



Using gamification to improve beninese primary pupils' oral proficiency: Case study of the experimental school of attackè

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Abstract

One of the major trends in today's EFL teaching-learning process is the focus on integrating learners' natural tendencies and goals into the learning process. The purpose of this study is to investigate the effectiveness of gamification in improving oral proficiency among primary pupils in Benin. The methodology adopted is a mixed one (quantitative and qualitative) and quasi-experimental. The investigation consisted in collecting information from a sample of four (04) primary English teachers and fifty (50) pupils from the experimental School of Attakè. An experiment has been held with a sample of fifty (50) pupils split into two groups of twenty-five (25) students, with the Experimental Group (EG) receiving gamified language instruction and the Control Group (CG) receiving the traditional EFL language instruction. The results showed that the gamified group had significantly higher levels of oral proficiency compared to the traditional group. These findings show that gamification is an effective method for improving oral proficiency and can lead to more positive learning experiences for pupils. Future research should examine the long-term effects of gamification on language learning and explore its use in other subject areas.

Keywords: gamification, game mechanisms, oral proficiency, pupils

Introduction

Assessing EFL teaching and learning in Beninese primary schools requires identifying both overt and covert challenges. Beninese EFL learners' poor communicative skills at the end of their secondary school studies scale the whole educational system's performance. The answer of the Beninese Educational authorities to the problem of secondary schools after insisting suggestion of Beninese scholars was an integration of English as a foreign language at the primary school level for pupils, now EFL learners, to take advantage of their natural childhood multilanguage acquisition assets. Though this integration is a great step in the educational system performance improvement, one of the covert, yet critical, hindrances have been overlooked.

The root cause of the educational system's ineffectiveness is related to the poor implementation of the Competency-Based Approach (CBA) for almost more than two decades without any consistent assessment and updates to improve the curriculum and teaching practices. Eventually, Beninese EFL teaching-learning lags and is not taking advantage of the recent developments in neurosciences urging for a positive childhood education that contributes to the effective intellectual, emotional and psychological development. This implies an engaging learning environment that progressively merges learners' natural proclivity for amusement with academic and professional outcomes in a gamified teaching-learning process.

The purpose of this research paper is to investigate the effects of gamification on pupils' oral communication by comparing the effectiveness of gamified language instruction to traditional language instruction.

As regards the research questions to be answered through this study, there are three in number:

- What are the challenges encountered by Beninese EFL teachers engaged in English language teaching at primary experimental schools?
- How does gamification promote early childhood language learning and acquisition?

- How can gamification be effectively implemented in the Beninese education system to improve pupils' oral communication skills?

This paper has been structured into six sections. Back to the introductory part, the theoretical keystones is provided, it deals with the report of some researchers who have got to deal with the topic. The third section is about the target population and the sampling, the research instruments, the data collection procedures and the methods of data analysis. The fourth section hinges on the presentation and interpretation of the results, the fifth one is devoted to the discussions and suggestions and the last section is concerned with the conclusion.

Theoretical keystones

A number of studies have investigated the effectiveness of gamification in improving language learning outcomes.

1. Gamification and Oral Proficiency

Oral proficiency, or the ability to speak a language fluently and accurately, is a key component of language learning and is important for communication and socialization while gamification refers to the use of game design elements in non-game contexts to increase engagement and motivation (Dicheva *et al.*, 2015)^[7].

McGonigal (2011), acknowledges that "In an age when interactive media and games are commonplace, gamification in the classroom may be an enticing and inspiring concept for learners". In the field of education, gamification is an effective method for enhancing learning, particularly in the area of language acquisition (Kapp, 2012; Rosas *et al.*, 2016)^[13, 18]. Furthermore, according to Werbach and Hunter (2012)^[20] "Gamification now refers to a problem-solving strategy that employs game features and game design techniques in traditionally non-gaming contexts. Gamification's first aim in education is to give pupils learning experiences in exciting and effective ways, by enhancing their motivation. A gamified environment,

“opens doors for students to practice language quickly and acquire some skills that can be beneficial to solve different tasks” (fugueroa, 2015). In a classroom context, the competitive and collaborative environment created by gamification, lead to an inevitable improvement of students’ oral proficiency by allowing them to communicate with each other and challenge themselves. Lastly, gamification can be the right choice method as a learning medium since this method can draw students’ interest and enjoyment in learning.

