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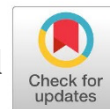
Impact of Scrabble and Word Ladder Games on Reading Comprehension and Critical Thinking: An Experimental Study in the Libyan EFL Context

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Abstract: This study investigates the efficacy of incorporating Scrabble and Word Ladder games into reading comprehension classes to advance Libyan EFL university students' reading comprehension, and strengthen their critical thinking abilities in English. This experimental study employs a pre-test, post-test design with 50 students enrolled in Reading Comprehension 3 Course at Tripoli University. Findings confirm that there are substantial improvements in test scores, enhanced vocabulary use, increased student motivation, and a greater ability to think critically in English. Most importantly, students' overall grades ameliorate, and the number of failing students decreases significantly. This study approves the GBL potential in empowering Libyan EFL university students to navigate written texts with confidence, and develop their English via thought-provoking GBL. Finally, it vastly recommends the GBL usage in reading comprehension classes in EFL contexts.

Key words: Reading Comprehension, Critical Thinking, Scrabble, Word Ladder, Libya

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تأثير لعبتي سكرابل وسلم الكلمات على الاستيعاب والتفكير النقدي: دراسة تجريبية في سياق تعليم اللغة الإنجليزية كلغة أجنبية في ليبيا.

الملخص: تهدف هذه الدراسة إلى استكشاف فعالية دمج لعبتي سكرابل وسلم الكلمات في دروس الاستيعاب بهدف تحسين مستوى الفهم القرائي لدى الطلبة والطالبات في الجامعات الليبية، وتعزيز قدراتهم على التفكير النقدي في اللغة الإنجليزية. تعتمد هذه الدراسة التجريبية على تصميم اختبار قبلي وبعدي، يشمل 50 طالبًا مسجلين في مقرر "الاستيعاب 3" في جامعة طرابلس. وتؤكد النتائج حدوث تحسينات كبيرة في درجات الاختبار، وتوسيع نطاق استخدام المفردات، وزيادة حماس الطلاب، وقدرتهم الأكبر على التفكير النقدي في اللغة الإنجليزية. والأهم من ذلك، تحسن النتائج العامة للطلاب بشكل ملحوظ، وانخفاض كبير في نسبة الرسوب. تدعم هذه الدراسة دور التعلم المستند إلى الألعاب في تمكين طلاب الجامعات الليبيين الذين يدرسون اللغة الإنجليزية من التعامل مع النصوص المكتوبة بثقة، وتطوير لغتهم الإنجليزية من خلال التعلم المحفز للتفكير النقدي. وأخيرًا، توصي الدراسة باستخدام أساليب التعلم المستند إلى الألعاب في دروس الاستيعاب في سياق تعليم اللغة الإنجليزية كلغة أجنبية.

الكلمات المفتاحية: الاستيعاب، التفكير النقدي، لعبتي سكرابل وسلم الكلمات، ليبيا.

1. Introduction

To date, reading comprehension, and critical thinking are crucial skills for students in EFL contexts. In particular, such skills directly impact students' ability to attain new vocabulary, understand complex grammar, and engage with authentic texts (Grabe & Stoller, 2019). On one hand, through reading comprehension, students are exposed to a wide range of linguistic structures, cultural contexts, and communicative functions, which are vital for developing language proficiency (Nation, 2022). Furthermore, reading comprehension allows students to make sense of written material, promoting the development of inference skills, and the ability to grasp deeper meanings, beyond literal understanding. Developing robust reading comprehension skills authorizes students to interact with a wide range of content through broadening their understanding of both the language and the cultures of English-speaking regions. Also, mastery of reading comprehension skills fosters independent learning, as students can further enhance their language abilities outside the classroom by engaging in extensive reading activities.

On the other hand, critical thinking is essential in aiding EFL students to analyze, interpret, and evaluate information presented in English (Halpern, 2014). Cultivating critical thinking skills empowers students to challenge assumptions, appraise arguments, and form reasoned conclusions, thus enhancing students' capacity to engage with written and spoken texts on a more profound cognitive level. In the context of language learning, critical thinking helps students to not only understand the surface meaning of a text, but also to identify implicit messages, cultural nuances, and varying perspectives. Besides, it capacitates students to express their ideas more clearly and coherently, and raises their communication levels. Ultimately, integrating critical thinking into EFL contexts leads to a more engaged, and reflective learning experience, sponsoring better language outcomes, and preparing students for real-world language use, where problem-solving and decision-making skills are central for effective communication (Paul & Elder, 2019).

