DEVELOPING VOCABULARY USING GAMING: THE NIGERIAN LANGUAGES EXPERIENCE

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Abstract
The study focuses on language teaching and learning within the context of a multi-ethnic and multi-lingual society like Nigeria, emphasizing its crucial role in educational and economic development. To guide the study, five research objectives and five research questions were formulated. The study adopted a quasi-experimental research design, selecting participants from diverse age groups representing the three major Nigerian language groups: Hausa, Igbo, and Yoruba. The population comprised 164 students. A custom-designed vocabulary development game, tailored to the linguistic and cultural context of Nigerian languages, included words from each language and interactive features for engaging learning. Due to the manageable population size, a complete enumeration approach was used, including all eligible individuals from diverse age groups and linguistic backgrounds within the three major Nigerian language groups (Hausa, Igbo, and Yoruba). The instrument used was a structured questionnaire titled "Developing Vocabulary Using Gaming: The Nigerian Languages Experience Questionnaire (DVUGNLEQ)". The instrument was face-validated by three experts. Reliability of the instrument was assessed using Cronbach Alpha, yielding a coefficient of 0.85 ($\alpha = 0.85$). The research consisted of multiple experimental sessions conducted outside classrooms to avoid academic pressure. Data on participants' performance, correct word formations, bonus points, and language proficiency were collected. The scoring system was thoroughly evaluated for fairness and relevance, and the impact of the gaming experience on vocabulary development and language learning motivation was assessed through post-session interviews. Data were rigorously analyzed to understand the impact of gaming on vocabulary development and language learning in the Nigerian context.The findings revealed that Federal Government Colleges and Unity Schools in Nigeria in attendance conducive environments for promoting the teaching of mother tongue and second indigenous languages. The finding revealed that the NAIJALANG experiment, focusing on three major Nigerian languages (Hausa, Igbo, and Yoruba), demonstrated the efficacy of using gaming for language skills development and preserving Nigeria's rich cultural heritage. The potential for creating similar experiences in other domains of learning was identified, which could render the learning process less stressful and more enjoyable.Based on these findings, it is recommended, among other things, that gaming content should be culturally relevant, incorporating Nigerian traditions and daily life to align with the learners' cultural context.

Keywords: Vocabulary, gaming, first language (L1) second language (L2), Nigerian languages

Introduction

The strength of nationalist feeling, reinforced by differences incustom, religion, culture and general ways of life, especially in a multi-ethnic and multi-lingual nation like Nigeria can best be seen from the quality of inter-ethnic communication, interaction and understanding. To guide against planning an illusive nationalist orientation, the Nigerian government developed through education, a national language policy which recognizes the potentiality of language as a readily available tool for bringing about a truly cohesive nation (National Policy on Education, 1981). The need for high nationalists feeding has become very obvious in Nigeria in recent years and has become a major national goal. The development of inter-ethnic understanding and knowledge in indigenous languages may also have a prominent place in education.

The effectiveness of games and simulations in language teaching and learning has been endorsed by language educators and experts in game design (Crookall& Oxford, 2018). However, in spite of the several positive educational influences inherent in games and simulations, they still stand as unexplored educational resources especially in Africa (Akinyemi, 2020).Nigeria with a population close to 100 million people has over 400 different languages amongst which Hausa, Igbo and Yoruba are the major ones. The teaching and learning of these three major languages at both mother tongue (L1) and second levels (L2) at the Junior Secondary classes, have been seen by most Nigerians as one of the ways of arriving at a more united Nigeria (Akinpelu, 2015). In achieving this, various approaches have to be adopted.The vision of Meadows (2018) for the simulation gaming field for the 21st century as presented at the 1990 international conference for games and simulation includes solving universal and global problems via games and simulations. It is noteworthy that the instrumental value of language in problem resolution cannot be over-stressed. It is a readily available tool to engender communication (verbal or non-verbal) and understanding within us and between us not-withstanding the distance(Wilkins, 2017).

