

# Enhancing Student Engagement through Gamification Strategies in Multi-Grade Classroom

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## ABSTRACT

This study aimed to enhance the level of engagement of the school's – Alternative Learning System (ALS) Night School Program (NSP) Junior High Learners using Kahoot as Gamification in the assessment process. Specifically, the study determined the level of the NSP's student engagement before and during the gamification intervention, highlighting the differences and incidental findings. Random sampling and descriptive statistics were utilized. The findings revealed an increase in the mean score describing the student engagement before and during the intervention. The gamification strategies implemented were beneficial to the enhancement of the student engagement. Hence, this action research considered the recommendation of gamification strategies in the multi-grade classroom to enhance the participation, collaboration, and overall engagement of the learners, especially if the students' needs were addressed.

**Keywords:** Gamification, Alternative Learning System, Kahoot, Multi-Grade, Student Engagement

## INTRODUCTION

The Alternative Learning System (ALS) in the Philippines is a non-formal education program that aims to close educational gaps, promote social responsibility, and improve intellectual ability and 21st-century capabilities in its varied learners through community-based learning (Pinca, 2015). In the Republic Act No. 11510, this policy of the State aims to promote the right of all citizens to quality education at all levels and take the appropriate steps to make such education accessible to all. Hence, the State shall provide the out-of-school children in special cases and adults with opportunities to improve their knowledge, values, life, skills, and readiness for higher education, work or self-employment through a system of nonformal or indigenous education, or both which are tailored to respond to their learning needs and life circumstances. The State shall also ensure the close partnership and collaboration between the government and the private sector in achieving this goal. Hence, Xavier University-Night School Program (XU-NSP) came into existence to help the out-of-school youth. Despite challenges like learner absenteeism, limited resources, and facilitator shortages, ALS aligns with SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, SDG 1: End poverty in all its forms everywhere, and SDG 10: Reduce inequality within and among countries.

The study aims to investigate the use of gamification to enhance student engagement in Alternative Learning System (ALS) classes, particularly in multi-grade settings where traditional teaching approaches often fail to meet diverse learning needs. Gamification, which integrates gaming elements into educational activities, has demonstrated potential in improving engagement and retention, but its application in formal educational contexts, especially ALS, remains underexplored. This study seeks to address this gap by examining the impact of gamified learning instructions on student engagement in multi-grade ALS classes.

This research focuses on the investigation and use of suggested real-world and digital gamification techniques in the context of *Learning Strand 4: Life and Career Skills* covering the subject of *Entrepreneurship* that is part of the school's - Night School Program. The main goal is to analyze how well the gamification techniques increase student engagement throughout the class's assessment period. The implementation of this intervention is reliant on the agreed-upon facilitation schedule, which runs within 4 months in the Night School Program's

classes. Teachers from the Alternative Learning System, student volunteers from the School of Education (SOE), and other facilitators were in charge of carrying out this intervention.

## METHODS

This research study used practical action research design to address the problems of the ALS learners' engagement in their class. Action Research is a method that focuses on solving problems in social systems, such as schools and organizations. The emphasis is on solving the presenting problem by generating knowledge and taking action within the social system in which the problem is located (DeMarco,2023). Hence, the action research approach selected for this study was appropriate since it effectively determined if the recommended intervention would help the ALS students enrolled in the night school program have improved their student engagement in the specific learning strand. This makes it possible for a teacher to select or develop the optimal method through gamification for their unique educational context.

There were 18 participants, 9 males and 9 females with age range of 15-35 years, are part of the Night School Program in the multi -grade setup. The study followed a triangulation process that aimed to ensure the validity of the data obtained through (1) Self-survey before and after the intervention and (2) Focused Group Discussion (FGD) among learners. Subsequently, the researchers gathered the information and experiences contributed by the participating teachers through the (3) Periodic Teacher's Interview. The data gathered were from self-survey, observation checklist, and FGD of the participants and teachers. The self-survey questionnaire are adapted and modified from the Australasian Survey of Student Engagement or AUSSE which was used as a guide in crafting questions about student engagement. The use of Rensis Likert scale in measuring student engagement through the chosen intervention was approved as appropriate to examine the data effectively. The research instruments went through a validation and reliability process and self-survey instrument had a reliability index of 0.86.

The participants were the officially enrolled students in NSP, which included nine males and nine females, providing a balanced representation of both genders within the study. The age range is from 15-35 years old and as learners categorized in the Junior High ALS level. Purposive sampling was used to choose the Junior High learners but random sampling was used to provide each individual or member of a population with an equal and fair probability of being chosen. Ethical compliance was observed before, during and after the conduct of the study.

