory, complex actions, making plans) well-being of the participant before the study? / cognitive
4. How would you describe the cognitive (e.g. memory, complex actions, making plans) well-being of the participant after the study? / cognitive
5. How would you describe the physical (e.g. mobility, pain, performance) well-being of the participant before the study? / physical
6. How would you describe the physical (e.g. mobility, pain, performance) well-being of the participant after the study? / physical
7. How was the social life of the participant before the study? Was s/he often alone? / social
8. How was the social life of the participant after the study? Was s/he often alone? / social
9. How would you describe the quality of life (e.g. everyday activities of life) of the participant before the study? / HRQOL
10. How would you describe the quality of life (e.g. feelings, memory, everyday activities of life) of the participant after the study? / HRQOL
11. Was the participant's mood different immediately before and immediately after a gaming session? Were they in a more positive or negative mood?
12. Did the participant talk about the study?
 - (a) Did the participant talk about it right before or after the study? Or in between?

3.3 Healthcare Professional

For each participant:

1. Has the participant ever had VR experience before (VR games, another study, etc...)?
2. How would you describe your game experience? / game experience
3. How would you describe the game experience of the participant? / game experience
4. How would you describe the game engagement of the participant? / game engagement
5. How would you describe the interaction (e.g controlling, like to use the camera) of the participants with the photo camera object? / interaction with game mechanics
6. How would you describe the enjoyment of the participant during game-play? / enjoyment
7. How would you describe the participant's (willing) presence during the game? / presence
8. Have you observed differences in the participant's mood immediately before and immediately after a gaming session?

Only once for the healthcare professional:

1. What are your thoughts on the game in general?
2. What are your thoughts on teamwork with the participant?
3. Would you recommend this game for dementia patients and their caregivers or relatives?
 - (a) If yes, why?
 - (b) If no, why not?
4. What would make the game better? / game mechanics

4 General interview (post-game)

The following questions were asked to the caregivers of both TG and CG in the week after the last game session.

4.1 Caregiver

1. How would you describe the mental (e.g emotional) well-being of the participant before the study? / psychological
2. How would you describe the mental (e.g emotional) well-being of the participant after the study? / psychological
3. How would you describe the cognitive (e.g memory, complex actions, making plans) well-being of the participant before the study? / cognitive
4. How would you describe the cognitive (e.g memory, complex actions, making plans) well-being of the participant after the study? / cognitive
5. How would you describe the physical (e.g mobility, pain, performance) well-being of the participant before the study? / physical
6. How would you describe the physical (e.g mobility, pain, performance) well-being of the participant after the study? / physical
7. How was the social life of the participant before the study? Was s/he often alone? / social

8. How was the social life of the participant after the study? Was s/he often alone? / social
9. How would you describe the quality of life (e.g. everyday activities of life) of the participant before the study? / HRQOL
10. How would you describe the quality of life (e.g. feelings, memory, everyday activities of life) of the participant after the study? / HRQOL
11. Did the participant talk about the study?
 - (a) Did the participant talk about it right before or after the study? Or in between?