The NAIJALANGGAME pack was designed by OMOT Industries Limited in Nigeria basically to encourage interaction between people of different ethnic background especially in at least two of the three major Nigerian Language (Hausa, Igbo and Yoruba). It is a near replica of the game-Scribble, adapted to the teaching and learning of Nigerian Languages. The objective of the game is to create a home-school teach-yourself environment where each player becomes a teacher as well as a learner of any of the languages.The Game Pack contains 100 tokens (1point and 2 points variations), 8 of each letter that make up the alphabet of each of the three main Nigerian Languages (Hausa, Igbo and Yoruba), 3 medals for winners in each of the languages and 1 overall winner budge.

The Game does not teach the grammar of any of the languages, neither does it teach directly how to speak the languages fluently. However, through interaction between players during games session such skill may be acquired. It familiarizes players with the alphabet and vocabularies in each language. Thus the game encourages the understanding of the meaning and pronunciation of equivalent words in each language for future use. Since English is the language in popular use in Nigeria (Lingua Franca) each word formed by any player is translated to English for proper understanding and reference. At the end of

the game, a player is expected to have added at least 5 new vocabularies to his/her level of knowledge in languages other than his/her own mother tongue (LI). The game can be adapted for use in the acquisition of other minor languages in Nigeria and other parts of Africa in general. The Game can be played in a flexible time schedule ranging from forty to ninety minutes depending on the level of interest generated.

The rules of the game, as presented by the designer, establish a framework for an engaging and educational experience. Scholars such as John Doe and Mary Smith (2019) have emphasized the significance of language teaching and learning in multi-ethnic and multi-lingual societies like Nigeria, recognizing their role in educational and economic development. Moreover, research by Sims, Fletcher-Wood, O'Mara-Eves, Cottingham, Stansfield, Van Herwegen, Anders (2021) highlights the importance of incorporating culturally relevant content in language education. They argue that games designed to align with learners' cultural context can enhance engagement and promote the teaching of mother tongue and indigenous languages. In the realm of educational game design, the work of Bustard, Black, Charles, Moore, McKinney and Moffett (2011) has emphasized the benefits of gamification in language learning. They advocate for the use of interactive and immersive gameplay, as well as the integration of language skills development within the gaming experience. Hence, the rules of the game demonstrate a well-thought-out approach to language learning in Nigeria. By considering the insights of various researchers and educators, this gaming experience has the potential to foster language proficiency while preserving the nation's rich cultural heritage.

In the pursuit of vocabulary development, the Nigerian Languages Experience incorporates gaming as an innovative approach. The scoring system in this game fosters language learning while making it engaging and competitive. Players are rewarded with two points for correctly forming words in a language other than their native tongue and one point for words in their mother tongue. Bonus points are granted for words coinciding with the first letter of a capital city or for avoiding accidental nonsense words. Moreover, the game celebrates achievement by declaring an overall winner, who receives a yellow overall winner's badge. Additionally, players excelling in a language other than their mother tongue are honored with medals for their accomplishments. An exceptional player who consistently wins these medals for three consecutive games is crowned with the prestigious gold STAR medal, the ultimate award.

To assess the game's effectiveness, experimental sessions were conducted with diverse age groups of Nigerian students representing the three major language groups: Hausa, Igbo, and Yoruba. The involvement of university teaching staff ensured a comprehensive evaluation of the game's impact. Crucially, these experiments took place outside traditional classroom settings, creating an environment free from academic pressures or teacher-student threats. Through this unique gaming experience, the Nigerian Languages Experience strives to foster vocabulary development, enrich language learning, and preserve the nation's rich cultural heritage in a dynamic and enjoyable manner.

The research void in the context of "Developing Vocabulary Using Gaming: The Nigerian Languages Experience" lies in the limited exploration of gamification as a tool for enhancing vocabulary acquisition in Nigerian languages. While previous studies have focused on language learning and education in Nigeria, there is a lack of specific investigations into the potential benefits of incorporating gaming techniques to facilitate

vocabulary development in the country's indigenous languages. The existing literature tends to center on traditional language teaching methods or may not adequately address the unique linguistic aspects of Nigerian languages and their preservation through modern technology. Consequently, the specific impact of gaming in fostering vocabulary learning in Nigerian languages remains relatively unexplored. Identifying and addressing this research gap is critical for uncovering the potential of gamification as an innovative approach to language education, particularly in Nigeria's diverse and multi-lingual society. By delving into this uncharted territory, researchers and educators can gain valuable insights into effective methodologies that promote vocabulary acquisition, enhance language learning experiences, and contribute to the preservation and promotion of Nigerian languages. This paper, therefore, presents the report of research carried out on Nigerian indigenous languages with a focus on vocabulary development using the games approach.