## RESULTS AND DISCUSSION

### A. Level of the NSP's Student Engagement before and during the Implementation of the Gamification Intervention

Table 1 shows the big difference in the students' level of engagement between before and during the implementation of the intervention. Before the implementation of the intervention, the learners were negatively engaged in their classes ( $x = 2.16, sd=0.29$ ). It was observed that they did not display their interest with the subject-matter and showed minimum participation in class. Moreover, the differences in age and backgrounds also contributed to the learners' lack of interest with the learning process, indicating that the learners have low engagement in terms of their participation in class and collaboration with their co-learners. This was confirmed by the teachers handling the class and the learners themselves. Although there were some games conducted in class, students still showed less enthusiasm and engagement when they could not understand how these techniques could improve their education because the activities were not implemented properly.

Table 1. Distribution of Participant's Level of Engagement Before and During the Implementation of Intervention

INDICATORS	Before		During	
	Mean	Desc	Mean	Desc
<b>A. Participation</b>	<b>2.22</b>	<b>NE</b>	<b>3.53</b>	<b>VPE</b>
1. I actively engage in the class by diligently working on the	<b>2.38</b>	<b>NE</b>	<b>3.54</b>	<b>VPE</b>

assigned activities/tasks.	<b>2.31</b>	<b>NE</b>	<b>3.38</b>	<b>VPE</b>
2. I actively participate in any type of class discussion.	<b>2.38</b>	<b>NE</b>	<b>3.38</b>	<b>VPE</b>
3. I ask questions in class or contribute to class discussion by answering orally.	<b>1.92</b>	<b>NE</b>	<b>3.46</b>	<b>VPE</b>
4. I raise my hand in class.	<b>2.15</b>	<b>NE</b>	<b>3.69</b>	<b>VPE</b>
5. I find ways to make the course interesting to me.	<b>2.23</b>	<b>NE</b>	<b>3.69</b>	<b>VPE</b>
6. I look over my class notes during the lesson to make sure I understand the materials.	<b>2.15</b>	<b>NE</b>	<b>3.54</b>	<b>VPE</b>
7. I feel motivated to study in most of the class.				<b>PE</b>
<b>B. Collaboration</b>	<b>2.18</b>	<b>NE</b>	<b>3.38</b>	<b>VPE</b>
1. I actively participate in group activities in class.	<b>2.23</b>	<b>NE</b>	<b>3.69</b>	<b>VPE</b>
2. I collaborate well with my classmates on group projects and assignments.	<b>2.23</b>	<b>NE</b>	<b>3.00</b>	<b>PE</b>
3. I have a strong sense of belongingness with my classmates.	<b>2.08</b>	<b>NE</b>	<b>3.46</b>	<b>VPE</b>
<b>OVER-ALL ENGAGEMENT</b>	<b>2.16</b>	<b>NE</b>	<b>3.53</b>	<b>VPE</b>

**Legend:**

**VPE:** Very Positively Engaged

**PE:** Positively Engaged

**NE:** Negatively Engaged

**VNE:** Very Negatively Engaged

After series of sessions of conducting the intervention of the gamification as a learning strategy with the use of Kahoot, the students became very positively engaged ( $x= 3.53$ ,  $sd=0.16$ ). Many factors led to this enhanced participation. At first the introduction of gamification probably tapped into students' inherent operations, enhancing and energizing the learning experience. Their excitement and dedication to the tasks may have been further increased by the introduction of interactive components like points and badges, which may have encouraged a sense of accomplishment and competition.

Kahoot, which is an online educational platform with learning assessments and activities was chosen as appropriate for gamification, which can be conducted through interactive online games. The participation, collaboration, and overall engagement of the learners improved, showing that any kind of gamification strategy can be a beneficial tool not only in a normal class setup but also in multi-grade classroom environments, such as in the case of XU-NSP-ALS.

Table 2. Paired Sample T-test results Showing the Significant Difference in the Student Engagement before the Intervention and during the Gamification Intervention

Student Engagement	Paired Differences			t	Sig. 2-tailed
	Mean	Std. Dev	Std. error Mean		
Before Intervention	2.16	0.36	0.158	-13.92	<0.001
During Intervention	3.53	0.13	0.245		

In the study, the implementation of specific gamification strategies significantly enhanced student engagement by incorporating elements such as point systems, leaderboards, and collaborative challenges. These strategies led to increased participation rates, as students were motivated to earn points and climb the leaderboard, resulting in active involvement during lessons. Furthermore, the collaborative challenges fostered teamwork, encouraging students to work together to solve problems, which not only built social skills but also improved peer

relationships, as evidenced by a significant difference in the means of the student engagement ( $T=-13.92$ ,  $p<0.001$ ) with an increase from negatively engaged ( $M=2.16$ ,  $SD=0.36$ ) to a very positively engaged ( $M=3.53$ ,  $SD=0.13$ ) as shown in Table 2. The gamified approach also improved overall engagement due to the interactive nature of the tasks. Additionally, these gamification elements were particularly effective in addressing the unique needs of multi-grade classrooms by allowing students to progress at their own pace and collaborate across grade levels, ensuring that all learners were both challenged and supported in a dynamic learning environment.