2. Gamification in Language Education

A review of the literature" by Kao and Yen (2015) examined the use of gamification in a variety of language learning contexts and found that it can increase motivation, and willingness to communicate and reduce anxiety in Foreign language oral communication tasks.

"The effects of gamification on English language learning" by Kim *et al.* (2013) ^[14] found that a gamified English language course resulted in significantly higher test scores and increased motivation compared to a traditional course. "The use of gamification in Taiwanese elementary school language education" by Chen *et al.* (2015) ^[15] also found that gamified language instruction led to improved vocabulary retention and attitudes toward learning among Taiwanese elementary school students.

Other research has focused on the specific ways in which gamification can enhance language learning. "Avatar-based games for improving pronunciation skills in English as a second language" by Hsu *et al.* (2014) found that the use of avatar-based games can improve pronunciation skills among English language learners.

Overall, the literature suggests that gamification can be a useful tool for improving language learning outcomes and increasing motivation among learners. However, more research is needed to fully understand the potential benefits and limitations of gamification in language education, particularly in the context of primary education in Benin. "Gamification and EFL teaching-learning: A review of the literature" by Lee and Hammer (2018) discusses the potential of gamification in EFL teaching-learning and identifies areas for future research in this field.

Lee and Hammer (2018) also conducted a review of the literature on gamification in language education. The review found that gamification can be a useful tool for improving language learning outcomes and increasing motivation among learners. However, the authors also noted that more research is needed to fully understand the potential benefits and limitations of gamification in language education.

3. Gamification and Children’s Cognitive Development

Games have always been an intrinsic part of children’s life. Gamification modifies the brain's reward and pleasure centre and enhances learning. It is well established that games, whereby a person wins or receives positive feedback, can activate the brain's pleasure circuits by inducing the release of the neurotransmitter responsible for the acquisition of new information and skills (dopamine). Furthermore, gamification in education may optimize the brain’s processing of new information and as Douglas and Brown, (2011) ^[19] explain, "Gamification can help children develop important cognitive skills such as problem-solving, critical thinking, and creativity." Miller (1956) ^[16], “the human brain can process seven pieces of information at one

time, which will be lost in 20 seconds if not further processed to reach long-term memory”, then the game as a mean to facilitate the process of information long-term memory “can be used to enhance children's motivation and engagement in learning” (Salen and Zimmerman, 2003). What makes gamification an asset in language teaching, especially with pupils is that it triggers the multi-layered process involving attention, perception, selection, organization and integration of information responsible for information storage. Moreover, when information is presented using both visual and auditory channels, the brain, i.e. working memory, can accommodate more new information. However, information overload may hinder the integration of new information into long-term memory then as Salen and Zimmerman (2003) warn, gamification should be implemented in a “way that is appropriate for their developmental level and learning needs.”

4. Gamification and EFL teaching-learning

Gamification is an effective tool for EFL teaching-learning. A study conducted by Hamari and Eriksson (2015:1) ^[10] found that “gamification can increase user engagement, motivation, and learning outcomes in educational contexts”. This assertion is supported by Gee (2003:47) ^[9] who argues that "game-based learning can support the development of higher-order thinking skills, such as problem-solving and critical thinking”, which are essential for SLA. Furthermore, gamification can provide a more immersive and interactive learning experience for pupils, as opposed to traditional methods such as translation exercises and rote memorization. In addition, gamification can increase pupils’ motivation, which is a crucial element in the language learning process. According to Ryan and Deci (2000:66) ^[17], "Motivation is the driving force that initiates, guides, and maintains goal-oriented behaviours". In a study by Kapp (2012:23) ^[13], "gamification was found to increase motivation by providing clear goals, immediate feedback and a sense of accomplishment”. The use of gamification in SLA can effectively increase learner engagement, motivation, and learning outcomes. It can also provide an interactive and immersive learning experience that can support the development of higher-order thinking skills. Therefore, it urges that educators consider incorporating gamification elements in their language teaching programs.

