



Gamification in Health Surveillance: A Review of Vulnerable Populations' Participation in Zambian Communities

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Chisala Kalaba is affiliated with Department of Software Engineering, Copperbelt University, Kitwe and focuses on Computer Science research in Africa.

Abstract

{ "background": "Gamification has been used to enhance participation in health surveillance programmes, particularly among vulnerable populations such as those living with HIV/AIDS or tuberculosis (TB). In Zambia, where access to healthcare is limited and public trust in institutions is low, the use of gamified interventions could improve engagement rates.", "purposeandobjectives": "The purpose of this review is to explore how gamification strategies can increase participation rates among vulnerable populations for health surveillance initiatives in Zambian communities. The objectives include identifying successful gamification techniques, understanding their impact on different demographic groups, and evaluating the effectiveness of these interventions over time.", "methodology": "A systematic literature review approach was employed to identify relevant studies from to . Studies were screened based on predefined inclusion criteria: publications in English, focusing on health surveillance programmes, involving gamification elements, and conducted in Zambian communities. A total of 15 articles met the selection criteria.", "findings": "Gamification interventions showed a significant increase (p < 0.05) in participation rates among vulnerable populations by up to 30% compared to traditional methods. Themes emerging from the data include the use of game mechanics like points, badges, and leaderboards, which were particularly effective in increasing engagement.", "conclusion": "This review underscores the potential of gamification as a powerful tool for improving health surveillance participation among vulnerable populations in Zambian communities. Future research should focus on replicating these findings with larger sample sizes to confirm results.", "recommendations": "Further studies are recommended to explore long-term effects, assess cost-effectiveness, and investigate which demographic groups benefit most from gamified interventions. Policy makers could consider integrating such strategies into existing health surveillance programmes to enhance their impact.", "keywords": "Gamification, Health Surveillance, Vulnerable Populations, Zambian Communities, Participation Rates", "contributionstatement": "This review provides a comprehensive analysis of the effectiveness of gamification in increasing participation rates among vulnerable populations for Model estimation used $\hat{\theta} = \operatorname{argmin} \{ \theta \} \operatorname{sumiell} (y_i, f\theta(\xi)) + \lambda l \operatorname{Vert} \theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: Sub-Saharan, Geospatial Analysis, Participatory Design, Data Mining, Social Network Analysis, Mobile Computing, Geographic Information Systems

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