Gamifying Dry Subjects: Exploring Educator Readiness Using Korthagen's Onion Model

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DOI: https://dx.doi.org/10.47772/IJRISS.2025.924ILEIID00111

Received: 23 September 2025; Accepted: 30 September 2025; Published: 03 November 2025

ABSTRACT

Dry subjects are often taught through lectures and static case studies, resulting in low student engagement and surface-level understanding. The challenge is that students struggle to connect theoretical concepts with real-world applications, especially in early-stage courses. Unfortunately, these subjects are often essential to a true understanding of the discipline, it is the fundamentals that they need to well verse before taking other intermediate or advance subjects. This study addresses how the successful implementation of gamification depends not only on instructional design but also on the readiness of educator. This conceptual paper explores the application of Korthagen's Onion Model as a framework to understand and support educator's internal and external dimensions in relation to gamification.

Keywords: (Gamification, Dry subjects, Korthagen's Onion Model, Educator readiness, Pedagogy)

INTRODUCTION

Every discipline has foundational courses that students often dismiss as dry and inaccessible, yet mastery of these fundamentals is essential for advancing to intermediate and advanced subjects. Information overload from purely theoretical content and technical jargon can overwhelm students before they grasp core concepts. When students cannot see how abstract principles connect to their experiences, the subject material feels irrelevant and obscure. Addressing this disconnect is urgent, transforming dry subjects into engaging experiences can unlock deeper learning and sustain student motivation (McKendree et al., 2019; Mahu, 2025)

Despite extensive evidence that gamification enhances engagement and promotes active learning (McKendree et al., 2019; Ates & Kölemen, 2024), its application in traditionally dry subjects remains limited. Students continue to struggle with surface-level understanding and fail to connect theory with practice. Moreover, while gamification shows promise for immersive learning, the success of these innovations depends heavily on educators' readiness to adopt them (Ates & Kölemen, 2024; Valverde et al., 2024). Understanding the theoretical dimensions of this readiness is critical for ensuring that gamified interventions achieve their full potential. The literature has yet to fully explore how prepared educators feel to integrate gamification into their pedagogy, especially when balancing new design demands against existing workloads. This gap encompasses both extrinsic factors (institutional support and resource availability) and intrinsic factors (educators' beliefs, self-efficacy, and identity) (Palha & Matic, 2023; Kuo & Kuo, 2024; Huang et al., 2025).

Drawing on Korthagen's Onion Model, this study provides a holistic framework for understanding educator development in the context of gamified learning. The aims are threefold: (1) to map educators' readiness across the model's six layers, (2) to identify the factors that influence educators' adoption of this approach and (3) to

examine the most strongly factors (mission, identity, beliefs, competencies, behaviors, environment) influence their adoption decisions.

LITERATURE REVIEW

Gamification in Education

Gamification has gained popularity as a relevant and innovative pedagogical tool among educators in recent years (Mora et al., 2017; Behl et al., 2022). Its usage increased dramatically during the COVID-19 pandemic (Lampropoulos et al., 2022). It is the application of game-based mechanics, aesthetics, and game thinking in non-gaming settings. Gamification is intended to address issues such as low interest, low engagement, a lack of motivation, and the need to encourage specific behaviors in traditional teaching and learning. Because gaming is enjoyable, game-like features can be added to make dry subjects more engaging.

In addition, game based mechanics such as points, badges, and leaderboards used to transform conventional learning environments into more interactive and enjoyable experiences (Şenocak et al., 2021; Bayrak & Kaban, 2024). This pedagogical approach also aims to cultivate students' intrinsic motivation and promote collaborative learning through real-time feedback and competitive, team-based activities. Research indicates that gamified approaches can significantly improve long-term memory retention and reduce academic anxiety by encouraging friendly competition and fostering supportive classroom environments (Hitchens & Tulloch, 2018). This is particularly relevant for subjects perceived as "dry" or challenging, where traditional methods often struggle to maintain student interest and engagement (Khaldi et al., 2023).

Teacher Readiness and Technology Adoption

The integration of of gamification often encounters varying levels of digital literacy and readiness among educators (Desgourdes et al., 2025). University professors frequently acknowledge a deficit in their training regarding educational gamification techniques (Vergara et al., 2023). This highlights a critical need for comprehensive professional development to introduces technological tools as well as to apply it within sound pedagogical frameworks (Desgourdes et al., 2025). Furthermore, while artificial intelligence implementation in education initially stimulates learning motivation, this "novelty effect" often diminishes over time, requiring educators to integrate additional strategies to sustain student engagement (Ren & Wu, 2025). This necessitates ongoing support and strategic planning to enable teachers to effectively incorporate technology, overcoming technical challenges and bridging digital divides experienced by some students (Ren & Wu, 2025). Similarly, despite an elevated interest among Italian secondary school teachers in gamification for enhanced student interaction, substantial barriers such as time constraints, lack of thematic knowledge, insufficient funding, and a tenuous link between specific content and gamified didactic approaches persist (Malvasi & Moreno, 2022). These challenges are further compounded by a noticeable gap between educators' strong interest in professional development focused on innovative technologies like AI and the actual quality and availability of such training programs (Alshorman, 2024; Zhang & Iilisko, 2025).

