
The role of culturally-responsive gamification to improve multiethnic students' self-engagement in Islamic education

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Abstract: The cultural-friendly learning environment is considered as an important factor influencing on the students' self-engagement and become a central challenge that teachers in Islamic educational settings commonly deal with. This study aims to analyze the implementation of an gamified activity for creating a multicultural-situated learning and improving multiethnic students' self-engagement in Islamic education. A total of 80 sixth graders with various backgrounds from two classes participated in this research. The one class was purposively assigned to the experimental group (N = 40) using the Peacegen gamified platform in learning tolerance, and the other class was the control group (N = 40) using traditional instruction. This study found that, compared to the traditional instruction, the culturally-responsive gamification more effectively helped multiethnic students' self-engagement in learning tolerance in Bahasa Indonesia subject. Particularly, they had positive feedbacks on the learning process after the culturally-responsive gamification. This result suggests that a culturally-responsive gamification can provide a simulated learning environment that assists teachers to improve the multiethnic students' self-engagement in Islamic education and subsequently facilitate their deep-learning of tolerance.

Keywords: culturally-responsive gamification; islamic elementary school; multiethnic students; self-engagement

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Introduction

In contemporary societies, in which cultural diversity has been highly demanding, educational institutions need to effectively accommodate the multiethnic backgrounds of students. In multicultural and multireligious countries such as Indonesia, since the history of escalating conflict is evident between Muslims and other followers across the vassals and provinces, the implementation of culturally responsive teaching has become imperative within Islamic education. It is assumed that the presence of diverse ethnic groups contributes unique perspectives to religious learning. The challenging issue is a fact that many Islamic institutions still preserve traditional and onsite pedagogical instructions as their archaic approaches, which surprisingly often lack inclusivity, possibly reduce engagement among multiethnic students. The multi-ethnic student engagement is crucial in Islamic education as cultural diversity enriches perspectives in religious learning, fosters cross-cultural understanding, and enhances inclusivity. This aligns with Islamic principles that value the diversity of humanity, enabling culturally responsive education to promote harmony and a sense of belonging among students (Hasyim, 2016; R'boul, 2021).

Consequently, the research on culturally responsive gamification within Islamic education is essential. Culturally responsive gamification addresses the challenges of multi-ethnic student engagement by integrating cultural elements into gamified learning experiences (Li et al., 2023; Pontes et al., 2024). This approach ensures that the content resonates with students' diverse cultural

identities, fostering a sense of inclusion and relevance. By reflecting their backgrounds in the learning materials, students feel valued and connected, which enhances their motivation and engagement. Moreover, gamification's interactive and adaptive nature provides opportunities to bridge cultural gaps, promoting mutual understanding and collaboration among students from various ethnicities. This strategy aligns with the inclusive principles of Islamic education, creating an engaging and meaningful learning environment for all.

By highlighting educational content with students' cultural identities, gamification has the potential to enhance the relevance and significance of the learning experience. The recent studies indicate that culturally inclusive classrooms foster a heightened sense of belonging and motivation, which directly influences student engagement and academic achievement (Byrd, 2016; Fallon et al., 2023; Gan et al., 2024; Lei et al., 2018). Furthermore, investigating how online gamified approaches in Islamic education possibly address cultural diversity and presents an opportunity for students to be more engaged and inclusive during the teaching and learning process.

Previous studies into gamification in educational settings have demonstrated its efficacy in enhancing student motivation and engagement. Gamified learning environments that integrate elements such as cartoons, points, rewards, and interactive feedback have been shown to increase students' interest and commitment to learning outcomes (Li et al., 2023; Pontes et al., 2024). The culturally responsive pedagogy has been also examined across various disciplines, commonly resulting in improved student performance and emotional well-being (Luarn et al., 2023; Mellado et al., 2024; Salah & Alzaghal, 2021). However, a little attention has been given to the impact of the culturally responsive practices with gamification on the multiethnic students' self-engagement specifically within Islamic education. Culturally-responsive gamification is an approach that integrates culturally relevant elements into gamified learning environments, making educational content more relatable for diverse student groups.

The primary objective of this study is to examine the influence of culturally responsive gamification on self-engagement among multiethnic students within Islamic education. This study attempts to answer a main issue: To what extent does culturally responsive gamification affect the self-engagement of students from diverse ethnic backgrounds in an Islamic educational setting? Through this inquiry, the research aims to demonstrate how culturally responsive gamification can not only facilitate academic engagement but also resonate with students' cultural identities, thereby potentially enriching their personal connection to Islamic education.