A study on the effects of gamification on engagement and motivation in game-based learning was carried out by Erylmaz and Boicu (2023) who discovered that including gamification components like points and badges increases students' intrinsic drive, zeal, and perseverance while also having a favorable impact on behavior and learning, especially for those who are more outgoing and open-minded. Their research indicates that these elements positively affect behavior and learning, particularly among outgoing and open-minded students. The current study's findings support the findings of Licorish et al. (2018), who discovered that students enjoyed this online gamification platform, preferred to use it in class because of its features, and it even assisted students in overcoming some of the difficulties they encountered while learning in an online environment. Zhang and Yu's (2021) study backs up these findings, demonstrating that when technologies like Kahoot are implemented effectively, they may dramatically improve not just learning outcomes but also how students connect with the curriculum and one another. This demonstrates the potential benefits of incorporating such technology into educational environments, however, the impact on various pupils must be addressed. While learners exhibit strong participation and collaboration skills, there are still opportunities for continuous improvement, particularly in leveraging gamification to enhance understanding of complex course concepts.

The result also suggested that an effective classroom management strategy should be implemented and incorporated to improve the learners' learning experience and engagement, a conclusion that links to the findings from the study of Bas & Beyhan (2019) which reveals that the teaching of learning strategies is more successful in terms of raising the academic achievement of students. This highlights that the implementation of the gamification strategies should also address individual differences and needs in managing the class. A common similarity can be observed in the study conducted by Smiderle, Rigo, Marques & others (2020) wherein the participants in the gamified group presented a change in behavior towards the lesson and a significant improvement occurred even though some of the participants within this group are introverted. In the context of NSP-ALS however, the learners came from different backgrounds, experiences, and year levels. Hence, the beneficial aspects of any kind of game application are evident even in any kind of classroom, particularly in a multi-grade classroom.

Furthermore, the students need to be guided to adjust to and accept the new learning methods, addressing these aspects of unawareness entails extensive orientation and communication, introducing gamification components gradually, and offering ongoing support and encouragement. This all-encompassing strategy can greatly improve overall learning results and student engagement. Accordingly, the learners with different grade levels that are merged into one classroom from the XU-NSP-ALS must be provided with well-rounded interventions that would allow them to collaborate and participate in the learning process. Hence, establishing rapport and trust are essential elements in creating a stimulating learning environment. Vyas's research also showed how inadequate teaching strategies impede students' comprehension of concepts, especially when attempting to connect ideas from different viewpoints and real-world situations. Therefore, resolving these problems with thoughtful, well-planned interventions can greatly improve learning results overall and student engagement.

In the action research process, appropriate gamification elements were researched and selected based on their relevance to the multi-grade classroom context, with a focus on features that would resonate with diverse student needs and learning styles. Student needs and challenges were assessed through surveys and informal interviews, which informed the gamification design by identifying key issues such as varying levels of motivation and engagement among students. Iterative cycles of planning, action, observation, and reflection were employed to refine the gamification strategies based on real-time feedback and observed student interactions. For example, it was noted that certain game elements were less engaging for some students, prompting adaptations that incorporated more collaborative tasks designed to encourage peer support, resulting in increased participation and enthusiasm. Ultimately, specific recommendations emerged from the action research, such as the integration of team-based competitions and personalized learning paths, which were found to significantly enhance student



engagement and foster a more inclusive learning environment. These insights were consistent to the inputs shared by the students, as quoted: “The gamification intervention made the learning easier, interactive and fun because it encouraged us to earn points, to be competitive and to work as a team.” It was also observed that the manner of implementation of the intervention is also a big factor in making sure that all students can participate, contribute and actively involve. This includes the completeness and clarity of instructions, the encouragement of the teacher and the group dynamics.