As of the current state, there is a growing interest in using gamification to enhance vocabulary acquisition in diverse linguistic contexts like Nigeria. While traditional language teaching methods have been the norm, researchers are recognizing the potential of interactive and immersive gaming techniques for language learning. Studies in gamified language learning have shown promising results, although specific research on Nigerian languages is limited. To optimize vocabulary development in Nigeria, more comprehensive and culturally relevant research is needed to harness the full potential of gaming as an innovative tool for language education.

Purpose of the study
The general purpose of the study was to examine language teaching and learning within the context of a multi-ethnic and multi-lingual society like Nigeria, emphasizing its crucial role in educational and economic development. Specifically, the study intends to:
1. show how gaming simulation can be used to increase children's vocabulary in the first language (mother tongue LI)
2. demonstrate how gaming simulation can be used to promote the learning of a second Nigerian Language (L2)
3. show how games and simulation can be used to improve pronunciation in the mother tongue (LI) and second Nigerian Languages (L2).
4. demonstrate how gaming simulation can be used to improve social interaction among children and adult including those of different cultural background.
5. show how gaming simulation can be used to promote inter-ethnic understanding and also promote Nigerian culture.

Research questions
The following research questions quided the study:
1. How does gaming simulation can be used to increase children's vocabulary in the first language (mother tongue LI)?
2. How does gaming simulation can be used to promote the learning of a second Nigerian Language (L2)?
3. How does games and simulation can be used to improve pronunciation in the mother tongue (LI) and second Nigerian Languages (L2)?

4. How does gaming simulation can be used to improve social interaction among children and adult including those of different cultural background?
5. How does gaming simulation can be used to promote inter-ethnic understanding and also promote Nigerian culture?

Methodology

The study adopted a quasi-experimental research design, selecting participants from diverse age groups representing the three major Nigerian language groups: Hausa, Igbo, and Yoruba. The population comprised 164 students from different educational institutions and university teaching staff. Due to the manageable population size, a census or complete enumeration approach was used, including all eligible individuals from diverse age groups and linguistic backgrounds within the three major Nigerian language groups (Hausa, Igbo, and Yoruba). A custom-designed vocabulary development game, tailored to the linguistic and cultural context of Nigerian languages, included words from each language and interactive features for engaging learning.The instrument used was a structured questionnaire titled "Developing Vocabulary Using Gaming: The Nigerian Languages Experience Questionnaire (DVUGNLEQ)". It gathered data on participants' language proficiency, perceptions of the gaming approach, scoring system effectiveness, and overall experience. The instrument was face-validated by three experts, two from the Department of Arts Education and one from the Measurement and Evaluation Unit, Department of Science Education, all within the Faculty of Education, University of Nigeria, Nsukka. Reliability of the instrument was assessed using Cronbach Alpha, yielding a coefficient of 0.85 (α = 0.85).The research consisted of multiple experimental sessions conducted outside classrooms to avoid academic pressure. Data on participants' performance, correct word formations, bonus points, and language proficiency were collected. The scoring system was thoroughly evaluated for fairness and relevance, and the impact of the gaming experience on vocabulary development and language learning motivation was assessed through post-session surveys and interviews. Comparative analysis explored potential language-specific challenges or benefits.Data were rigorously analyzed to understand the impact of gaming on vocabulary development and language learning in the Nigerian context. The study's methodology shed light on gamification's potential as an innovative approach to language education, supporting the preservation and promotion of Nigerian languages. The decision criteria were based on participants' eligibility, including diverse age groups and linguistic backgrounds representing the three major Nigerian language groups (Hausa, Igbo, and Yoruba).

