



Gamification in Management Education for Sustainability: Engaging Millennial and Gen Z Learners

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ABSTRACT

This research paper explores the integration of gamification in management education to engage millennial and Gen Z learners while teaching sustainability concepts. The study adopts a theoretical framework that combines motivation and engagement theories with gamification elements. Through a carefully designed curriculum, gamified activities are employed to teach sustainability concepts. Data collection involves surveys and interviews to gauge engagement levels and learning outcomes. Preliminary findings suggest that gamification enhances learners' engagement and understanding of sustainability, presenting promising implications for modern education approaches and sustainable development.

1. Introduction

In the rapidly evolving landscape of education, engaging millennial and Gen Z learners has emerged as a multifaceted challenge. These digitally native cohorts exhibit distinct preferences and learning behaviors, necessitating innovative teaching methodologies to effectively impart knowledge and skills. Concurrently, the concept of gamification has garnered attention as a potent pedagogical tool to enhance engagement and foster meaningful learning experiences. This paper delves into the realm of gamification in the context of management education, with a specific focus on teaching sustainability to millennial and Gen Z learners.

Traditional educational approaches, predominantly centered on didactic methods, often struggle to captivate the attention of contemporary learners. Millennial and Gen Z students, brought up in a hyperconnected world, possess

different expectations and attitudes toward education. The ubiquitous presence of technology and the prevalence of interactive digital media have led to a shift in how these learners engage with content and construct knowledge. As a result, educators and institutions face the challenge of recalibrating their pedagogical strategies to accommodate these evolving dynamics.

Gamification, the application of game elements and mechanics in non-game contexts, offers a promising avenue to address the engagement gap in education. By leveraging intrinsic motivators such as competition, achievement, and rewards, gamification holds the potential to transform learning into an immersive and participatory experience. The integration of gamified elements, such as challenges, point systems, and feedback mechanisms, has been shown to stimulate learners' intrinsic motivation, sustaining their interest and commitment throughout the learning journey.

Management education, characterized by its emphasis on practical application and critical thinking, provides a fertile ground for the implementation of gamification strategies. The incorporation of gamified activities in management courses not only enhances engagement but also cultivates skills essential for future leaders. However, the potential of gamification extends beyond conventional skill development; it can serve as an effective conduit for conveying complex and pressing global issues, such as sustainability.

The imperative to educate future leaders about sustainability has become increasingly urgent. The challenges posed by environmental degradation, resource depletion, and societal inequality necessitate a paradigm shift in management education. Integrating sustainability concepts into the curriculum equips learners with the competencies needed to navigate and contribute to a more equitable and sustainable world. Given the transformative nature of sustainability education, innovative approaches are warranted to effectively communicate these intricate concepts to digitally native learners.

This research paper centers on the proposition that gamification holds promise as an effective strategy for teaching sustainability to millennial and Gen Z learners within the realm of management education. The primary objectives of this study are twofold: first, to assess the impact of gamification on engagement levels and learning outcomes in the context of sustainability education; and second, to explore the alignment between gamification, motivation theories, and the unique attributes of millennial and Gen Z learners.

2. Literature Review

Gamification, as a pedagogical strategy, has gained substantial attention due to its potential to enhance engagement and learning outcomes in various educational contexts. It involves the integration of game elements, such as competition, challenges, and rewards, into non-game environments to motivate and captivate learners. Within the realm of education, gamification has been explored to address the evolving needs of millennial and Gen Z learners. These cohorts, raised in the digital age, exhibit distinct preferences for interactive and immersive learning experiences. Gamification aligns with their accustomed engagement with technology, offering a way to bridge the gap between traditional teaching methods and the expectations of modern learners.

The utilization of gamification in educational settings has demonstrated encouraging results across diverse disciplines. Research indicates that gamified learning experiences can stimulate intrinsic motivation, encouraging students to actively participate and persevere in their studies. Moreover, the competitive elements often integrated into gamification foster a sense of achievement and accomplishment, further bolstering learners' commitment to the educational process. These findings underscore the potential of gamification to enhance both engagement and learning outcomes, a particularly pertinent consideration when addressing the distinct learning characteristics of millennial and Gen Z students.

The development of critical thinking, problem-solving, and decision-making skills is paramount, gamification offers a dynamic approach to facilitate learning. Management curricula can be enriched by incorporating gamified simulations, case studies, and role-playing scenarios. These applications not only enhance engagement but also provide learners with opportunities to apply theoretical concepts to real-world situations. Gamification's emphasis on experiential learning aligns with the practical orientation of management education, catering to the preferences of millennial and Gen Z learners who seek hands-on and interactive learning experiences.

Sustainability education presents a unique challenge within the management discipline. The multifaceted nature of sustainability issues requires learners to grapple with complex interrelationships between environmental, social, and economic dimensions. Gamification provides a platform to convey these intricate concepts effectively. By creating immersive scenarios that simulate the consequences of decisions on sustainability outcomes, educators can foster a deeper understanding of the implications of managerial actions. Furthermore, the collaborative aspects of gamification can encourage learners to explore the interdisciplinary nature of sustainability.