Korthagen’s Onion Model

It provides a hierarchical framework for analyzing professional development, ranging from superficial behaviors to deeply held core beliefs and identity. This model posits that effective professional learning must transcend superficial adjustments in behavior or skills, delving into underlying convictions and personal mission to achieve sustainable change (Duan & Wei, 2024). When applied to educator readiness for gamification, Korthagen's model suggests that merely providing technical training (environment/behavior levels) is insufficient; sustainable adoption requires addressing deeper levels such as competencies, beliefs, identity, and mission.

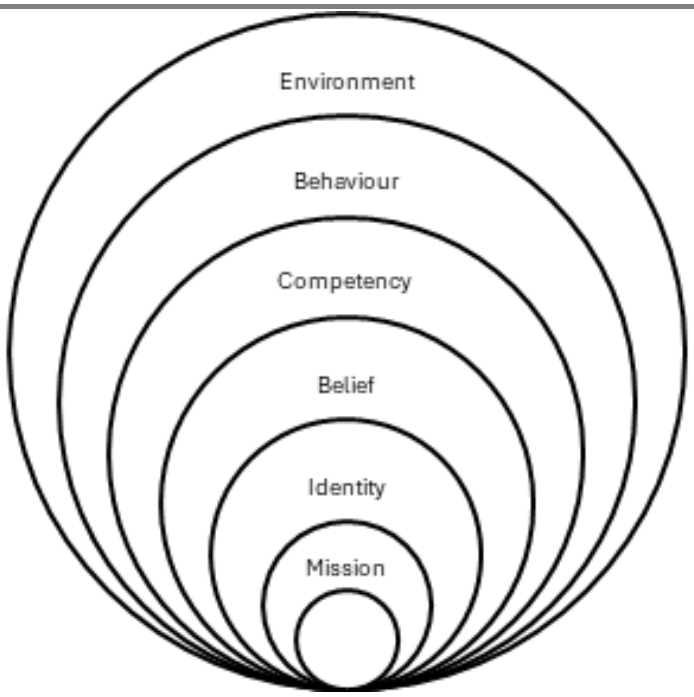

Figure 1 Layers of Korthagen's Onion Model

Source Korthagen (2004)

DISCUSSION

Theorethical Framework

When considering how to apply gamification in educational contexts, there are instructors' personal challenges to consider and perspectives to understand, particularly for 'dry' subjects (Zhao et al., 2021). This deep complexity entails pedagogues having to consider supportive frameworks relating to teachers' perceptions, belief systems and professional identities (Ateş & Kölemen, 2024). Korthagen's Onion Model demonstrates how value systems and competencies are connected to, and impact, an educators' approach to gamified learning and how deeply they are embedded to the reluctance and challenges of gamified learning, and more broadly to digital game-based learning. For example, some teachers' reluctance to adopt digital game-based learning is related to game development and sharing self-efficacy and digital game technology (Palha & Matić, 2023). Also, educators' reluctance to gamified virtual reality technology is considered to relate to their unfulfilled innovation expectations, thus the need to understand unarticulated gamification value systems. This highlights the need for a deeply pedagogical approach to the belief systems, values and perceptions underlying educators' reluctance to gamify learning.

This part explains how Korthagen's Onion Model can be effectively utilized to assess gamification educator readiness regarding subjects seen as 'dry.' The Onion Model's concentric layers—Environment, Behavior, Competencies, Beliefs, Identity, and Mission—Facilitate the analysis of the different components of an educator's willingness to gamify the curriculum. For example, the outer layers—Environment and Behavior—capture the contextual, environmental, and structural components to gamification and the surrounding educator actions. The layers of the model then work down abstractly to the educator's thinking and motivation (Jonge et al., 2019). The model, in its totality, provides an understanding of the educator's value system in the context of external pressures in environments where gamification of teaching is expected. For example, institutional frameworks, support systems, and accessible technology tend to directly define educator actions within gamified lessons (Hao et al., 2023). Identification of such structural determinants provides insight beyond them and suggests the need to analyze the educator's contextual belief systems regarding gamification, as well as the shaping of their identity in the teaching. Conversely, an educator's underlying beliefs about the efficacy of gamification and their personal identity as an innovative teacher significantly influence their sustained adoption and integration of such techniques (Lin et al., 2025)

Implications for Educator Training

These initiatives allow educators to transcend surface-level application and engage in transformative teaching practices. Such training should cover the integration of game mechanics into multiple disciplines, tackling implementation challenges, and developing a reflective framework on the efficacy of gamified teaching (Palha & Matić, 2023; Lan et al., 2024). Furthermore, training should acknowledge the varied educator experiences, as both more and less seasoned educators, in different contexts, may tackle distinct challenges and demonstrate different levels of game integration proficiency in digital game-based learning (Palha & Matić, 2023).

CONCLUSION

This study aimed to provide a comprehensive framework for understanding educators' readiness to adopt gamification strategies in the the Malaysian context. Using Korthagen's (2004) onion model, we identified six factors that influence gamification use: environment, behaviour, competencies, beliefs, identity, and mission. Future studies in educational effectiveness may consider incorporating the Technology Acceptance Model and the Unified Theory of Technology Acceptance and Use to broaden research into the adoption of gamification and teacher readiness (Ateş & Kölemen, 2024). This will improve our understanding of teachers' readiness to integrate gamified learning, as well as their decision to relate concepts like perceived usefulness, perceived ease of use, social influence, and facilitating conditions.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge all the team members for the contribution. The authors are also grateful for the support and resources made available by UiTM Melaka Branch, Malaysia. This research did not receive any specific grants from funding agencies in the public, commercial, or not-for-profit sectors.

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