


Chapter 13

Gamification in Climate Action: Understanding the Role of Game Technologies and Participatory Engagement

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ABSTRACT

The imperative to address climate change has led to innovative approaches, one of which is the application of gamification. This paper explores the potential of gamification to mitigate climate change by enhancing eco-education, simulating scientific scenarios, and providing policy feedback. It argues that gamification, through its ability to engage users in a “magic circle” of play, can foster a participatory culture that encourages behavioral changes aligned with climate mitigation strategies. The objective is to shift the focus from merely improving gamification's effectiveness to leveraging the gaming industry's potential to directly contribute to reducing personal carbon footprints and shaping power consumption habits through gaming. It concludes that gamification and the gaming industry can play a significant role in climate change mitigation by transforming players' behaviors and by establishing a virtual carbon credit market that incentivizes sustainable practices.

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INTRODUCTION

In 2022, a heat wave is roasting the whole Eurasische Platte. According to the land surface air temperatures indicated by NASA (NASA, 2022), the summer will probably be the hottest since the late 19th century. Instead of affecting the biosphere gradually, climate change is now a potential threat to all biont types. To address the climate crisis, humans set global agendas and contribute endless efforts, from Stockholm and Kyoto to Paris (UN, 2007). Can we reverse the dead end of an eco-catastrophe and develop a sustainable lifestyle? Or is this goal only an ectopia in a digital game simulation? In light of this question, applying a gaming approach to address climate change benefits eco-education, science simulation, and policy feedback. Relentless exploration by game scholars has reached a pivot point, resulting in an imaginative concept based on reviews that can not only impact the climate through pedagogy or simulation but also functions as an engine that can drive humanity toward a low-carbon society directly.

Dealing with a retaliation from nature, this COVID-19 pandemic, impacts humans through our disputes and discordances. This is also the case when we encounter global climate change. From a socioeconomic standpoint, climate change enlarges the gap between wealth and poverty, which results in great inequity regionally (Tol, R. S. J., 2009). Such inequity affects food production, causing a significant polarization that developing nations may experience with the risk of hunger (Parry M. L. and et.al., 2004). Through the means of the social cost of carbon (SCC) and climate change impacts, adaptation and vulnerability (IAV), analytical results are used to help enact policies managing economic risk and greenhouse gas emissions, namely, carbon dioxide (CO²) (Diaz, D., & Moore, F., 2017). Instead of focusing on public organizations and private sectors of business (Martinich, J. & Crimmins, A., 2019), we must include individuals and households as well, as they are the basic cell of human society. Based on the carbon footprint Gini coefficient, Chinese households' carbon consumption reveals inequities in rural and urban areas and among wealth and impoverished population distributions (Wiedenhofer, D. et al., 2017). The inequity of economic risk does not only stretch spatially; if we use a more farsighted scope, it has a long-term effect on intergenerational equity (Mejean, A. et al., 2020). Hence, climate change, especially CO² emissions, is highly integrated into the interaction of humans and ecosystems and remains dynamic and multifactor. Thus, the innovation of green energy is on one side; on the other side, humankind requires another approach to sustainable collaboration to reduce its carbon footprint without causing social and economic inequity.

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