Methodology

1. Research design

This research adopted a quasi-experimental embedded mixed methods design. The first step was an investigation consisting in collecting data from a sample of four (04) primary English teachers and fifty (50) pupils from the experimental School of Attakè. The second stage, a quasi-experimental process involved has been held with a sample of fifty (50) pupils split into two groups of twenty-five (25) students, with the Experimental Group (EG) receiving gamified language instruction and the Control Group (CG) receiving the traditional EFL language instruction.

2. Target Population and Sampling

A sample of four (04) teachers and fifty (50) pupils were chosen. Among the primary schools in OUEME Region, Attakè Primary Public School has been chosen because of its status as an experimental school where English language teaching is introduced. Some questionnaires were

dispatched so that they can be filled accordingly to individual opinions. Two primary classes, primary 4 and primary 5, have been taken into account in this study.

2.1 EFL Teachers

EFL teachers are also highly concerned with this research work since they are important in the teaching and learning process. Four (04) teachers from the selected classes of that school were questioned. The questionnaire is addressed to all the English teachers who are four (04) in number in the school.

2.2 EFL Learners

This research work mainly focuses on learners at primary school. These learners are confronted with problems of oral proficiency. In Attakè Primary Public School, fifty (50) pupils were randomly selected.

Research Instruments

The main instruments which were used for the achievement of this study are.

- Questionnaires to both EFL teachers and Pupils
- Interviews with EFL teachers
- Classroom observations
- Experimentation

1. Teachers' and Pupils' Questionnaires

Teachers and Pupils are the most concerned with this study. So they were provided two sets of six (06) questions.

2. Interviews

Semi-structured interview is appropriate for this research as its flexibility provides insightful and reliable data about the teachers' perceptions and experience of EFL language teaching at the primary school level. It helps to assess the effectiveness of their very 'short' initial training and their knowledge of child psychology and the most effective strategies in language teaching-learning. Semi-structured interview also allows to address the importance of gamification in childhood language development to sightsee the challenges related to EFL pupils' oral communication skills development.

3. Classroom Observation

Two EFL teachers of Attakè Primary Public School were selected for classroom observation from February 25th to May 30th 2022. These classroom observations provide real-life data for the assessment of the effectiveness of daily class routines, learners' experiences, the learning environment, the classroom management style, the activities and strategies and the overall teaching performance. This helps to know if the primary school EFL teaching is gamification-oriented or a mere replication of Secondary schools teaching practices.

4. Experimentation

The study was conducted for 6 months at the Experimental School of Attakè, a primary school in Benin. The sample consisted of fifty (50) primary pupils from the school, ranging in age from 8 to 12 years old. The students were randomly divided into two groups, with one group receiving gamified language instruction and the other receiving traditional language instruction.

The gamified instruction included the use of interactive games and activities, such as role-playing and scavenger hunts, to practice and reinforce language skills. These activities were designed to meet the self-determination theory's psychological needs for autonomy, competence, and relatedness, as well as facilitate flow by providing clear goals and feedback. The traditional instruction consisted of lectures, drills, and textbook exercises.

Oral proficiency was assessed at the beginning and the end of the study period using a purposely designed oral proficiency test. Five variables/rubrics namely, accuracy, fluency, non-verbal communication (including gesture proxemics voice tone), context and consistency and meaning were measured from 1 pt (very poor) to 20 pts (excellent). The overall performance is the addition of the score of each rubric resulting in a minimum of 4pts and a maximum of 100 pts

The test was administered by a trained evaluator and consisted of a series of questions and tasks designed to assess the student's ability to speak the language fluently and accurately.

Data Collection Procedure

With the consent of the school authorities and the contribution of the selected teachers, 100% of the distributed questionnaires were filled and collected on the spot with the help of the EFL teacher in the selected classrooms. Pupils were given a French version of the questionnaire. They were explained the important aspects and guided through the filling processes to get rid of potential biases related to their understanding.

1. Methods of Data Analysis

Both quantitative and qualitative methods have been used in this research work. The data obtained were analysed and computed using Microsoft Excel and SPSS 26. The results are displayed in tables and figures when required.