The hypothesis of this study is integrating cultural values into gamified learning can foster a self-engagement to the learning environment among multiethnic students. This gamified approach enables students to see their cultural backgrounds reflected in the learning materials, promoting a deeper and more personal connection to the content. If substantiated, these findings could have profound implications for Islamic education by positioning culturally responsive gamification as a viable strategy for addressing engagement disparities. Such an approach possibly empowers educators to create more inclusive classrooms that not only acknowledge but also celebrate cultural diversity, potentially transforming Islamic education into a more engaging and inclusive experience for all students.

Methods

Participants

A sample of 80 participants was recruited from two classes at private elementary school in one of the largest Islamic institutions in East Java. They were elementary school sixth-grade students, ranging in age from 11 to 12. They have diverse demographics, including gender, ethnicity, and economic background. Table 1 reports that two classes were purposefully assigned to the experimental

group while the others were the control group in order to ensure demographic balance and non-bias results.

Table 1. Distribution of participants (N = 80)

| Backgrounds | Categories | Experimental Group (N = 40) | Control Group (N = 40) |
|-------------|---------------------------------|--------------------------------|---------------------------|
| Gender | Male | 43% | 61% |
| | Female | 57% | 49% |
| Ethnicity | Javanese | 30% | 28% |
| | Osing | 20% | 22% |
| | Madurese | 15% | 18% |
| | Bawean | 10% | 12% |
| | Other (Sundanese, Betawi, etc.) | 25% | 20% |
| Economy | Low | 40% | 35% |
| | Medium | 40% | 45% |
| | High | 20% | 20% |

Table 1 shows that participants in the experimental group (40 students) were assigned to the online gamification platform; others in the control group (40 students) engaged in the conventional learning. The same Indonesian teacher taught the two classes with the same learning topic, multiculturalism and tolerance. Before the experiment, a consent form was distributed to all participants and signed by their parents to confirm their agreements in this study.

Research Design

To date, the Utrecht Work Engagement Scale (UWES), designed by Schaufeli, Bakker, and Salanova (2002), has been commonly used to investigate students' self-engagement. In the context of academic engagement, the concept of self-engagement refers to a positive, fulfilling, work related state of mind characterized by vigor, dedication, and absorption (Sinha & Laghate, 2023; Tian et al., 2019). Table 2 reports the research design of this study during six-weeks instruction.

Table 2. Reseach design

| Phases | Experimental Group (N = 40) | Control Group (N = 40) |
|----------------------|--|--|
| Step 1 (Duration) | UWES-S pretest 45 minutes | UWES-S pretest 45 minutes |
| Step 2 (Duration) | Culturally-responsive gamification intervention Six-week instruction (45 minutes per week) | Traditional instruction Six-week instruction (45 minutes per week) |
| Step 3 (Duration) | UWES-S posttest and open-ended questionnaire 60 minutes | UWES-S posttest and open-ended questionnaire 60 minutes |

Table 2 shows that the online gamification (the experimental group) and traditional instruction (the control group) were separately conducted in this study for a duration of 6 weeks with 45 minutes per week. A UWES-S written pre-test is used before the treatments. For the experimental group, the teacher played a role of facilitator for students in using gamification platform. For the control group, the teacher is a lecturer without using any online simulation game. For the next 2 weeks, the teacher taught the students the importance of tolerance and the ways they practice it in the real life. For the last 3 weeks, the lecturer provided an opportunity for students to present materials, debate, discussions, etc., to investigate their vigor, dedication, and absorption. After the treatments ended, both groups were required to complete UWES-S written posttest and open-ended questionnaire.

Culturally-Responsive Gamification

Culturally-responsive gamification is an approach that integrates culturally relevant elements into gamified learning environments, making educational content more relatable for diverse student groups. In this study, culturally-responsive gamification included the use of narratives, symbols, and challenges in online game of tolerance (Peacegen), such as “ethnic world”, “global diversity”, my peaceful school,” etc., that resonated with the students’ cultural backgrounds. Figure 1 illustrates the simulation process of and relationship between online gamification and learning outcomes.

