Video game design for ecological impacts

Maël Addoum[1], Aurélien Lherbier[1], Yannick Bourquin[1], Mehdi Debbabi-Zourgani[1]

[1]ISART Digital, Paris, France
m.addoum@isartdigital.com, a.lherbier@isartdigital.com,
y.bourquin@isartdigital.com, m.debbabi@isartdigital.com

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Abstract

Video games have a potential impact on people and society. In addition to entertainment, they can be considered as conducive media for raising users' awareness of societal and environmental issues. In this work, we design three video game prototypes where each one highlights a particular problem (climate change, consumption, resources management, etc.). Our motivation for designing multiple mini-games is the possibility to analyze the individual impact of each game on the related issue [1-2]. These prototypes incorporate game design elements such as visual and auditory cues, gameplay, and game feel that attempt to influence players' attitudes and behaviors in a fun, educational and interactive way.

Method

The first game focuses on the planet's climate warming and intends to sensitize the players to the direct impact of their own habits and actions on the environment. The gameplay consists in choosing between fast but polluting cars or slow/electric but ecological cars. Then, the universe dynamically degrades according to the users' choices. In the second game, the player embodies a damaged, old, torn sweater that must learn to repair and sew itself to become attractive and find a new buyer. The goal of this game is to promote the circular economy, textiles recycling, and to avoid wastage by adapting the consumption of users. The main message is to show users that the consequences will not necessarily be bad by changing their practices. The last prototype is an interactive narrative game that proposes to players to manage a city and take strategic decisions. The players embody political decision-makers who negotiate with "Aliens" who have destroyed their planet and wish to live on ours. Decisions made during the dialogue are expected to foster skills in strategy, diplomacy, and management of the city's resources (managing overpopulation, civil infrastructures, construction of a new nuclear center, food consumption, public transportation, etc.).

Results

These games were developed using the Unity Engine, where the 2D virtual models and graphical aspects were designed for a casual purpose. The primary results based on a few direct observations of playtests showed a positive acceptance by the players towards the games. The user's exhibited ecological consciousness and sensitization to climate change and its negative environmental effects. The game design-based elements (visual, gameplay, and mechanism) played an important role in increasing immersiveness and triggering the necessary emotions that encourage users to take individual responsibility by adapting their mindsets and practices. For the next step, we plan to carry out a comparative study before and after the gaming sessions to analyze the change produced by these prototypes on the players' behaviors and attitudes.

Conclusion

In this work, three ecological impact games have been designed that encourage positive changes in our lifestyles (behaviors, decisions, energy and food consumption, clothing, recycling, etc.). We believe that game design can foster a better understanding of climate change issues and provide solutions and actions needed to create resilient and zero-emission societies.