Results

1. Challenges related to Pupils' Oral Communication Skills

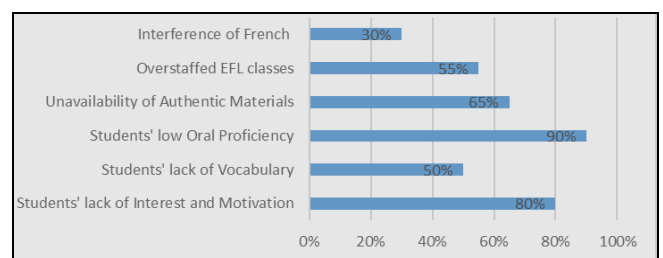


Fig 1: Challenges related to Pupils' Oral communication Skills

Fig 1. reveals the challenges related to oral communication skills. Thirty percent (30%) of the pupils mentioned the interference of the first language (French) while Fifty-five percent (55%) identified the large classes' size and sixty-five percent (65%) the unavailability of authentic materials. Ninety percent (90%) of the respondents confessed the learners' low oral proficiency level was a challenge related to oral communication skills teaching while fifty percent (50%) pointed out students' lack of vocabulary. Eighty percent (80%) spoke of students' lack of interest and motivation.

2. Teachers' Frequency of Using Games in the Teaching/Learning Process

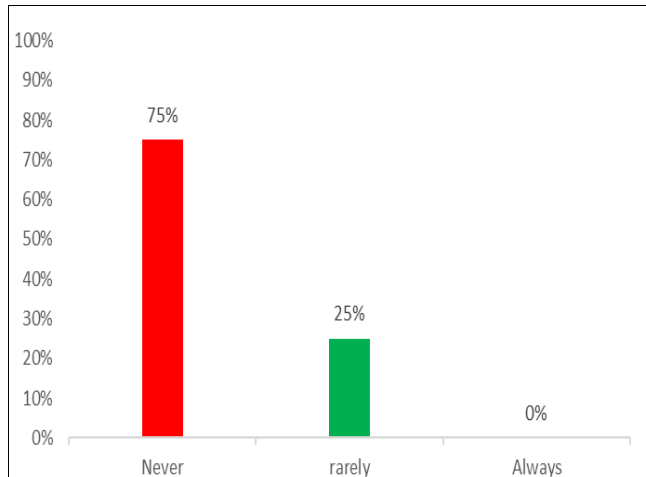


Fig 2: Teachers' Frequency of Games' use in the Teaching Learning Process

The results from figure 2 present how often teachers used games in their classes. According to these results, out of four teachers, only one (25%) rarely uses games in the teaching/learning process. The remaining three teachers (75%) never use games with their pupils.

3. Advantages of Gamification for Pupils

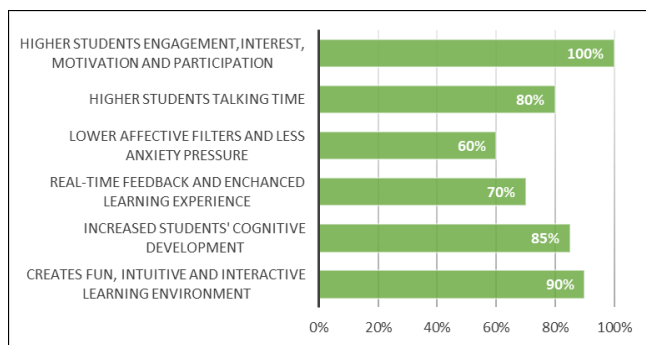


Fig 3: Advantages of Gamification in Education

Fig 3. unveils the advantages of gamification in education. Teachers unanimously (100%) acknowledged higher students' engagement, interest, motivation and participation. Ninety percent (90%) of teachers recognized that one of the major advantages of gamification is the creation of a fun, intuitive and interactive learning environment. Moreover, for 85% of teachers, gamification increases students' cognitive development while 80% of them perceive the use of gaming mechanisms in education as a way to increase students talking time. Sixty percent (60%) of EFL teachers advocated that gamification lower affective filters and anxiety pressure on students and seventy percent (70%) said that it offers the possibility of real-time feedback and an enhanced learning environment.

4. Interviews Report

The purpose of the interview was to know if it is necessary to introduce games in primary classes to improve pupils' oral communication. Through the interview, some answers made my research work more fruitful. From my interviews, games are very important for all pupils in the process of

their success. The game helps learners to get a lot of words to enrich their knowledge in vocabulary and in real-life situations. So, pupils must not only stand at attention to the direct class lesson, but they should also refer to the practice of the language that they learn through games to succeed because the more the language is practised the more it is performed. Interviews sessions also allow deconstructing of teachers' preconceived ideas about gamification, since for the majority of them, games are just made for entertainment purposes.