Game-Based Learning (GBL) has become a creative and powerful method for language learning, providing an appealing platform for students to develop new language abilities. By integrating elements like competition, rewards, and immediate feedback, GBL taps into the motivational aspects of games to boost student engagement and enthusiasm. In addition, GBL provides authentic, and meaningful contexts in which students can practice language skills through vocabulary building, grammar exercises, and the development of communication strategies. This is attributed to the immersive nature of games, which provokes students to practice language in real-time, thus encouraging spontaneous language production, and refining retention via repetition and contextual learning (Vandercruysse et al., 2012). Moreover, GBL inspires collaborative problem-solving, and fosters social interaction among students, hence developing both linguistic and critical thinking skills (Connolly et al., 2012). Most importantly, GBL can mitigate language anxiety, and empowers students to build self-confidence in their language abilities by establishing a low-pressure environment where committing mistakes is tolerated in the learning process (Arnab et al., 2015).

Games like Scrabble, and Word Ladder are considered powerful linguistic tools (Berger, 2017). Scrabble encourages students to expand their vocabulary by challenging them to create new words

from a limited set of letters, often prompting them to explore less familiar, or more complex words (Richards & Schmidt, 2010). This process boosts lexical knowledge, as student players learn new words through the game, and see how they function within the constraints of spelling, and word structure. Similarly, Word Ladder nurtures vocabulary development by demanding student players to transform one word into another, step by step, pushing them to think about word patterns, phonetic changes, and spelling rules (Barrett, 2015).

The enactment of Scrabble, and Word Ladder games in an EFL classroom promotes critical thinking, as student players must strategize their moves, plan ahead, and adapt to the constantly changing game board (Klimova, 2015). Additionally, student players are forced to assess multiple options, choose the most effective word combinations, and think logically to maximize points, or solve word puzzles. Moreover, these games enhance reading comprehension by requiring student players to identify word meanings, and grasp the surrounding context. In Scrabble, student players must be able to recall definitions, and discern which words fit best, while in Word Ladder, the gradual transformation of one word into another hones a student player's understanding of language relationships, spelling patterns, and semantic shifts (Barrett, 2015). These games combined launch a dynamic learning environment, that is both enjoyable, and cognitively stimulating for EFL students (Ellis, 2020).

Libyan EFL university students at Tripoli University encounter major challenges in their English language learning journey, owing to the limited exposure to English outside the classroom, cultural and linguistic differences, and the dominance of traditional teaching methods. All these complications strengthen rote memorization rather than deep comprehension, and critical thinking skills. Consequently, many students are deficient in the necessary reading comprehension skills, and cognitive abilities required for language proficiency. In response to these challenges, this study seeks to investigate how the use of Scrabble, and Word Ladder games can empower Libyan EFL university students to become more effective readers, and critical thinkers in English. The study is guided by the following research question:

To what extent does the enactment of Scrabble, and Word Ladder games can impact Libyan EFL university students' reading comprehension, and critical thinking skills?

2. Literature Review

There are many studies that advocate the use of GBL in reading comprehension classes. For example, a study by Bondaug (2021) illustrates that integrating GBL in classrooms significantly enhances reading comprehension by fostering increased engagement, and motivation. Bondaug's study findings (2021) highlight how games provide authentic, and immersive environments where students interact meaningfully with the material given. Similarly, Boers et al. (2017) argue that limited reading comprehension, and poor critical thinking skills often create a cyclical problem that hinders language development. Evidently, when students are unable to grasp deeper meanings in texts, they struggle with analysis, and inference, and this restricts their overall language proficiency. The study findings of Boers et al. (2017) are particularly crucial, as they underscore the relationship between comprehension, and critical thinking, often acting as gatekeepers to further language development.