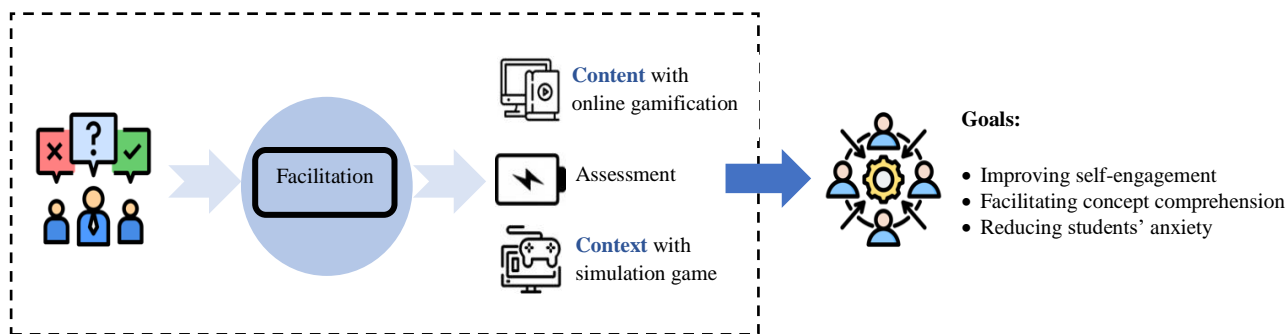


Figure 1. Simulation of online gamification & self-engagement

Figure 1 figures out that in terms of content, the game platform includes materials on tolerance, multiculturalism, and respectfulness to the others, while in terms of context, the students are encouraged to contextualize the materials in the game platform into the real life. During the gameplay, students’ activity is assessed under the rubric instruments of growth mindset on tolerance. Meanwhile, the teacher also observes them in terms of their self-engagement and playfulness during the learning process.

Peacegen as Gamification Platform

The online game, Peacegen Game, was designed for the learning of tolerance from the real life. With the integration of game and content elements, this game consists of eleven edutainment-oriented challenges (Figure 2). These challenges were arranged in playful order to stimulate the real practice of respectfulness to the others. Since the reason of limited time, this study uses only the most relevant game, such as Kebhinekaan Global “global diversity”, Dunia Suku “ethnic world”, and Sekolahku Damai “my peaceful school.” A screenshot of Peacegen’s interface shows avatars and symbols that represent the cultural diversity of countries in the world is shown in Figure 2.

Figure 2 points out that these features not only make the learning experience more edutainable but also encourage students to explore multiethnic principles within a culturally inclusive environment. In the first challenge, *Global Diversity*, the students not only learned about the diversity of global ethnics, but also identified the diverse migration of human across-nations. None of the single ethnic in the certain country. The students move to the second and more specific challenge, *Ethnic World*. This challenge was designed to assist them in learning how to be one of the ethnic groups and respect the others. In this challenge, they were encouraged to enter other ethnics by negotiating, adapting, and dealing with challenges of ethnic rules. In the third challenge, more specific issue was provided, *My Peaceful School*. The students could not only have an experience of how to serve as headmaster of school, but also how to deal with the multicultural issues, such as bullying, violence, conflict, etc. After the game, they took an assessment of growth mindset of tolerance. This instrument was designed to evaluate the psychological motivation of tolerance among students.



Figure 2. The Interface of Online Simulation Game “Peacegen”

(Source: <https://games.peacegen.id/>)

Open-Ended Questionnaire

The open-ended questionnaire was used to gain the multiethnic students’ perceptions and reflections on the culturally-responsive gamification and traditional instruction. The four open-ended questions are shown below:

- Q1. *How did the cultural elements affect your engagement? Why or why not?*
- Q2. *What was the most engaging part of the gamified activities? Why or why not?*
- Q3. *Did you feel more connected to the subject matter of the gamified activity or traditional instruction?*
- Q4. *Do you think the gamification or traditional instruction will improve your mindset of tolerance? Why?*

These questions were analyzed based on three steps of inductive content analysis, including open coding, creating categories, and abstraction (Kawamoto et al., 2023). The interrater reliability of the open-ended questionnaire content analysis was .87 (Cohen’s Kappa) between the two researchers (Cheung & Tai, 2023).

Data Analysis

Quantitative data analysis was conducted using the Wilcoxon Signed-Rank Test with SPSS. This test is used to measure pre- and post-intervention engagement within the experimental group. It also allowed for a analysis of engagement changes, both within the experimental group and in comparison with the control group. The Wilcoxon Signed-Rank Test was possibly used to analyze data since the number of each group in this study is more than 16 (Huang, 2017). This test was designed to examine the difference in the vigor, dedication, and absorption students’ self-engagement between pre-test and post-test.