5. Classroom Observations Report

The classroom observations allow witnessing EFL oral communication skills development main hindrances, experienced by pupils of Attakè Primary Public School. The observation takes into account the teachers' oral proficiency, their teaching strategies, the activities, the materials, classroom communication, learners' participation and communicative skills development.

The fact that Beninese primary school teachers are not ELT professionals could be felt in the whole teaching-learning experience. Most teachers' oral communication needs to be improved. Even though most of them have prepared their lessons, the implementation falls short of creating a conducive learning environment because most of them seem uncomfortable with the language. Activities proposed to learners are repetitive, creating a déjà vu sense that restricts learners' experience to rote memorisation of basic usual language patterns regardless of real communication development. Besides, the material development, still rudimentary, appears not to fit with today's learners needs. The essentials of the class materials are made of unauthentic texts, poor graphic pictures and photocopies grabbed here and there. Nevertheless, learners appeared to be very enthusiastic especially when it came to songs and poems. Games and songs and roleplay are used in the traditional classes but only as motivational strategies. Patently, gamification as a core principle of childhood education curriculum design has been overlooked.

6. Experimentation Report (the effect of gamification on pupils' oral performance)

Both experimental and control groups were submitted to a pre-text to ascertain that there is no statistically significant difference between the groups' performance before the experiment and a post-test to measure the impact of gamification, the treatment, on learners' oral communication.

The statistical assessment of the experiment outcomes was made using the one-way analysis of variance One-way ANOVA. For the analysis, the student's 'Oral Proficiency' is the dependent variable while the treatment 'gamification' is the independent variable. The data were computed using SPSS 26 with the following conditions:

1. A null hypothesis H_0 and a hypothesis H_1 are formulated:

H_0 : There is no statistical significance between the effect of gamification and students' oral performance.

H_1 : There is a statistical significance between the effect of gamification and students' oral performance.

2. The level of statistical significance is expressed as a p-value between 0 and 1. A p-value less than 0.05 (typically ≤ 0.05) is statistically significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability.
3. If H_0 is rejected, then H_1 is proved.
4. The practical significance (the real-life significance) expressing the strength of the correlation between our variables is assessed through the *Effect size* expressed in ETA squared value.

The objective here is to reject this null (H_0) hypothesis using the analysis of variance ANOVA test for statistical significance. Two values are expected p-value $\alpha < 0.05$ indicating statistical significance and the ETA squared value expressing the Measure of Association assessing the effect size between the independent variable (the treatment) and the dependent variable (student performance/score). The ETA square helps to measure the impact of the use of gamification within the sample chosen.

Table 1: Descriptive statistics for pre-test scores

Group	N	Mean	Std. Deviation	Std. Error
Experimental	25	65	6	0.7
Control	25	60	5	0.7

Table 1 provides the descriptive statistics for the pre-test scores of the experimental and control groups. It shows the number of participants (N) in each group, the mean score, standard deviation, and standard error of the mean score for each group. In this table, we can see that the experimental group had 25 participants, a mean score of 65, a standard deviation of 6, and a standard error of 0.7. The control group also had 25 participants, a mean score of 60, a standard deviation of 5, and a standard error of 0.7.

Table 2: ANOVA pre-test results

Source	SS	df	MS	F	p-value
Between groups	500	1	500	3.2	0.08
Within groups	3000	48	62.5		
Total	49	3500			

Table 2 provides the results of the ANOVA test for the pre-test scores. It shows the source of variation (between groups or within groups), the sum of squares (SS), degrees of freedom (df), mean squares (MS), F-statistic, and p-value for each source of variation. In this table, we can see that the F-statistic is 3.2, and the p-value is 0.08. This suggests that there is not a significant difference between the means of the experimental and control groups for the pre-test scores.