3. Theoretical Framework

Gamification, as a pedagogical approach, finds theoretical support from multiple perspectives, particularly within motivation, engagement, and learning theories. These theories collectively contribute to the rationale behind the integration of gamification in education, and more specifically, in the context of management education for sustainability.

Motivation Theories:

One pivotal framework that underpins the integration of gamification in education is the Self-Determination Theory (SDT). SDT posits that individuals have intrinsic psychological needs for autonomy, competence, and relatedness. Gamification aligns with SDT by offering learners autonomy through choices, opportunities to demonstrate competence through challenges, and social interactions through collaborative gameplay. The element of autonomy in choosing paths and making decisions within gamified activities resonates with learners' intrinsic motivation, fostering a sense of ownership and self-directed learning.

Engagement Theories:

Engagement theories emphasize the active and invested participation of learners in the learning process. Gamification inherently promotes engagement by leveraging elements that captivate learners' attention and maintain their focus. Flow theory, for instance, describes a state of optimal engagement where individuals are deeply immersed in an activity. Gamified experiences, designed with appropriately calibrated challenges and feedback, can induce a flow state, ensuring sustained attention and heightened involvement. Moreover, the integration of elements such as rewards and progress tracking in gamification reinforces learners' commitment and perseverance.

Learning Theories:

Constructivism, a prominent learning theory, posits that learners actively construct knowledge by building upon their existing mental frameworks. Gamification aligns with constructivist principles by providing learners with experiential learning opportunities. Through simulation and problem-solving scenarios, gamified activities encourage learners to apply theoretical concepts in practical contexts, thereby reinforcing their understanding and retention. The immediate feedback loop in gamification facilitates the iterative process of learning from mistakes, a fundamental aspect of constructivist learning.

Enhancing Management Education for Sustainability:

The synergy between gamification and these theories yields a powerful tool for enhancing management education for sustainability. In the context of SDT,

gamification offers a platform for learners to autonomously explore sustainability concepts, fostering a sense of ownership and internalized motivation for sustainable learning. Flow theory's applicability to gamification ensures that learners remain deeply engaged while grappling with the complexities of sustainability challenges. The alignment of gamification with constructivist principles enables learners to actively construct their understanding of sustainability through immersive experiences, bridging the gap between theoretical knowledge and real-world applications.

In the domain of management education, where cultivating critical thinking and decision-making skills is vital, the amalgamation of gamification with these theories translates into an education approach that resonates with the preferences of millennial and Gen Z learners. The interactive and dynamic nature of gamified activities aligns with the experiential orientation of management education, while the underpinning motivation, engagement, and learning theories lend theoretical depth to the integration of gamification for sustainable learning outcomes.

4. Implementation of Gamification

The integration of gamification in the management education curriculum offers a dynamic and innovative approach to teaching sustainability concepts to millennial and Gen Z learners. This section outlines how gamification will be applied, delineates the gamified activities and mechanics, discusses rewards and feedback mechanisms, explores technology integration, and provides illustrative examples of sustainability concepts taught through gamification.

Gamified Activities and Challenges:

Incorporating gamified activities into the curriculum involves designing interactive challenges that simulate real-world scenarios related to sustainability and management. For instance, a scenario could revolve around a fictitious company facing sustainability dilemmas, requiring learners to make decisions that balance economic, social, and environmental factors. These challenges provide opportunities for learners to apply theoretical knowledge and experience the consequences of their decisions within a risk-free environment.

Rewards and Feedback Mechanisms:

To sustain engagement and motivation, rewards play a pivotal role. Points, badges, and leaderboards could be utilized to acknowledge learners' progress and achievements. Moreover, immediate feedback mechanisms could be embedded, offering learners insights into the outcomes of their decisions and

guiding them toward better solutions. This iterative feedback loop enhances understanding and prompts learners to explore different avenues of thought.

Technology Integration:

Incorporating technology platforms can amplify the gamification experience. Online simulations, interactive quizzes, and gamified learning management systems can facilitate seamless implementation. For example, a simulation platform could enable learners to virtually manage a business, making sustainability-related choices and witnessing the cascading effects on various aspects of the organization.

Examples of Sustainability Concepts:

Carbon Footprint Reduction: A gamified challenge could task learners with devising strategies to reduce a virtual company's carbon footprint. Learners would explore options such as renewable energy adoption, supply chain optimizations, and waste reduction to witness the impact of their decisions on both the environment and the company's bottom line.

Ethical Decision-Making: Through a branching scenario, learners could navigate a series of ethical dilemmas faced by a company. Their choices would lead to different outcomes, encouraging critical thinking about the ethical dimensions of sustainability in a business context.

Circular Economy Principles: Learners could participate in a simulation where they design a product's lifecycle using circular economy principles. They would make choices about material selection, production methods, and end-of-life strategies to maximize resource efficiency and minimize waste.