The *Focus Group Discussion* (FGD) made evident a discernible trend toward the incorporation of gamification in multi-grade classrooms, motivated by the realization of its applicability in today's educational environment. Instructors stressed that to change students' perspectives on learning, gamification had to be contextualized inside the curriculum. Technology may be a motivating tool, but to guarantee successful learning results, regulated conditions must also be maintained. A study underscores the importance of maintaining regulated conditions to ensure successful learning outcomes when using technology in education (Banerjee et al., 2007). Gamification was shown to have a good influence on student engagement, motivation, and overall learning experiences, despite obstacles such as access to devices and data. This suggests that gamification offers viable pathways for intervention in education.

The results of the incidental findings conducted after the Focused Group Discussion allow the researchers to conclude that gamification as a strategy for enhancing student engagement.

## **B. Thematic Analysis from FGD after the Implementation of the Gamification Intervention**

1) *Benefits, Advantage, Fun and Lively*: The teacher's use of gamification through Kahoot highlights the benefits of this approach in education. Studies have shown that gamification can enhance student engagement, motivation, and learning experiences (Khaldi et. Al, 2023 and Nah et.al., 2014). Specifically, the teacher's observations align with research indicating that gamification can change students' perspectives on learning, making it more engaging, dynamic, and enjoyable (Da Silva et. Al., 2019). The use of game elements like points, leaderboards, and feedback in Kahoot creates a fun, lively learning environment that capitalizes on students' familiarity with technology (Nah et al., 2014). While there may be limitations such as device access, the teacher's implementation of Kahoot has resulted in enthusiastic student response and improved engagement and motivation. This supports the value of gamification in creating productive learning environments that improve student performance, as confirmed by the teacher's analyses of student experiences (Khaldi et. Al, 2023 and Nah et.al., 2014 and Da Silva et. Al., 2019).

2) *Challenges, Limited Access*: Gamification can cultivate learning motivation by making the educational experience more enjoyable and interactive (Hamari et al, 2014; Manzano-León et al., 2021; Nah et al., 2014b). The use of game elements such as points, levels, badges, leaderboards, and feedback can positively impact student engagement and participation (Manzano-León et al., 2021; Nah et al., 2014b). However, the effectiveness of gamification depends on various factors. Some studies have found uncertain or even prejudicial results, with gamification techniques like ranking negatively affecting certain student demographics (Hamari et al., 2014; Caponetto et al., 2014). The impact of gamification also varies based on student characteristics and personality traits, with younger students potentially more susceptible to the novelty but also quicker to lose interest compared to more mature users (Caponetto, et. al, 2014]. Additionally, the availability of resources, such as access to computers, can limit the consistent implementation of gamification strategies across classrooms (Manzano-León et al., 2021). This highlights the importance of ensuring equitable access to technology to enable the effective and equitable integration of gamification into the educational setting. Overall, the research suggests that gamification holds significant potential to enhance student engagement and motivation, but its implementation requires careful consideration of the specific context, student characteristics, and resource availability. Continued research is needed to better understand the mechanisms by which gamification impacts learning outcomes and to develop effective, inclusive, and sustainable gamification strategies for the classroom (Manzano-León et al., 2021; Da Silva et al., 2019b)

3) *Feedback, Effective, Fun, Enjoyable and Lively Familiarity of the gamification*: The teacher highlights the beneficial effects of gamification on student response, noting the pleasure and happiness students experience when participating in gamified exercises. The teacher's personal evidence suggests that gamification can change

students' perspectives, making learning more engaging and dynamic. The teacher's analyses of student input confirm the value of gamification in creating engaging, dynamic, and productive learning environments in multi-grade classrooms, which improves student engagement and academic performance. The research evidence strongly supports the teacher's observations regarding the benefits of gamification in enhancing student engagement, learning, and academic performance, especially when the gamification elements are designed to appeal to the diverse needs and characteristics of the student population ((Team, 2023; *5 Benefits of Gamification*, 2016)

## CONCLUSIONS

The use of gamification strategy like the Kahoot platform, is an effective strategy to improve the student engagement especially if implemented with proper guidance, establishing a positive a fun and learning environment. This includes the consideration of the students' needs and differences in planning the teaching and learning processes especially in integration gamification strategies. Hence, those who handle ALS multigrade classes such as NSP, may utilize gamification strategies with clear goals in mind and proper implementation ensuring proper classroom management and effective facilitation of the teaching and learning processes to consider students of varying ages in the same classroom. To meet the demands of 21st-century learners and encourage their participation in educational pursuits, volunteer teachers should provide flexible, inclusive, and trend-relevant classes and activities. Further research can be done on improving gamification in multigrade classrooms and raising awareness of this parallel learning approach. Adopting these suggestions would guarantee a more productive and interesting learning environment, benefiting students and teachers in the long run.

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