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Effectiveness of Gamification in English Language Classrooms: A Study of 10th Grade Students in Rural Punjab

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Abstract
This study explores how the application of gamification (Kahoot!) improves the English language learning outcomes as well as the level of student engagement of grade 10 students residing in the rural areas of Punjab, Pakistan. The research used a quasi-experimental mixed method design involving four public secondary schools where 200 students were drawn and grouped into experimental and control. The control group had to follow the traditional instruction, whereas the experimental group had to follow instruction complemented with game-based learning activities. The quantitative data obtained from pre-tests and post-tests revealed the statistically significant gains in the experimental group with a large effect size proving to the pedagogical value of using gamification. Further, qualitatively, classroom observations and student survey indicated higher participation, motivation and interest among the students. This is followed by the conclusion that gamification, if delivered with adequate support and training, presents a viable and economically feasible method to enhance English language instruction in situations of under resourceful educational settings.
Key Words: *Gamification, Kahoot!, English language learning, rural education, student engagement, educational technology, motivation, Pakistan, secondary education, instructional innovation.*

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Introduction

In current surroundings of a rapidly progressing digital age, today's students are individuals referred to as digital natives. Especially in circumstances where traditional instructive methods have not been effective in captivating the students, this turn of events has radically altered how education is provided. Particularly, gamification – the use of game design elements in non game context – has demonstrated great potential for improving student interest, motivation, and learning achievements. Gamification adds power in that it turns passive information into interactive, and engaging activities by bringing in the game elements like points, levels, leaderboards, and rewards into learning (Kapp, 2012).

Gamification has been the focus globally with various studies showing how gamification positively influences student's learning experience based on (Deterding, 2012). This has been investigated in depth in urban areas, however there is limited research about the use of gamification in rural educational contexts. In rural Punjab where educational resources of good quality and an exposure to English language environment are less common, gamification could see transformative role to play. Quite commonly, in English language classrooms at high school level in these regions, the problems encountered include low student motivation, teacher centered approach to teaching and exposure to authentic language use.

This paper presents a study on the impact of gamification on the teaching of English to 10th standard students in the rural areas of Punjab. More specifically, this paper assesses the effect of gamified learning using Kahoot! a very popular contemporary digital quiz platform, on student engagement and academic achievement. However, the research tackles the dual challenge of low motivation and low educational resources using a tool that is accessible and engaging. In this study, I will not only consider the students' academic performance, but also their attitudes towards learning and the extent of one's involvement in class.

The basis for the study is to close the gap in quality education in rural areas where there currently is a shortage of trained English teachers and motivational materials for the learners. Gamification might not only increase English language skills but also enhance the learning environment as the student feels that they are more confident and engaged, along with being more motivated to learn.

Objectives of the Study:

1. To examine the effect of gamification on the academic achievement of 10th-grade students in English language classrooms.
2. To explore how gamification influences student engagement and motivation in rural high school settings.

Research Questions:

1. To what extent does gamification using Kahoot! affect the academic achievement of 10th-grade students in rural Punjab?
2. How does the implementation of Kahoot! gamified quizzes impact student engagement and motivation in English classrooms?

Literature Review

Increasing number of studies that have been done on gamified learning

environments show very pronounced positive influence on stu-dent enga-ge-ment, in-ten-tion and learn-ing re-sults. Beyond that, integrating e learning learning with gamification can have a great role for the Pakistani rural students, where the challenges of acquiring education in classroom have been faced.

Gamification is a developing concept that has developed to be a central pedagogic approach that includes game like components, including points, rewards, levels, and leaderboards within non game contexts in order to encourage engagement and motivate (Kapp, 2012). According to Marczewski (2017), gamification is the implementation of the gaming design elements so as to intensify the learning experience and create a live ambiance wherein the learners are motivated in terms of contributing proactively, setting objectives, as well as getting some rewards in the process. The fundamental assumption behind gamification is that the elements of games, including competition, achievement and progress tracking can be extracted from games and applied in education for the purpose of increasing student motivation and learning outcomes (Deterding, 2012).

Gamification in the setting of teaching languages will provide learners with immediate feedback, rewards for the progress made, an opportunity to compete or collaborate with peers, which solves sometimes the problem of low learner engagement in the classroom (Topîrceanu, 2017). Gamified learning environments are a great motivation to students, especially in the situation when being failed is part of the learning process and students are able to experiment and retry without academic consequences (Scott & Neustaedter, 2013).