In addition to improving comprehension, Chapman and Rich (2019) demonstrate that GBL facilitates vocabulary building, and strengthens learning through repetition. The repeated exposure to words in gameplay fortifies retention, while the collaborative nature of many games scaffolds peer learning, and feedback. Moreover, study findings of Smith and Johnson (2021) display that games like Scrabble significantly improve vocabulary retention in EFL contexts. As a matter of fact, by providing low-stakes opportunities for language use, students are encouraged to experiment with vocabulary, and apply their knowledge without fear of failure. Likewise, Jones (2022) maintains that Word Ladder games enhance phonics skills, and critical thinking abilities as they necessitate students to think creatively about how words change, and evolve, sharpening their linguistic and cognitive abilities at once.

The theoretical framework of this study is grounded in Vygotsky's Social Development Theory, which emphasizes the role of social interaction in learning. Games like Scrabble, and Word Ladder promote collaborative problem-solving, and competition, aligning with Vygotsky's concept of the Zone of Proximal Development (ZPD). In this framework, students can reach higher cognitive levels when guided by more knowledgeable peers, or when facing structured challenges, such as those found in educational games (Jong & Shang, 2015). The interactive nature of these games mirrors real-life communication, and creates opportunities for both linguistic and cognitive development.

3. Methods

3.1. Study Design

This study follows an experimental design, which involves manipulating an independent variable to observe its effect on a dependent variable while controlling for extraneous factors (Johnson & Christensen, 2019). The experimental design is a robust method for determining causal relationships, as it allows for clear comparisons between conditions before and after an intervention (Creswell, 2018). In this study, the independent variables are the Scrabble, and Word Ladder games, while the dependent variable is Libyan EFL university students' overall performance in reading comprehension tests. The merit of the experimental design lies in its ability to validate the effectiveness of the intervention by providing quantifiable data from both pre- and post-tests, supporting the reliability of findings, and strengthening the validity of conclusions regarding the impact of GBL in reading comprehension classes in EFL contexts (Rixon, 2016). This study is built on the comparison of test scores from both the pre-test, and post-test. By comparing students' reading comprehension scores before and after the intervention, the study intends to measure the extent of progress made due to the use of GBL in the EFL context. This comparison provides clear evidence of the effectiveness of the GBL intervention in enhancing reading comprehension, and critical thinking skills.

3.2. Sampling and Participants

The study sample consists of 50 Libyan EFL university students enrolled in the Reading Comprehension 3 Course at Tripoli University. The students engage in lessons using Scrabble, and Word Ladder games to reinforce reading comprehension, and critical thinking skills over a period of 12 weeks. The study employs convenience sampling, which requires selecting participants who are readily available, making it a practical and time-efficient method of sampling (Etikan et al., 2016). The advantages of using the convenience sampling technique include ease of access to participants, and lower costs, which makes it feasible for this study (Lavrakas, 2008). However, this technique has some limitations, as it cannot offer a representative sample of the broader population. In this case, findings remain limited to students taking part in a specific course, and institution. This affects the generalizability of the obtained findings to other contexts (Sutton & Barto, 2018).

3.3. Data Collection and Analysis

Data are collected via pre-test, and post-test scores. Reading comprehension tests are administered before and after the intervention to measure progress. The comparison of pre-test, and post-test scores is essential for assessing the effectiveness of the Scrabble, and Word Ladder intervention into the reading comprehension course. The pre-test, and post-test scores are analyzed using descriptive statistics of percentages.

4.   Analysis and Discussion

As it is shown in Table 1, the statistical analysis discloses that the Scrabble, and Word Ladder games lead to significant improvements in reading comprehension, and critical thinking. The analysis unveils a marked increase in test scores, and overall grades, supporting the effectiveness of these games in enhancing vocabulary building, and comprehension and critical thinking skills. The pre-test scores average 65%, and the post-test scores average 85%. In terms of grades, students' overall grades advance from an average of 70% to 85% after the intervention. The percentage of students failing the course decreases from 15% to 5%, signifying the success of the intervention. These findings align with the study findings of Parker and Lepper (2021), and Kong (2018), which pinpoint the GBL benefits in EFL contexts.

