Visceral Rhetoric for a Post-Factual Society

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ABSTRACT

Games have been used as devices for simulation or procedural rhetoric for at least two decades, since the release of September 12 in 2003 (Espel, 2015). Bogost defines procedural rhetoric as *"the art of persuasion by rule-based representations and interactions rather than spoken or written word"* (Bogost, 2007). Rhetoric, understood as the craft of informing, persuading or motivating a particular audience, is a key aspect of learning games. As Gee states (Gee 2003, 2007), players must learn the rules of the game and plan their actions to solve challenges and master the game. Learning the rules is the baseline of the procedural rhetoric theory.

The widespread adoption of new communication and media technologies coincided with a new form of knowledge creation and validation referred to as "post-truth" (Cosentino, 2020; Kalpokas, 2018) where audiences no longer respect truth (e.g., climate science deniers) but simply accept as true what they believe or feel (Harsin, 2018). Facts are considered irrelevant compared to appeals to emotion and personal beliefs, traditional information channels are questioned and "all authoritative information sources are called into question and challenged" (Fukuyama, 2017). This new paradigm questions traditional approaches to knowledge generation and transmission that are based on rational appraisal. Until now most of the attempts to push back against this trend have been based on rational strategies such as fact checking or trust strategies such as calling on more authoritative experts. Here we suggest leveraging the very same personal and emotional rhetorical devices employed by pos-truth actors to push back against their discourse.

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In this paper we start drafting possible strategies for deploying a more visceral rhetoric, able to challenge the emotionally charged post-truth arguments with emotionally charged experiences.

We therefore showcase a simulation game designed to teach basic concepts of circular food economy. In order to experiment with systems that can engage users in a more personal and emotional way we designed a game that simulates a self-contained ecosystem, users can interact with energy production, waste management and food production stations to affect the wellbeing of a city. The systems are modeled around the Ellen MacArthur Foundation report "Cities and circular economy for food" (Ellen MacArthur, 2019). The game was designed with the aid of experts in economy, ecology, animal science, public administration and innovation studies. The game has been created in **four variations**, experimenting both with input systems (controls) as well as with visual feedback systems ranging from rational, objective and fact-based to more personal, emotional and visceral.

The two variations of the visual feedback system are inspired by the work of Edelman (Edelman 1964): a **referential (rational) visualization**, where symbols are economical ways of referring to objective elements that help with logic and are widely understood—such as numbers and statistics (figure 1a) and a **condensation (emotional) visualization**, where symbols have an emotional appeal and are used to evoke sentiments of solidarity (figure 1b). In the referential visualization, resources (money, energy, food and waste) are represented as packets of different sizes moving along pipes connecting the different stations. In the condensation visualization, the effects of how resources are produced, consumed and managed are visualized with abstract metaphors (water levels raising and changing color, forest growing or catching fire, algae tanks proliferating, cattle growing or dying, etc.).

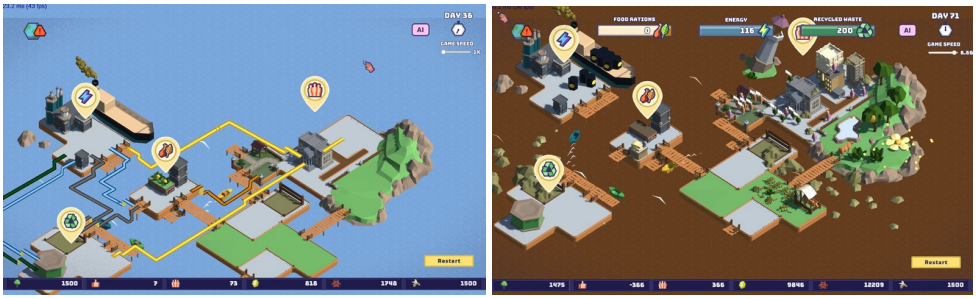

Figure 1a (left) and 1b (right): Referential and condensation visual feedback systems.

The two variations of the input systems are inspired by work on embodied interaction and cognition stating that cognitive processes are largely shaped by the body's states, and the mind is grounded in the body and bodily interactions with the world (Lee-Cultura et al. 2020, Tan et al. 2018, Canossa et al. 2020). We deployed a traditional setup for controllers with mouse and keyboard (figure 2a) and an embodied setup that requires users to control the game by touching a banana, a battery and an empty tin can (figure 2b) to access respectively the food production, energy production and waste management stations. Interacting with the different subsystems of the stations is also achieved by touching sensitive buttons.

Figure 2a (left) and 2b (right): Traditional and embodied input systems.

The four versions of the game are 1) referential visualization & embodied controls; 2) referential visualization & traditional controls; 3) condensation visualization & embodied controls; 4) condensation visualization & traditional controls. All four versions were showcased between March and May 2022 as a part of the Visualizing Sustainability exhibition at the Royal Danish Academy. To assess the impact of the variations on the player experience, we asked visitors to fill the Player Experience Inventory (PXI) (Abeele et al. 2020). We collected 40 valid survey responses for each of the four conditions for a total amount of 160 responses. We found significant main effects.

	refer_body	refer_trad	cond_body	cond_trad	anova single factor p value
audiovisual	0,45	-0,4	1,6	0,725	0,0000429
challenge	-0,525	0,375	0,15	-0,425	0,0011775
controls	-0,05	0,75	-0,725	-0,125	0,0003108
goals	0,125	0,875	0,6	0,025	0,0072989
progress	-0,3	0,5	0,75	0,15	0,0034576

Table 1: Results of the PXI survey, the first column shows the means for the version of the game with referential visualization and embodied input, the second shows referential visualization and traditional input, the third shows condensation visualization and embodied input, the fourth condensation visualization and traditional input. Each of the four version was evaluated according to the five categories provided by the PXI (audiovisual appeal, perceived challenge, ease of controls, clarity of goals, feedback on progress).The difference between all means have been proven statistically significant with an ANOVA single factor test.

Results (table 1) show that the third variation (condensation visualization and embodied controls) performs better at quickly engaging and appealing as well as providing feedback on progress, while referential visualization and traditional controls are providing better controls, more fair perception of difficulty and clarity of goals. It seems that, to maximize the impact of visceral rhetoric, a game must, to some degree, sacrifice clarity of information in terms of goals and controls as well as sacrifice perceived fairness of challenge, contradicting current best practices and heuristics for usability and playability (Desurvire 2009). Mixing strategies such as in variation 1 and 4, results in the lowest PXI scores.

Future work will have to verify this initial insight on different games, but this exploratory study seems to point at the fact that there are possible alternative strategies to leverage the shift in how knowledge is generated and transmitted since the advent of the so-called post-factual society. Educators and game designers will benefit from updating the arsenal of design tools at their disposal by being able to reach audiences that might be otherwise indifferent to traditional rhetoric.

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