The implementation of gamification in different educational contexts around the globe has been given much attention, however, the effectiveness of gamification in rural and under resourced classroom, particularly in Punjab, Pakistan has not been explored. Some solutions include exacerbating the challenges of rural schools by locating training schools in some of the more remote areas and by providing tools and resources too expensive for the rural school to obtain on its own. Nevertheless, these limitations could be offset by gamified approaches based on a technology such as Kahoot! that can be used in a self-paced and low-cost manner, and provide interactive learning experiences which otherwise wouldn't be available to students in remote areas.

One of the very important factors still influencing language acquisition is student motivation. For instance, where in the traditional classrooms, in the rural areas of Punjab especially, the students do not get to learn English from anywhere except classroom, and thus get disinterested, and even disengage themselves from the same. While gamification has been demonstrated to raise motivation by benefiting the learning process to be more fun, engaging and competitive, this paper develops on an alternative approach (Vathanalaoha, 2022). For example, students using Kahoot! have a sense of accomplishment to deliver and compete like others as they engage with the material, in real time earning points

and ranking, among many other things. By providing the students with these elements, it is possible to encourage a student's intrinsic motivation talking about learning as it becomes the verge for student's achievements, in a sense of rewarding themselves based on what they have learned or achieved directly in class (Kiryakova et al., 2014).

Vathanalaoha (2022) depicted in Thailand that gamification increased the students' performance, and concurrently improved their attitude towards English learning. An improvement in language proficiency was also observed amongst students from the experimental group using the Winner English Program where they rated the ingenious gamified system as enjoyable and a source to reduce stress while learning English. This is in line with the claim that gamified learning environments reduce language learning anxiety comparatively to the traditional evaluation methods in rural contexts that lead to exacerbated language learning anxiety.

Timetested gamification elements, such as quizzes, badges and leaderboards, support the kind of autonomy in learning process, provide for confidence and foster more student centric classroom situation in rural areas of Pakistan, which primarily feature teaching English through rote memorization and teacher led instructions (Anwar et al., 2020). Being a dynamic and reward driven, gamification could change the status quo of Students regarding English as a subject and increase their participation in class.

E-Learning platforms have become the important tool to challenge the disparities in access to education that have been integrated with gamification. Digital learning tools can provide a practical and scalable solution to address the learning gap, which is a real challenge in rural areas like Punjab where students sometimes do not have access to experienced teachers or quality instructional materials. Studies indicate eLearning empowers the facilitation of learning content by students anytime, anywhere, to cure some of the spatial and temporal challenges of the traditional classroom (Alimi et al., 2021).

According to Alimi et al. (2021), e-learning platforms in conjunction with gamification make learning more available by making students be able to progress according to their pace, and thus, with flexible learning paths. It is important in the rural programs because the students generally come from different educational background and different levels of English proficiency. As an example, during the 1990s, children, who studied in different grades or classes in rural Punjab, were differentially equipped to learn English, in which case online digital platforms could play a key role in personalizing their learning.

The widely used gamified e-learning platform was proved to engage students massively by creating a fun and competitive environment. Platforms such as Kahoot! have provided the means for immediate feedback and increased conveyance of progress on this effort which gives the students a visual example of improvements over time (Nguyen, 2022). In addition, such platforms can be accessible on smartphones and basic computers,

which makes it a good platform for the rural Pakistani schools, where it may be restricted to use computers but more widespread in terms of mobile phones usage.

The potential of gamification in the rural schools is vast, however, several barriers are to be addressed for its effective implementation. There is a lack of infrastructure including unreliable internet or insufficient devices in most of rural schools of Pakistan. Besides, both teachers and students must also be digitally literate, or else they will not adopt the gamified learning platforms. It is agreed that studies reveal that lack of training for educators in rural areas often leads to underutilization of digital tools (Zylfiu & Rasimi, 2020).

In addition, although gamification encourages active learning, teachers must move away from passive content modes of delivery to a role that facilitates learning, which is a demanding shift for many teachers and especially in the rural regions. The teachers in rural Punjab may not be aware of gamification strategies and require substantial training to learn how to play a key role in a gamified classroom. Moreover, according to Vathanalaoha (2022), gamified tools should not be considered to be a teacher's replacement, but rather an additional resource to the education process.