Table 1: Result Analysis, and Remarks about Pre-test, Post-test Scores

Results	Remarks
Pre-test, post-test scores	Significant Improvement from 65% to 85%
Average overall grades	Significant Improvement from an average of 70% to 85% after the intervention
Number of failing students	Decrease from 15% to 5%

The statistically significant upgrade in reading comprehension test scores, and overall grades implies that the Scrabble, and Word Ladder games are effective in improving Libyan EFL university students' abilities to understand, and interpret English texts. In addition, the reduction in the failure rate affirms the success of the GBL intervention in boosting reading comprehension, and critical thinking skills. Promisingly, 4 positive outcomes can be inferred from the obtained findings, as presented in Table 2:

Table 2: Inferences of Positive Outcomes from Findings

Positive Outcomes	Explanation
1. Improved reading comprehension	The post-test scores increase by 20 percentage points compared to the pre-test, representing significant enhancement in reading comprehension.
2. Enhanced vocabulary knowledge	Students feel more confident in their vocabulary skills, and application.
3. Increased motivation, and self-confidence	Students enjoy the games and feel more motivated to engage in English reading tasks.
4. Greater critical thinking ability	Students are better able to think critically, and express their thoughts in English after participating in the Scrabble, and Word Ladder games.

5. Conclusion, Recommendations, and further studies

This study demonstrates the efficacy of the Scrabble, and Word Ladder games in enhancing reading comprehension, vocabulary retention, and critical thinking skills among the study participants. Findings indicate that the statistically significant improvements in post-test scores, and overall grades, coupled with the decrease in failure rates are indicative of the positive impact of GBL in the EFL classroom. Additionally, findings denote increased motivation, self-confidence, and a heightened ability to engage critically with English texts. Also, these findings prove that the Scrabble, and Word Ladder games can foster a more engaging learning environment, and address the challenges Libyan EFL university students face in reading comprehension courses. These difficulties are because of limited exposure to English, and the dominance of the grammar-translation method, which emphasizes rote memorization over meaningful engagement with texts, and prevents students from developing the inferential and analytical skills necessary for language proficiency (Dabbous et al., 2022). Using Scrabble, and Word Ladder games enables students to interact more deeply with texts, and language in a flexible environment that boosts skill-building through fun. The competitive and cooperative merits of these games motivate students to stretch their language skills in ways that traditional methods do not accommodate. Through the lens of socio-cultural theory, both games support social interaction, and meaningful language use, deeming students as active participants in their own learning process.

Based on the findings gained, several recommendations are proposed for educators, and higher educational institutions. They include:

1. The need to integrate GBL in curricula: Educational institutions should consider incorporating GBL techniques, such as Scrabble, and Word Ladder, into EFL curricula to promote vocabulary building, and critical thinking.
2. The need for teacher training workshops: Teachers should receive training on how to effectively implement GBL strategies in their classrooms. This ensures that games are used to their full potential, fostering both engagement, and skill development.
3. Paying more focus to collaboration: GBL approaches that emphasize collaboration, and problem-solving should be encouraged, as these approaches promote not only language learning, but also stimulate teamwork, and communication skills.
4. Conduct of continuous assessments: Ongoing assessments should be carried out to monitor students' progress in reading comprehension, and critical thinking, adjusting GBL strategies required to meet EFL university students' diverse learning needs.

While this study has come out with some promising findings, further research is needed to explore several key areas such as:

1. Long-term impact of GBL: Future studies should examine the long-term effects of GBL on reading comprehension, and critical thinking skills to determine whether the improvements observed are sustained over time.

2. Comparative studies: Comparative research involving control groups using traditional methods versus GBL approaches can provide more comprehensive insights into the relative efficacy of GBL approaches in EFL contexts.

3. Game variety: Future studies can inspect the effectiveness of a wider array of educational games beyond Scrabble, and Word Ladder to determine which types of games yield the best outcomes for different language skills.

4. Teachers' perceptions and challenges: Investigating teachers' experiences, and challenges when applying GBL approaches can help identify optimal means to scaffold educators in adopting GBL approaches more effectively.

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