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MDPI

Systematic Review

Gamification in Digital Mental Health Interventions: A Systematic Review of the Engagement–Efficacy–Ethics Trilemma

Harold Ngabo-Woods [1], Larisa Dunai [2,*], Isabel Seguí Verdú [2] and Valentina Tîrșu [3]

[1] Doctoral School, Universitat Politècnica de València, 46022 Valencia, Spain; hawooka@doctor.upv.es
[2] Department Graphical Engineering, Universitat Politècnica de València, 46022 València, Spain; issever@doctor.upv.es
[3] Department of Telecommunications, Technical University of Moldova, MD-2004 Chisinau, Moldova; valentina.tirsu@tse.utm.md
* Correspondence: ladu@upv.es

Abstract

Digital Mental Health Interventions (DMHIs) offer a scalable solution to the global mental health crisis, yet their real-world impact is often hampered by low user engagement. Gamification has been widely adopted as a strategy to enhance adherence, but its implementation creates a complex and often unacknowledged "Engagement–Efficacy–Ethics Trilemma". This systematic review synthesises the current literature to deconstruct this trilemma, arguing that an uncritical focus on maximising engagement can fail to improve—or may even undermine—clinical efficacy, while simultaneously introducing significant ethical risks. Our analysis reveals a persistent "Engagement–Efficacy Gap", where increased usage of mobile health applications (mHealth apps) does not consistently translate to better therapeutic outcomes. Furthermore, we map the ethical landscape, identifying potential harms such as manipulation, psychological distress, and privacy violations that arise from persuasive design. The roles of Artificial Intelligence (AI) in personalising these experiences and Human–Computer Interaction (HCI) in mediating user responses are critically examined as key factors that both amplify and potentially mitigate the tensions of the trilemma. The findings indicate a pressing need for a paradigm shift toward an integrated approach that concurrently evaluates engagement, efficacy, and ethical integrity. We conclude by proposing a framework for responsible innovation, emphasising theory-driven design, co-design with users, and prioritising intrinsic motivation to harness the potential of gamified DMHIs safely and effectively. Following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, a systematic search was conducted across Scopus, Web of Science, MEDLINE, and PsycINFO for studies published between 2015 and 2025.

Keywords: gamification; digital mental health; Human–Computer Interaction; Artificial Intelligence; information ethics; user engagement; persuasive technology

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