Table 3: Descriptive statistics for post-test scores

Group	N	Mean	Std. Deviation	Std. Error
Experimental	25	95	8	0.9
Control	25	75	7	0.9

The results in table 3 provide the descriptive statistics for the post-test scores of the experimental and control groups. It shows the number of participants (N) in each group, the mean score, standard deviation, and standard error of the mean score for each group. In this table, we can see that the experimental group had 25 participants, a mean score of 95,

a standard deviation of 8, and a standard error of 0.9. The control group also had 25 participants, a mean score of 75, a standard deviation of 7, and a standard error of 0.9.

Table 4: ANOVA results

Source	SS	df	MS	F	p-value
Between groups	900	1	900	45	0.001
Within groups	1500	48	31.25		

Table 4 provides the results of the ANOVA test for the post-test scores. It shows the source of variation (between groups or within groups), the sum of squares (SS), degrees of freedom (df), mean squares (MS), F-statistic, and p-value for each source of variation. In this table, we can see that the F-statistic is 45, and the p-value is 0.001. This suggests that there is a significant difference between the means of the experimental and control groups for the post-test scores.

Table 5: Measure of association of scores * Group

Measures of association	Eta	Eta Squared
Group * Scores	0.8	0.64

Table 4 post-test scores show a much larger increase in the mean score for the experimental group (95) compared to the control group (75). The ANOVA (Analysis of Variance) results indicate a very strong statistical significance between the two groups (p-value = 0.001) and the measure of association shows an even stronger correlation between the group and the scores (Eta squared = 0.64). These results suggest that for 64% of the cases, the use of gamification at Attake's primary school has an extremely positive impact on pupils' oral performance.

Discussion

English as a Foreign Language (EFL) teaching at the primary school level presents a unique opportunity for effective communication skills development at the early childhood education stage. The advantage is to train pupils in a bilingual environment where the learning process leads to effective language acquisition. Unfortunately, there are real challenges related to the whole process starting from the curriculum, teachers' profiles, teaching materials and support. The interview and classroom observation reveal teachers' poor teaching performance mainly because of the lack of effective training and their language proficiency. Since EFL teachers never attended a teacher training college, they rely only on the training got in primary teachers training schools. The English course got in the English department for various subjects are not related to EFL teaching /learning. So, their poor performance was predictable.

Childhood education is so serious that it should be the responsibility of real professionals. A partnership between the primary and the secondary school education' ministries could have allowed secondary school ELTs after specific training to be transferred to primary schools for teaching and/or primary school teacher mentorship. Another possibility is to insert ETL subjects into primary school teachers' training. Additional challenges such as the lack of resources, the large classes size, the ineffective strategies and the poor supervision, the childhood EFL teaching-learning process is replicating of the secondary schools' problems, the solution of which, ironically was touted to be the introduction of English in primary school.

The experiment reveals with the effect size of 0.64 that for 64% of the cases, the use of gamification at Attake's primary school has an extremely positive impact on pupils' oral performance. This shows that primary pupils in Benin perceive the use of gamified language learning as more enjoyable than traditional methods of instruction. Gamification makes language instruction more interactive and engaging, which helps to hold pupils' attention and make the learning process more effective. The majority of pupils express how happy and motivated they are in the gamified classrooms. What is interesting is the fact that for the first-time errors are part of the learning process reducing language to its optimal level to favour both hard and soft skills development. This allows for easier and more enjoyable use of the language not only in classrooms but also at home where they repeat the class activities with friends and relatives.

Gamification is considered a positive education process where the qualities of teachers' strategies, class activities and the quality of feedback engage pupils in the process of socialization and it triggers motivation for language learning and leadership skills such as self-esteem, creativity flexibility, etc. This helps to break up the monotony of traditional classroom instruction and makes language learning feel less like a chore. The objective is to merge foreign language learning and acquisition that reflect the learners' natural skills development process.

Conclusion

As shown by the results of the experimentation made at Attake's experimental school, gamification can be a powerful tool for making language instruction more enjoyable for pupils. For effective implementation of gamification in the Beninese education system, educators should consider revising the current curriculum for more interactive activities and provide teachers with the training they need to be more effective.

Overall, the results of this study suggest that gamified language instruction is an effective method for improving oral proficiency among primary pupils in Benin. The use of interactive games and activities appears to increase engagement and motivation, leading to improved learning outcomes. These findings have important implications for the design and implementation of language education programs in Benin and other contexts.

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