

Chapter 13

Incentivizing Sustainability a Gamified Approach to Plastic Waste and Pollution Challenges

Sunetra Saha

 <https://orcid.org/0000-0003-0879-774X>

Amity Business School, Amity University, Noida, India

Arpita Srivastava

 <https://orcid.org/0000-0002-9734-8008>

G.L. Bajaj Institute of Management and Research, Greater Noida, India

Nidhi Srivastava

 <https://orcid.org/0000-0002-3350-0728>

G.L. Bajaj Institute of Management and Research, Greater Noida, India

ABSTRACT

This study looks at how well gamified incentive models work in India to encourage recycling, responsible plastic disposal, and a decrease in plastic use. The study investigates user motivations, preferences, and barriers to using gamified waste management systems using a mixed-methods research technique. The qualitative interviews offer detailed insights into the elements—like personal accountability, environmental concerns, and the requirement for an easily navigable platform—that motivate consumer engagement. The impact of gamified incentive models on behaviour change is further demonstrated by the quantitative survey data, which also shows how their efficacy is influenced by age, education level, and past environmental awareness. The results of this study highlights key design dimensions for creating

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effective gamified incentive models including balanced reward systems, user-centric design, tailored experience and smooth interaction with the trash management infrastructure. It also suggest ways to encourage long term behavioural changes and enhance consumer involvement.

INTRODUCTION

The adverse impact of plastic pollution on environment has become a major concern when it comes to public health and sustainable development. The fast consumption and urbanization in last two decades have given rise to increased plastic usage resulting in more and more plastic garbage. The absence of effective recycling of this garbage has crated severe consequences. As per Central Pollution Control Board (CPCB, 2021) only 60 percent of the plastic garbage is recycled, reminding 40 percent still landfilled, littered or pollutes water bodies. The incorrect disposal of plastic waste pollutes streams, soil, and put aquatic ecosystem at risk (Jayasiri, 2013). The air quality is also contaminated with harmful compounds when plastic is burnt outdoor, leading to negative impact on human health (Verma et al, 2016). Economic point of view also suggests that loss of available resources and income from recycling programmes do not help any economy when plastic waste is not handled correctly (Nandy et al, 2015). Despite introduction of several laws and programmes to control plastic pollution in India such as Plastic Waste Management Rules (2016) and National ban on single use plastics (2022) a lot is still desired to create public awareness, behavioral change for sustainable development.

This study is an effort to acknowledge the need for strategies that address the problem of plastic pollution through Gamified incentive model. The Gamified incentive model is proposed to promote environment friendly behaviour by integrating reward systems and game like behaviour (Deterding et al., 2011; Ouariachi et al., 2017). The study examines that responsible plastic disposal in Indian context may be stimulated by gamification and incentive modeling. The study will give valuable insights to policymakers, communities and corporations to raise awareness, increase consumer involvement and control plastic trash.

Research Objectives

This study's main goal is to evaluate how well gamified incentive models work in India to promote recycling, cut down on plastic use, and dispose of plastic waste responsibly. The study's specific objectives are to:

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