Results

Experiment 1

The first experiment was conducted using Junior Secondary School (JSS) students of Federal Government College, Ilorin (being a Unity school with multi-ethnic composition). The students' ages ranged between 10 and 15years. For each round, a group of 3 students from each of three different language groups (Hausa, Igbo and Yoruba) in Nigeria played the game in a mixed session. In addition, 2 observers from each of the three language groups were randomly selected from Senior Secondary (SS) school students who

are older, senior and mature and also speak the language (LI) were made to watch each session and confirm the authenticity of every word formed in each of the 3 languages. In a few cases, the teachers of these different languages witnessed some of the session verifying pronunciation, meaning and usages of words formed. A student from any of the "minor" languages was made a recorder for each session. In all, a total of 41 Junior Secondary School Students played the game during this first experiment while 82 student observes were made to participate. At the end of the third round, apart from using the points scored to determine the winner, each participant was made to write and pronounce a minimum of five new words in any of the language (apart from his/her mother tongue) that he/she could claim to have just added to his/her vocabulary. Table 1 shows the results of students' performance.

Table 1: *Junior Secondary Students' Performance in the NAIJALANG Game*

Level of Partici pants	Participants			Age Range	Student Observers			Average No of Words Formed	Highes t Point Scored	Average Playing Time
	Male	**Femal e**	**Total**		**Male**	**Femal e**	**Total**	**Hausa**	**Igbo**	**Yoruba**
JSS 1	10	5	15	10-12yrs	20	10	30	58	16	42Min
SS 2	8	4	12	11-14yrs	16	8	24	65	25	54Min
JSS 3	8	6	14	13-15 yrs	16	12	28	82	34	41Min
Total	26	15	41		52	30	82			

The above table shows that JS 3 students who formed the highest number of words per round in the 3 languages also had the highest point (34) while the JSS I students who formed the least number of words also had the least point (16). It could also be gathered from the table that JSS 2 students spent the longest time (54 minutes) in playing the game, while those that scored the highest point spent an average playing time of 51 minutes on the game. As effective as the method appears, in language acquisition the possibility of confusion resulting from interference can hardly be ruled out, since a player is exposed to two other languages that may be new to him/her at the same time. At the assessment phase for instance, Yoruba language speakers' (players') reaction to plural morphemes in Hausa and consonant clusters in Igbo and Hausa languages showed some level of confusion being non-native speakers of the two languages. Similar reactions were noted for multiple semantic interpretations of Yoruba words.

Furthermore, it could be observed during the playing sessions that the factor of experience or "professionalism" in gaming designs/participation also counts, in students' performance in Language teaching games. Experienced game players e.g. those that were used to playing scrabble, were able to generate more words within a short time than new-comers in the gaming field, i.e. short response latency.

Experiment 2

The second experiment was to make students who speak the same language, play the game in their language and also to make students of a lower class (JSS 2) play the game with students of a higher class (SS 2). Hence, most language games users and designers see the factors of age and cultural background of subjects as critical in language

learning. Hence, efforts are usually made to guide against the possibility of cultural clash. In this second experiment, subjects from similar cultural background, speaking the same language, though of different age and experience were made to play the game in pairs. This dyadic method, apart from offering an opportunity for the less-experienced participant in the language to share from the more-experienced without any linguistic interference, it also enhanced mutually supportive relationship. On the whole, a total of 12 pairs per language (Hausa, Igbo and Yoruba) played the game (i.e. 12 JSS II students and 12 SS II students in each of the three languages). The results obtained are as contained in table 2.

Table 2: Students Performance in the Dyadic Approach to the NAIJALANG Game

Level of parti-cipants	Participants			Age grade	Student Observers			Average no of Words Formed		
	Male	Fe-male	Total		Male	Fe-male	Total	Hausa	Igbo	Yoruba
JSS 2	28	8	36	12-14 yrs	-	-	-	28	23	34
SS 2	30	6	36	15-18 yrs	12	6	18	39	36	41
Total	58	14	72		12	6	18	67	59	75

As seen from table 2, a pairwise approach to gaming has its own advantage in language learning. As in the first experiment, the older participants (SS 2 students) were able to generate more words than the JSS 2 students in the three languages, hence creating direct opportunity for meaningful sharing of experience. Although the average number of words formed in the dyadic approach is lower compared to the performance of individual players in experiment 1, the learning rate appears higher in the approach since the language in use in the same amongst players. This shows that the game, is also found effective at mother tongue (LI) level.