Results and Discussion

Variation in Self-Engagement Levels through the Gamification and Onsite Instruction

The Wilcoxon signed-rank was conducted to examine if the multiethnic students’ the Utrecht Work Engagement Scale for Students (UWES-S) has significantly improved after taking the gamification or traditional instruction. Table 3 reports the results of UWES-S pre-test and post-test for both groups,

Table 3. The experimental and control groups' self-engagement performance before and after instruction

| Group | Engagement Level | N | Pre-Test Mean | Post-Test Mean | Wilcoxon Z | Asymp. Sig. (Two-Tailed) |
|--------------------|------------------|----|---------------|----------------|------------|--------------------------|
| Experimental Group | Vigor | 40 | 3.2 | 4.1 | -3.45 | 0.001 |
| | Dedication | 40 | 3 | 4 | -3.6 | 0.001 |
| | Absorption | 40 | 3.1 | 4.2 | -3.55 | 0.001 |
| | <i>Overall</i> | 40 | 3.1 | 4.1 | -3.53 | 0.001 |
| Control Group | Vigor | 40 | 3.2 | 3.3 | -1.05 | 0.295 |
| | Dedication | 40 | 3.1 | 3.2 | -0.98 | 0.328 |
| | Absorption | 40 | 3 | 3.1 | -1.1 | 0.273 |
| | <i>Overall</i> | 40 | 3.1 | 3.2 | -1.04 | 0.297 |

Note. Exp. group = Experimental group; Con. Group = Control group.
 Asymp. Sig = asymptotic significance. *p < .05, **p < .01, ***p < .001.

Table 3 illustrates the differences in vigor, dedication, and absorption between both groups. An analysis of pre-test and post-test scores for both groups on the Utrecht Work Engagement Scale for Students (UWES-S) provides further insights. The UWES-S results indicate that, overall, students in both groups improved in engagement levels. However, the experimental group exhibited higher post-test means in each dimension (M = 4.1), with Wilcoxon Z values and Asymp. Sig. values (Z = -3.53, p = 0.001 [< 0.01]) indicating statistically significant improvements due to the culturally-responsive gamification approach. In contrast, the control group shows minimal changes in engagement levels (M = 3.2), with no significant differences observed in any of the dimensions or the overall engagement score (Z = -1.04, p = 0.297 [> 0.01]). This comparison highlights the effectiveness of gamification in enhancing student engagement compared to traditional instruction.

Student Perceptions and Feedback from Open-Ended Responses

The students' feedback on their experiences in gamification or traditional instruction provide the qualitative assessment of both groups. Their answers were segmented by Gender (Male and Female), Ethnicity (Javanese, Osing, Madurese, Bawean, Others), and Economic Background (Low, Medium, High) to provide a detailed view of responses based on demographic factors (Table 4).

Table 4. The students' perceptions of the gamification learning and onsite instruction

| Categories | Gender | | Ethnicity | | | | Economy | | | |
|---|--------|--------|-----------|-------|----------|--------|---------|-----|--------|------|
| | Male | Female | Javanese | Osing | Madurese | Bawean | Others | Low | Medium | High |
| Experimental Group | | | | | | | | | | |
| <i>Gamification Experiences</i> | | | | | | | | | | |
| a. The gamification activities are engaging. | 87% | 85% | 82% | 80% | 85% | 83% | 88% | 82% | 85% | 87% |
| b. I feel motivated by the challenges in the gamification. | 80% | 82% | 78% | 76% | 81% | 79% | 83% | 78% | 81% | 82% |
| <i>Self-Engagement</i> | | | | | | | | | | |
| a. I feel more connected to the subject through gamification. | 75% | 74% | 72% | 70% | 75% | 73% | 76% | 73% | 74% | 75% |
| b. Gamification helps me stay focused on learning. | 70% | 72% | 68% | 67% | 71% | 69% | 72% | 69% | 70% | 72% |
| Control Group | | | | | | | | | | |
| <i>Learning Experience</i> | | | | | | | | | | |
| a. The lessons are easy to understand. | 70% | 68% | 67% | 66% | 70% | 68% | 71% | 68% | 69% | 70% |
| b. I am able to follow the lessons without difficulty. | 65% | 66% | 64% | 63% | 66% | 64% | 67% | 64% | 65% | 66% |
| <i>Self-Engagement</i> | | | | | | | | | | |
| a. I feel connected to the subject through traditional instruction. | 50% | 48% | 47% | 46% | 50% | 48% | 51% | 48% | 49% | 50% |
| b. Traditional instruction helps me stay focused on learning. | 52% | 50% | 49% | 48% | 52% | 50% | 53% | 50% | 51% | 52% |

Table 4 points out that compared to the students in the control group, the experimental group commonly provided a positive feedbacks on gamification process. In the control group, both male and female students, as well as students from various ethnic and economic backgrounds, found the traditional lessons moderately understandable, with percentages ranging from 63% to 71% across demographic groups. This suggests a generally acceptable learning experience with traditional instruction. Their self-engagement scores are also lower than those in the experimental group, with percentages between 46% and 53%. Students expressed a moderate connection to the subject and a limited ability to stay focused with traditional instruction, indicating that traditional methods may be less effective in fostering engagement compared to gamification.

