Are Serious Games Engaging? A Case of Motivating Sustainable Household Practices

Appendix

Expanded description of the game

The empirical basis for this study consists of interviews from two evaluations of functional serious game prototypes, themed around sustainable water consumption in households. The serious game is text-based and follows a linear format, presenting the player with different, independent scenarios, each containing a dilemma that requires the player to make a decision to advance, see Figure A1.

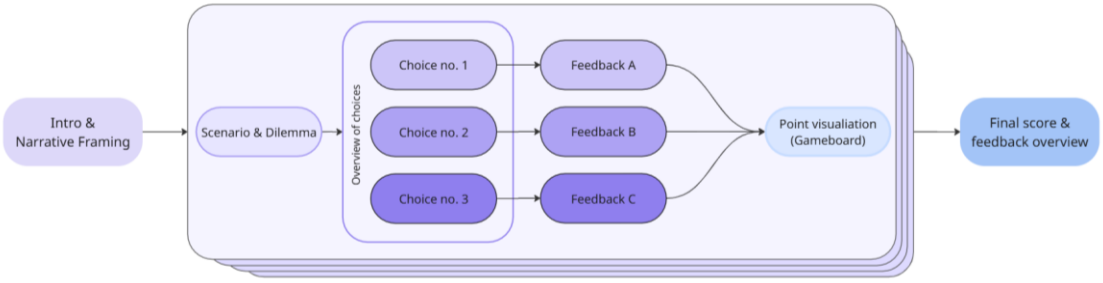


Figure A1 – Visual illustration of the game structure. Each scenario presents a dilemma with three to four choices, of which the player can only select one. The choice elicits choice-specific feedback and a visualized point score, before the next scenario. Participants who expressed a wish to select more than one option were encouraged to choose the one they considered most important.

The player is cast as the head of a fictional in-game household, consisting of a pre-teen son, a teenage daughter, and a partner. The characters react to the player's choices and influence the score, requiring the player to simultaneously consider the sustainability of their choices and keeping the favor of the family. Between the evaluations, the game underwent a redesign based, in part, on feedback from the first evaluation. The game was reduced from seven scenarios to six, the narrative language was adjusted for quality, and the scoring algorithm was adjusted to increase transparency. In addition, the visuals of the game were simplified.

Expanded description of the user-test approaches

The first evaluation took a discount usability approach, inviting five users to play the game in individual sessions, while simultaneously being interviewed about their experience. The participants were recruited from the project group members' personal and professional networks outside the project. The sessions were conducted over two days in October 2023. Each participant was facilitated with a short briefing on the purpose of the evaluation, the theme of the overall project, and the planned progression of their session. They would then play the game while the facilitator interviewed them. All five sessions were documented by video, audio, and screen recordings.

The second evaluation was conducted in February 2024, at a municipal climate-awareness event. Five laptops were set up and eventgoers were invited to participate by first playing the game and then being interviewed about their experience. The play-throughs were unfacilitated, except for an initial introduction to the game and necessary assistance if a participant

got stuck or had questions. Three interviewers conducted the interviews, with a structured segment to establish relevant meta-data, followed by a semi-structured segment. The evaluation yielded 26 user tests, documented with interview recordings, and meta-data surveys. Of these, 23 resulted in usable interview recordings (see Table A1), as one participant declined being recorded, and two recordings were too corrupted by background noise to be understandable.

Table A1: Overview of participants

Test person	Gender	Age bracket	No. people in Household	Playtime	Evaluation
1	Male	40-49	5	45:15	1
2	Male	50-59	4	46:30	1
3	Female	18-29	2	24:00	1
4	Male	50-59	2	36:00	1
5	Female	50-59	2	35:00	1
6	Male	50-59	3	05:10	2
7	Female	<18	5	14:40	2
8	Female	50-59	3	11:11	2
9	Female	<18	3	20:12	2
10	Male	30-39	1	10:55	2
11	Male	40-49	5	07:45	2
12	Male	18-29	1	09:45	2
13	Female	50-59	2	08:11	2
14	Female	<18	4	15:42	2
15	Male	40-49	5	14:23	2
16	Male	40-49	5	09:14	2
17	Male	18-29	1	05:59	2
18	Female	50-59	2	06:55	2
19	Female	30-39	1	08:34	2
20	Female	30-39	4	11:23	2
21	Female	70-79	1	12:54	2
22	Male	30-39	1	09:36	2
23	Female	50-59	1	08:25	2
24	Female	40-49	3	10:47	2
25	Female	18-29	2	07:58	2
26	Male	50-59	3	15:40	2
27	Female	30-39	3	07:30	2
28	Male	30-39	1	07:22	2