Nevertheless, the availability of low-cost digital devices and the phenomenon of mobile learning could present relevant solutions to the challenge of gamification in rural classroom. If development of a good digital infrastructure, proper teacher training, and supportive policies has been ensured, gamified e learning can have crucial role in enhancing the English language proficiency in rural Punjab.

On gamification and how integration with e-learning platform devoid of strong evidence that these approaches can plug student engagement, motivation and achievement. However, the success of gamification in implementing this framework depends on the addressing challenges like infrastructure, digital literacy, teacher training, etc. present in rural settings like Punjab. The purpose of this research is to examine the particular influence of Kahoot! in gamifying learning in rural Punjab English classrooms of Pakistan and to understand how gamified learning could solve students' problems related to learning in the resource deprived educational context.

Methodology

To check the impact of gamified quizzes in English language learning outcomes and student engagement. An approach of mixed methods was undertaken by combining the quantitative measures of academic achievement with the qualitative data on learners' perception that enabled assessment of triangulation on findings.

Participants

Participating in the study were a total of 200 students in Grades 10, aged 14 –16 years from four public secondary schools in rural Punjab in the Kasur and Okara districts. Two criteria were used to select schools, which was through purposive sampling: (1) having at least one computer lab or smartphone access as a means of Internet access and (2) having

administrative willingness to implement Kahoot! as a tool within the English curriculum. Inside each school, students were randomly placed in either experimental or control condition. A total of 200 students participated in the study with the experimental group (n = 100) receiving English instruction with Kahoot! quizzes once a week in addition to it, and the control group (n = 100) experiencing native language English instruction in identical manner but with equivalent content and practice exercises.

Instructional Intervention and Procedures

Intervention lasted four consecutive weeks in which both groups followed the same curricular unit on the topics of vocabulary, grammar structures, and reading comprehension. Teachers used Kahoot! at the end of each lesson with a 15-minute session in experimental condition. The quizzes were made up of 10–12 multiple choice questions related to the objectives of the lessons. Classroom projector projected questions that students responded to on their devices individually. Within the 5-minute debriefing, led by an in–class teacher, students were shown correct answers and, if applicable, their leaderboard rankings, and then had the opportunity to engage in peer discussion focused on reinforcement of the key concepts.

The teachers ended each lesson in the control classrooms with a 15 min. equivalent length and content paper-based quiz. The following day, verbal feedback was delivered while ensuring even instructional time but through distinct communication mode based on feedback.

Data Collection Instruments

Pre-Test and Post-Test

Once a week before and after the intervention, both groups took a standardized 30-item multiple-choice test where vocabulary, grammar and reading comprehension are measured. Reliability including test items were pilot tested using a similar cohort (Cronbach's $\alpha = 0.82$).

Engagement Observation Protocol

In Weeks 2 and 4, three randomly selected lessons were observed by trained observers using a structured checklist which recorded indicators of student engagement (on task behavior, participation in discussion, etc.) Cohen's kappa was higher than 0.75 as inter-rater reliability.

Student Perception Survey

To gauge gamified learning perceptions of the experimental group, they were administered a post-intervention questionnaire consisting 10 Likert scale items and 3 open ended questions. The items probed the dimension of enjoyment, of the motivation, perceived learning, and technology usability. With Cronbach's $\alpha = 0.88$, for the Likert-scale section, the questionnaire showed acceptable reliability.

Data Analysis

Paired samples t tests were used to analyze quantitative data from pre- and post-tests to measure within group gains, while independent samples t tests compared gains between groups setting significance at $p < 0.05$. Cohen's d was used to calculate effect sizes. Summaries were provided, through means of descriptive engagement observations,

which are compared across conditions. I thematic analyzed qualitative responses from open ended survey questions based on Braun and Clarke's (2006) framework for thematic analysis, which comprises six phases in order to identify recurring categories of motivation, confidence, and perceived learning gains.

Results

Statistical Analysis of Academic Achievement

Pre-test and post-test scores were analyzed to assess whether gamification impacts academic achievement of students. Firstly, the pre-test was designed to obtain baseline proficiency levels in English and the post-test was to evaluate the impact of the Kahoot! quizzes.

