Designing A Digital Game Concept That Positively Influences The Behaviour of The Player Towards Sustainability.

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Background

This thesis is part of my internship which is a broader project conducted in collaboration with a multidisciplinary team at DEUS B.V in Amsterdam, Netherlands. The project was commissioned by the client Eden Holland and the assignment was to design a mobile game concept that positively encourages sustainable behaviour of the players.

The Eden Holland Foundation is an organisation that strives to promote long-term behaviour change by developing a practical perspective on sustainability. Their approach is to build a theme park on Pampus Island, which is located on the Ijmeer near Amsterdam. This theme park would also serve as a research facility with living labs centred on sustainability, education, and inclusivity. A digital platform is being designed for the theme park, and the main focus of this project is on the gamification components of that digital platform.

Research questions

To inform my design process, I carried out literature research on how gamification frameworks can be utilised to drive behavioural change. I formulated the following research question:
1. What is sustainable behaviour?
    a. *What are the motivations for behavioural change?*
2. How can sustainable behaviour be influenced by games?
    a. *What is Gamification?*
    b. *How do gamification frameworks influence player behaviour?*
3. What could be a possible game concept to support behaviour change?
4. To which extent does the developed concept fulfil the objective keeping in mind the requirements?

Methodology

A user-centered design approach, as well as design thinking methodology, was implemented as these prioritise the human factor over all other variables. This design approach is founded on a clear understanding of users, tasks, and surroundings; it is guided and enhanced by user-centered assessment, and it addresses the whole user experience. Empathy, Definition, Ideation, Prototyping, and Evaluation are the five steps of the most traditional design thinking methodology.[1]

Investigations that followed research questions one and two resulted in the discovery of behavioural change models together with gamification framework Octalysis and 4keys2Fun. These were further

explored in the ideation phase to develop a game concept which was prototyped and tested by potential target audiences to evaluate the extent to which the game concept meets the objectives.

Results

Research on the target users and market segment, user personas and a user journey were used to pinpoint challenges as well as design opportunities. The main challenge discovered was the lack of provision of engaging ways of presenting data on sustainability, which made participation less attractive.

Using ideation techniques such as brainstorming, mind mapping and storyboarding, a game concept was designed that could solve this problem. The result was a strategic city-building game concept called Nova Eden (Figure 1). Players have to build and grow their city to be sustainable by making decisions on how the needs of the city will be met. Gamification elements implemented in the game aid user engagement, while the players are being fed with bite-sized information, while also providing suggestions on sustainable practices in form of challenges. Upon completion, the players are rewarded with in-game as well as real-life perks which encourages the continuation of these practices until they become long-term behaviours.

Conclusion

Behaviour change is a circular (ongoing) process according[2], which means that even after the behaviour modification occurs, the process still needs to be maintained to prevent relapse. Nova Eden like every other product or service has a life cycle which is dependent on various factors such as the quality of the game elements like graphics, sounds and game dynamics as well as Endgame development. Even with the best of these features, one major factor that can make or break the success of this game is the ever-changing player trends. A more accurate assessment of Nova Eden's potential can be evaluated on a long-term basis with a larger segment of the target audience.

Games can only play a small part in a much larger, multifaceted solution to the problem challenge of a sustainable lifestyle and economy but this part however small is a step closer to this solution. Despite the limitations of the Nova Eden game concept, gamification still appears to be a promising way to encourage sustainable behaviour for several reasons

References

[1]   R. Wolniak, "The Design Thinking method and its stages," Systemy Wspomagania w Inżynierii Produkcji, vol. 6, 2017.

[2]   Boston University School of Public Health. "The Transtheoretical Model (Stages of Change)." Boston University School of Public Health. https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/behavioralchangetheories6.html (accessed 11. July 2022, 2022).
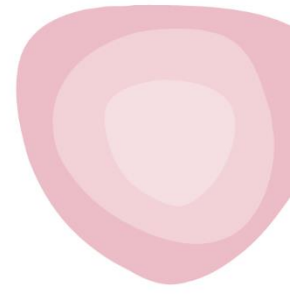
Figure 1 Final game concept