Discussion

The findings of the current quasi-experimental study imply that culturally-responsive gamification significantly enhances engagement among multiethnic students in Islamic education. The previous studies on gamification in educational contexts often highlights its role in improving motivation and participation, especially when cultural relevance is incorporated (Mee et al., 2021; Meyers et al., 2018; Salah & Alzahal, 2021). The gamified learning experiences aligned with students' cultural backgrounds can foster a deeper sense of belonging and motivation. The significant improvement in vigor, dedication, and absorption within the experimental group suggests that culturally-responsive elements are instrumental in engaging diverse learners. These findings also support previous studies advocating for culturally-inclusive pedagogy and demonstrate its effectiveness in Islamic education settings (Hoque, 2024; Nurdin, 2021; Zamroni & Baharun, 2019).

The strong correlation between culturally-responsive gamification and multiethnic students' self-engagement suggests that students respond more positively when the learning material is embedded with their cultural identities. This study also highlights that gamified environments with cultural relevance stimulate emotional engagement by creating a sense of familiarity and respect for students' backgrounds. It implies the necessity of the psychological impact of cultural validation on the learning process, where students feel more valued and motivated to participate. This finding is in line with previous studies indicating that culture-sensitive educational strategies lead to positive student behaviors and improved academic motivation (Byrd, 2016; Fallon et al., 2023; Lei et al., 2018). The increase in engagement levels across vigor, dedication, and absorption points to culturally-responsive gamification as a potential driver for enhanced learning outcomes.

The results from the open-ended questionnaire also provide critical insights into the subjective experiences of students and reinforce the quantitative data. Students in the experimental group repeatedly expressed appreciation for the culturally-responsive aspects, indicating that these elements made the learning experience enjoyable and relatable. The recent studies on culturally-responsive teaching emphasizes that students feel more connected and engaged when they see their cultural identity reflected in the content (Fallon et al., 2023; Gan et al., 2024; Sukrawati, 2022). The findings of students' feedback in this study align with those arguments, suggesting that culturally-responsive gamification can foster a positive emotional connection to Islamic education. Thus, the implications of these findings extend beyond engagement, highlighting the potential for culturally-responsive gamification to promote inclusivity and equity in educational environments.

The students' positive feedback of culturally-responsive gamification underscores the deep-structure of a causal relationship between cultural relevance and emotional engagement. The previous studies suggest that students' sense of identity and belonging in a learning environment can be strengthened when cultural elements are integrated into educational materials. The feedback from the experimental group indicates that culturally-responsive gamification not only engages students cognitively but also affects them emotionally. This correlation points to a deeper psychological structure where students are more inclined to engage when they feel that their cultural values are

acknowledged. As the recent studies have shown, students are more likely to connect with and retain information when it is presented in a way that respects and resonates with their cultural backgrounds (Fawaid & Yanti, 2020; Li et al., 2023; Pontes et al., 2024). These insights further validate the potential of culturally-responsive gamification as a powerful tool for enhancing engagement in multicultural educational contexts.

Conclusion

This study developed the culturally-responsive gamification to improve students' self-engagement in multiethnic contexts such as Islamic education. It was found that integrating cultural elements within gamified learning in this study can positively impact students' vigor, dedication, and absorption. The culturally-responsive gamification elements, such as puzzle challenges, visual and audio stimuli, and simulated management activities in the multiethnic school helped students feel more represented and valued in their learning environment, demonstrating that when educational content resonates with students' cultural backgrounds, their engagement levels improve significantly.

Overall, this study contributes to the related research field by providing the innovative combination of gamification and cultural responsiveness, and demonstrating how this innovative approach is able to assist teachers in multicultural teaching within the context of Islamic education. However, as the participants in this study were elementary school students in Islamic institution, it is difficult for these students to understand how their self-engagement improved after this learning approach. Future research is suggested to address this limitation by exploring similar methods in other cultural and educational settings, thereby expanding the applicability of culturally-responsive gamification in diverse learning environments.

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