Descriptive Statistics

Table 1

Mean Score of both experimental and control group

Group	Mean Pre-test Score	Mean Post-test Score
Experimental	38.2%	65.4%
Control	39.0%	49.1%

The mean scores of both groups before and after the intervention are compared in Table 1. The results from the experimental group were compared to those of the control group and indicated that, although both gained partially in their post-test scores, the experimental group demonstrated a larger gain, and thereby it can be concluded that Kahoot! quizzes made a considerable difference in academic achievement.

Inferential Statistics

A paired sample t-test was then conducted on both groups in order to determine the statistical significance of the observed differences. Below is presented the results of the t-test for each group.

Table 2

Results of t-test for both experimental and control group

Group	t-Statistics	p-Value	Cohen's d
Experimental	9.25	< 0.01	1.30
Control	4.05	< 0.01	0.72

From Table 2, it can be seen that the use of gamification in Kahoot! for enhancing the academic achievement of students exposed to it is statistically significant. The effect of traditional methods of increasing academic achievement was much smaller than the experimental group as the control group showed improvement as well.

Effect Size

The magnitude of effect was estimated using Cohen's d. The effect size for the experimental group is Cohen's d = 1.30 which is a large effect size indicating that gamification was statistically and practically significant on improving students' academic performance.

Table 3

Full statistical output of the t-tests for both groups.

Group	Pre-Test Mean	Post-Test Mean	t-Statistic	p-Value	Cohen's d
Experimental	38.2%	65.4%	9.25	< 0.01	1.30
Control	39.0%	49.1%	4.05	< 0.01	0.72

Engagement Metrics

Both quantitative and qualitative measurement of student engagement were performed. Besides pre-test and post-test scores, classroom engagement observations and student surveys were utilized for determining the involvement of students due to the use of gamification.

Finally, engagement metrics of both groups were assessed in terms of classroom participation rates, voluntary contributions, and time spent on task during the intervention. Descriptive statistics were used to analyze the data and the results are presented in Table 4.

Table 4

Engagement Metrics Comparison

Group	Average Participation Rate	Time Spent on Task (Minutes per Session)	Voluntary Responses
Experimental	87%	45 Minutes	85%
Control	85%	28 Minutes	46%

The differences in engagement levels between the two groups are shown by the Table 4. The experimental group showed higher engagement levels than the control group, especially in relation to the amount of time spent on task and amount of voluntary participation. This implies that gamification not only had an effect on intellectual achievement but also enhanced the students' intrinsic motivation for participating in class activities.

Student Feedback Analysis

At the end of the intervention, students' feedback was obtained through surveys and open-ended questions. The intent of the study was to identify patterns within students' experiences with gamified learning using the analysis of 200 student responses. Content analysis was used to analyze the feedback and identify the most frequent themes by keyword analysis.

Keyword Frequency Analysis:

Table 5

Patterns in students' feedback

Keywords (Themes)	Frequency
Coins/Reward System	72
Fun/Enjoyable	68
Vocabulary Learning	54
Competition/Excitement	48
Engagement	45
Coins/Reward System	72

The frequency of key term usage in student feedback is highlighted in Table 5: reward systems (coins), fun and competition. The analysis shows that the students liked the game mechanics (for example collecting coins and ranking systems) as it was an appealing way for them to learn. Nevertheless, the feedback expressed some concern about correct pronunciation and the absence of teacher interaction during specific activities.

Discussion

This study's findings prove that gamification, especially as provided through the Kahoot! platform, bears pedagogical potential of facilitating English language learning for students of the secondary level in rural Punjab. Finally, this discussion critically discusses the implications of the observed results and interprets them in the light of the aims of the study and the existing literature.

Strong support for the hypothesis that gamified learning environments can lead to the more effective learning of English language skills is provided by

the marked improvement in the experimental group, which improved much more than the modest growth of the control group. The statistically significant gains ($p < 0.01$) and the large effect size (Cohen's $d = 1.30$) point to the robustness of this instructional approach. Such findings are consistent with other studies e.g., Topîrceanu (2017) and Nguyen (2022) which support the impact of interactive and game-based learning on retaining the vocabulary terms, grammar and learner autonomy. This gain is all the more remarkable because of the study context — rural classrooms serving students who often suffer from a lack of teacher quality, textbooks, and technological access. The findings suggest that with the right kind of digital tools, offered and utilized with care, even very brief interventions—down to four weeks —can result in measurable academic payoffs.