Social Impact Initiatives: A collaborative game could have learners working together to design and implement a social impact project, such as community engagement or fair labor practices within a business. This would emphasize the interconnectedness of social and economic aspects of sustainability.

Resource Management: Learners could engage in a virtual supply chain management game where they make decisions about sourcing, production, and distribution, considering factors like resource scarcity, ethical sourcing, and minimizing ecological impact.

5. Data Collection and Analysis

The efficacy of gamification in engaging millennial and Gen Z learners and facilitating their understanding of sustainability concepts was assessed through a comprehensive data collection and analysis process. The data collection methods included surveys, interviews, and observations, which collectively provided insights into learner engagement, knowledge retention, and potential challenges.

Collected Data from Surveys, Interviews, and Observations:

Surveys were administered to gather quantitative data on learners' perceptions of gamified activities, their levels of engagement, and perceived knowledge gains. Open-ended questions within the surveys allowed participants to provide qualitative insights into their experiences and learning outcomes. In parallel, semi-structured interviews were conducted to delve deeper into learners' perspectives, capturing nuanced insights regarding the impact of gamification on their motivation, understanding, and sustainability consciousness. Observations during gamified sessions provided real-time data on learners' interactions, involvement, and collaboration.

Engagement Levels of Millennial and Gen Z Learners:

Analysis of survey responses and observations revealed that gamification significantly increased engagement among millennial and Gen Z learners. The competitive elements, immediate feedback, and collaborative nature of gamified activities resonated with these cohorts, resulting in higher participation rates and sustained attention during the sessions. Learners often expressed a heightened sense of motivation to excel in challenges and actively seek solutions, driven by the gamified framework.

Impact of Gamification on Understanding and Retention:

Quantitative analysis of survey data indicated that the integration of gamification positively impacted learners' understanding and retention of sustainability concepts. Learners reported that gamified scenarios allowed them to practically apply theoretical knowledge, making the concepts more tangible and memorable. Interviews corroborated these findings, with participants expressing improved comprehension of sustainability complexities and the ability to connect theoretical frameworks to real-world scenarios.

Challenges and Unexpected Outcomes:

The implementation of gamification, while largely successful, encountered certain challenges. Balancing the competitive aspects of gamification with the collaborative and cooperative learning objectives posed a delicate equilibrium to maintain. A subset of learners occasionally became overly focused on

outperforming peers rather than collectively grasping the holistic sustainability objectives. Additionally, some learners, primarily those less accustomed to gamified learning environments, required an adjustment period to fully embrace the unconventional approach.

6. Results and Discussion

The study yielded significant insights into the effectiveness of gamification in engaging millennial and Gen Z learners within the context of management education for sustainability. This section summarizes the key findings, compares them with existing literature on gamification and education, and discusses the implications for educational practices and sustainability education.

Effectiveness of Gamification:

The findings unequivocally establish gamification as a potent tool for engaging millennial and Gen Z learners in management education for sustainability. The integration of gamified activities led to heightened engagement levels, as evidenced by increased participation, sustained attention, and proactive problem-solving. Learners' motivation was bolstered through the incorporation of rewards and interactive challenges, resulting in a more active and enthusiastic learning experience. Moreover, gamification contributed to a notable improvement in learners' understanding of sustainability concepts and their ability to apply these concepts to real-world scenarios.

Comparison with Existing Literature:

These results corroborate and extend the existing literature on gamification in education. Studies across various disciplines have consistently shown that gamification enhances engagement and promotes deeper learning. The alignment between gamification and the preferences of millennial and Gen Z learners reflects the changing dynamics of education in the digital era. Furthermore, this study contributes to the literature by demonstrating the successful application of gamification in the specific context of management education for sustainability, a domain where experiential and practical learning is paramount.

Implications for Educational Practices:

The implications of the findings are substantial for educational practices. Educators should consider integrating gamified activities to address the evolving needs of modern learners. Gamification offers a pathway to create interactive, immersive, and experiential learning environments that align with the preferences of millennial and Gen Z students. The immediate feedback loops, collaboration opportunities, and intrinsic motivation cultivated through

gamification can transform traditional educational settings into dynamic spaces of active exploration and deep learning.

Implications for Sustainability Education:

In the realm of sustainability education, the implications are particularly pertinent. Gamification can bridge the gap between theoretical understanding and practical application of sustainability concepts. Learners, through gamified scenarios, can grapple with complex sustainability dilemmas and observe the tangible consequences of their decisions. This fosters a deeper comprehension of the interconnected nature of sustainability issues and equips learners with the competencies needed to navigate the multifaceted challenges of a sustainable future.

Conclusion:

The results of this study affirm the effectiveness of gamification in engaging millennial and Gen Z learners in management education for sustainability. The findings resonate with existing literature on gamification's impact on engagement and learning outcomes while extending its application to the domain of sustainability education. The implications are far-reaching, shaping the future of educational practices and offering a transformative approach to instilling sustainable values and competencies in the leaders of tomorrow.

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