

Game-changer in tackling food loss and waste: Minecrafting a sustainable future

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Abstract

The challenge of food loss and waste (FLW) has reached alarming proportions, with recent reports indicating that approximately one-third of the world's food production, amounting to roughly 1.3 billion tons, is lost or wasted annually (Parfitt et al., 2021). The consequences of FLW reverberate across various domains, posing significant implications for the environment, economy, and society (Abeliotis & Lasaridi, 2022). Environmentally, the squandering of substantial volumes of food leads to unnecessary resource depletion. This includes the wastage of arable land, water, and energy used in production, contributing to a strained ecological footprint (Scherhaufere et al., 2018). Additionally, decomposing food in landfills emits greenhouse gases, notably methane, intensifying climate change impacts (ibid). On an economic front, FLW translates to substantial financial losses for both producers and consumers (Kotykova & Babych, 2019). The resources invested in cultivating, harvesting, transporting, and processing lost or wasted food represent a missed opportunity for economic growth (ibid). This inefficiency undermines the sustainability of agricultural systems and has ripple effects on global markets (ibid), potentially destabilizing food prices (Doukas, 2023). In the social realm, FLW exacerbates food insecurity and inequality (Loizia et al., 2019). The food that is lost or wasted could have alleviated hunger for millions (ibid). Instead, it underscores disparities between regions of abundance and those plagued by insufficient access to nutrition (ibid). Moreover, the ethical dilemma of discarding food while a considerable segment of the world's population suffers from inadequate nourishment prompts profound inquiries concerning societal principles and the distribution of resources (Fanzo, 2019). Addressing FLW is paramount. As a challenge of global significance, it

aligns with the Sustainable Development Goals set forth by the United Nations, particularly Goal 12: Responsible Consumption and Production (Lasaridi et al., 2021). By minimizing FLW, societies can simultaneously enhance food security, reduce environmental strain, and foster economic stability. Tackling this challenge requires a collaborative effort, and unquestionably education plays a pivotal role in this endeavor. Integrating comprehensive educational initiatives empowers individuals with the knowledge and skills needed to make informed choices about food consumption and waste reduction (Fraj-Andrés et al., 2023). Educating students, communities, and stakeholders about the environmental, economic, and social consequences of FLW fosters a shared dedication to responsible behaviors, which in turn leads to the development of practical approaches on individual and broader scales. This type of awareness creates a ripple effect that resonates across industries, governments, and communities, amplifying the potential to achieve meaningful, lasting change. It fosters a global ethos of mindful resource management and sustainable consumption, driving positive impacts for current and future generations (Chawla & Cushing, 2007). Along this narrative, the 'Boosting school Awareness about FOod loSs' (BAFOS) project (www.bafos.eu), co-funded by the Erasmus+ Programme of the European Union, offers a pragmatic and innovative approach to combating FLW. By creating the 'FoodWaste' adventure game in 'Minecraft Education', a specialized version of the popular video game 'Minecraft' that is designed specifically for educational purposes, the project utilizes digital platforms to raise awareness and stimulate insights, aiming to empower individuals to navigate complex challenges through creative collaboration. BAFOS seeks to equip the younger generation, specifically targeting Generation Z through technology (Närvänen et al., 2022), with essential insights and tools to effectively tackle FLW and foster proactive solutions. Seamlessly integrating education and gaming, the project strives to cultivate a sense of responsibility and awareness. This initiative is more than an engaging game; it is a transformative journey of interactive education, fueled by a shared commitment to educate and enlighten the younger generation about the significance of addressing FLW. This endeavor not only illuminates the pressing issue of FLW but also paves a practical path forward. By cultivating awareness, aligning with sustainability objectives, and harnessing educational technology, this initiative exemplifies the capacity for positive transformation, while stressing the imperative of collaborative action in addressing FLW and alluding to the wider ramifications for a more conscientious and sustainable society.

Keywords: food waste, environmental awareness, education, innovation, gaming, sustainability

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