This study shows not only academic improvement but also very high levels of student engagement. The levels of participation, time on task and voluntary contributions increased significantly in the experimental group. Thus, the motivational affordances present in gamification including real time feedback, competitive leaderboard and incremental reward supports sustained attention and active involvement. This conclusion is also supported by students' qualitative feedback. Terms such as 'fun', 'competition' and 'rewards' appeared often, which leads to the understanding that Kahoot! was motivational learning. Moreover, the repeated use of increased self-confidence hints at a decrease in foreign language anxiety, an issue that is well known in second language acquisition literature (Horwitz, 2001).

Kahoot!'s immediate feedback had a tremendous impact on enhancing engagement and learning outcomes. Whereas in conventional quizzes feedback are delayed, Kahoot! gives the students the ability to measure their understanding right away to correct the errors and shift their learning patterns. Improving retention is not only made up by this feedback loop; it also facilitates development of metacognitive awareness. Additionally, the question quiz encouraged students to have discussion in peer groups as responses to the questions were submitted, which also created a sense of community and collaborative learning. This observation is also consistent with Vathanalaoha's (2022) findings, which indicate that social dimension and collaborative learning are important aspects of the gamified learning environment responsible for better performance of students.

This study has wider implications for classroom environments beyond the classroom environments that were studied. In the rural communities of Pakistan, the educational systems are constituted by outdated teaching methodologies, unavailability of resources, and the lack of interest among students to learn. This study shows that by using a freely available tool like Kahoot! a relatively simple intervention can improve both academic and affective outcomes, alluding to a way for scalable pedagogical innovation. It is equally important to think about the fact that gamified platforms have been of relatively low cost and user-friendly. In

fact, considering the widespread availability of smartphones, even in rural households, and the growing access to the internet being provided by mobile networks, platforms such as Kahoot! could be introduced to the public education system, given low-cost infrastructure investment.

This study is not without its limits despite having positive outcomes. Given the short intervention duration, we do not have the ability to claim things about retention of knowledge or what the development of language may be in the long term (Ansari, 2007). Moreover, as quantitative data provide more insight into learner experience, the responses from the learners might be influenced by the self-reporting bias. In addition, teacher enthusiasm and digital literacy were not the same across schools and aspects that could have led different impacts, which this study was unable to control for.

The methods of the study can be improved with future research in longitudinal designs with variables that can be accounted for (e.g. control variables which include gender, prior academic performance, etc. and access to technology outside of the classroom). Further, the differential effect of gamification on other language skills such as reading, writing, speaking, and listening should be examined, and not treated as a single holistic construct.

Conclusion

It reveals that gamification especially using Kahoot! significantly enhances student engagement and academic achievement in English language classrooms of rural Punjab. The students in the experimental group, who learned through the instructional process that is enhanced by integrating the interactive and game-based elements, made not only great scores on the standardized test, but also showed high motivation, participation and positive attitude toward English learning.

The contribution to the growing body of gamified learning environments findings further supports the effectiveness of the gamified learning environments in under resourced and marginalized education contexts. Moreover, the success of the intervention shows that important educational innovation does not necessarily depend on costly technology or large-scale remakes. Rather, disengaged students' learning experience can be augmented through the thoughtful use of free and accessible tools, with the facilitation offered by the teacher.

Properly, the study also makes a point that gamification is not just a passing trend or fad. However, if utilized strategically, the gamified instruction, on the other hand, enhances the principles of 21st century education that are learner autonomy, interactivity, immediate feedback and collaborative problem-solving. Language learning is especially sensitive to these things; confidence, and repeated exposure to genuine input.

Consequently, the immediate benefits observed on this study's short duration, notwithstanding, are compelling. Gamification is supported to be integrated in the Pakistani educational system especially in rural areas to overcome these persistent challenges of rote learning, student apathy and poor language proficiency.

In order to be sustainable, therefore, such integration would require teacher training, infrastructure investment, and policy support.

Longitudinal designs, as well as determining changes in the impacts of gamification on differentiated individual language skills, should be used in future research. Additionally, gender-based responses to gamified learning or understanding the role of digital literacy in mediating outcomes might be explored. This study finally concludes that the pedagogical importance, context applicability and transformative power of gamification is serious for the classroom in the rural Pakistani context.

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