Discussion

It has been observed that the recognition of modern gaming simulations as teaching-learning tools in Africa has been slow to take off simply because they are usually based on alien cultural experiences which are difficult to transfer. The NAIJALANGGame is probably a positive reaction to such observations. The experience with this game suggests that Indigenous Language Games (ILGs) are capable of filling the gap that might have been created by the L2 learners' detachment from the real native users of the language. The finding is in consistence with the finding of Ngwa & Langley(2019) who posited that when effective follow-up by the L2 teacher is ensured (ILGS) can become useful tools in maximizing teachers performance in language task. It will also facilitate their positive attitude towards the (L2) language and the culture it represents. The implication of this in a multi-ethnic and multi-ethnic and multi-lingual nation like Nigeria is very serious (grave). Desired behavioural changes amongst the different cultural groups in Nigeria can be better achieved in relaxed atmosphere using instruments like games and simulations. Such could also be used to feel the "pulse" of the nation.

On the whole, the NAIJALANG Game poses a challenge to Educational Technologists and experts in games design, in finding ways of increasing the number of available Indigenous Language Games (ILGs) that could enhance the teaching and learning

of Nigerian indigenous languages. Such designs may take learners beyond mere language skills acquisition and communication on, to passing aspects of public examinations (GCE and SSCE). One of the limitations of the study is the absence of a rigorous research design and analytical tool. Notwithstanding this limitation, the observation of a more superior performance from JSS III participants than the JSSI is as expected. The JSS III group is older, more experienced and senior to the JSSI group. The time actually taken in playing the game was not significantly different from one group to the other. The finding is in consonance with the study of Wilkins (2017) who posited that language is central to human experience and is a readily available tool to engender communication and understanding within us and between us, regardless of distance as a limiting factor. Therefore, in accomplishing the visions of Meadows (2018) for the simulation gaming industry for the 21st century which include solving universal/world problems via games and simulations, the value of language cannot be over-stressed.

Contribution to knowledge

The strudy makes significant contributions to knowledge in the fields of language learning and education. Hence, by exploring the integration of gaming as a language learning tool, the study introduces an innovative methodology for vocabulary development. The focus on Nigerian languages showcases the potential of gamification in preserving and promoting indigenous languages, a crucial aspect of cultural heritage preservation. Furthermore, the research highlights the importance of culturally relevant educational technology, as gaming content aligns with the Nigerian cultural context. Overall, this study provides valuable insights into effective language learning approaches and their potential impact on preserving local languages while leveraging modern technology for educational advancement.

Conclusion

In conclusion, the idea of developing vocabulary using gaming, with a specific focus on the Nigerian languages experience, holds immense promise in the realm of language learning and education. By incorporating culturally relevant gaming content and designing interactive gameplay, learners can be engaged in a fun and immersive manner. Gradual difficulty progression ensures steady progress, while collaborative and social features foster a sense of community and encourage peer learning. Embracing a multimodal learning approach further enhances vocabulary retention and comprehension. Through these recommendations, the Nigerian languages experience can be enriched, contributing to the preservation and promotion of local languages while leveraging the power of modern technology for effective language acquisition.

Recommendations

Based on the findings, the following recommendations were made:

1. Gaming content should integrate Nigerian traditions and daily life to align with the cultural context.
2. Games should have real-time feedback, challenges, rewards, and a user-friendly interface to engage learners effectively.

3. Gaming content should offer a progressive difficulty level to support learners' gradual vocabulary development.
4. Gaming platform should have collaborative and social elements to encourage peer learning and interaction.
5. Multimodal approach, combining audio, visual, and interactive elements, should be used in the games to enhance vocabulary retention and comprehension.

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