Enhancing English Language Learning in Libyan Primary Schools through Gamification: Guidelines Development

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الملخص: تُعرف اللغة الإنجليزية على نطاق واسع بأنها لغة عالمية، حيث تلعب دورًا محوريًا في مجالات مختلفة مثل التعليم والأعمال. ومع ذلك، هناك نقص في المبادئ التوجيهية المصممة خصيصًا لقياس تأثير اللعب على تعلم اللغة الإنجليزية بين طلاب المدارس الابتدائية الليبية. تهدف هذه الدراسة إلى وضع مبادئ توجيهية باستخدام أسلوب البناء والتقييم. ولوضع هذه الإرشادات، تم جمع العوامل الأكثر استخدامًا والأكثر أهمية، وتم إجراء التحقق من صحة الخبراء للتأكد من صحة هذه العوامل. وأكدت النتائج أن عوامل مثل الدافع، والمشاركة، والأداء، والمشاركة صالحة ويمكن استخدامها بشكل فعال لقياس تأثير اللعب على تعلم اللغة الإنجليزية بين طلاب المدارس الابتدائية الليبية. تعد المبادئ التوجيهية التي تم تطويرها، بناءً على العوامل المحددة والتحقق من الخبراء، بمثابة مورد قيم للمعلمين والباحثين الذين يسعون إلى الاستفادة من اللعب في السعي لتحسين إتقان اللغة الإنجليزية بين طلاب المدارس الابتدائية الليبية.

الكلمات المفتاحية: الألعاب، المبدأ التوجيهي، تعلم اللغة الإنجليزية، مدرسة ابتدائية

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Abstract: The English language is widely recognized as a global language, playing a pivotal role in various domains such as education, and business. However, there is a lack of guidelines specifically tailored to measure the effect of gamification on English language learning among Libyan primary school students. This study aims to develop guidelines using a building and evaluating method. To establish these guidelines, the most commonly used and important factors were collected, and expert validation was performed to ensure the validity of these factors. The results confirmed that factors such as motivation, engagement, performance, and participation are valid and can be effectively employed for measuring the impact of gamification on English language learning among Libyan primary school students. The developed guidelines, based on identified factors and expert validation, serve as a valuable resource for educators and researchers seeking to leverage gamification in the pursuit of improved English language proficiency among Libyan primary school students.

Keywords: Gamification, Guideline, English Language Learning, Primary School

1. Introduction

Proficiency in the English language is highly advantageous in several domains such as academia, politics, business, and other aspects of today's globalized society. Because of this, many non-English-speaking nations strive to improve their educational systems so that their people can speak English more fluently (Elaish et al., 2017).

Pupils learn better in English Language Teaching (ELT) sessions when they are actively participating. Since most educators stay abreast of developments outside of the classroom, technology is frequently selected as a helpful tool to raise student involvement. Teachers can better meet the expectations of their students and get the desired results by implementing gamification and interactive activities (Hashim et al., 2019).

The most desired element of ELT sessions has always been the students' active involvement and engagement in the learning process. However, getting pupils interested and involved in class still presents a challenge for teachers. With the help of technology integration in education, teachers can interest students in ELT lessons by using interactive exercises and gamification (Govindarajan, 2021).

Using games and interactive activities in conjunction with technology can improve the effectiveness of ELT instruction and produce better results, such as increased motivation, active engagement, and willing participation from students (Putu Wulantari et al., n.d.).

Recent technological advancements have contributed to the trend of more Information and Communication Technology (ICT) use in the learning process, including gamification. The idea behind gamification is to use game mechanics and design principles to inspire and engage players to accomplish their objectives. Gamification in education is a junction of learning and entertainment (Prabawa, 2017).

Games are not the same as gamification, which is the idea of incorporating game aspects into practical or useful tasks. Numerous benefits can result from carefully selecting, developing, and implementing gamification and interactive exercises into the teaching and learning process. Furthermore, it makes the case that interactive exercises encourage participation and attention from students and assist teachers in planning engaging classes (Mee Mee et al., 2020).

Gamification does not mean creating a game, that should be understood; creating a special application to apply the concept would be preferable. However, if resources are limited and creating a special application for gamification is not feasible, gamification can be implemented in the classroom using straightforward tools. The most crucial elements are a sound idea, specific objectives, and the capacity to foster student involvement in the learning process (Govender et al., 2020).

The use of game-based elements to engage people, inspire action, promote learning, and address problems is known as gamification, and it is becoming more and more popular as one of the best methods to teach and motivate students and enhance their engagement and motivation during learning processes (Shortt et al., 2023).

Gamification is the integration of game features and procedures to improve student motivation, engagement, and learning, it is frequently suggested as a viable alternative to conventional e-learning methods. The results show that learning through a gamified e-learning system results in a statistically significant difference in terms of learning outcome and motivation when compared to learning in traditional classrooms. To encourage and assist students in their learning (Alshammari, 2020).

One of the challenges that students face when learning the English language is the lack of a sufficient amount of vocabulary. Learning through traditional methods no longer meets the needs of the students due to a lack of motivation and other reasons, such as a shortage of time, limited teaching hours, and an overwhelming number of curricula. The problem of learning and memorizing new vocabulary often leads to boredom, making it difficult for students to learn the language using traditional methods. This study aims to provide a set of guidelines that enables us to evaluate the effectiveness of gamification applications for learning the English language. This study conducted to answer the following research questions:

1. What factors are commonly effectively used in game-based education to develop a guideline?

2. How can we develop the guideline using the factors that were extracted? The importance of this research lies in its potential to provide a new and effective approach to teaching English vocabulary using gamification. By developing a guideline based on established criteria and applying the Duolingo application, this study aims to contribute to the field of language learning through gamification. The results of this study will benefit students and teachers by providing them with a supplementary teaching strategy that is engaging and effective. Moreover, policymakers can use the findings of this study to make informed decisions about the implementation of gamification-based learning strategies in schools. Overall, this study has the potential to make a valuable contribution to the field of language learning, and its findings may have important implications for the development of effective teaching strategies in the future. The remainder of this paper is organized as follows. Section 2 gives related work. Section 3 describes the method. Section 4 explains the guidelines development. Finally, Section 5 concludes the paper.

2. Related work

Since the foundation of traditional education is knowledge production, the teacher plays a central role in the learning process. We witness the passive student, who has learned to lecture and deliver, depending on the teacher to provide information without making any attempt to investigate or conduct the study. The learner may be impacted by this as well as boredom and a lack of time. One of the best methods for teaching students to be more engaged and motivated during the learning process is gamification, which is gaining popularity (Prabawa, 2017).

Shortt et al. (2023) defined gamification as the use of game-based elements to engage people, motivate action, foster learning, and handle issues.Gamification is a relatively recent concept based on what Govindarajan (2021) mentioned. British computer programmer Nick Pelling proposed the term "gamification" in 2003. It is the idea of introducing gaming features into non-game situations. In other words, in gamified training, some, many, or even all of the curriculum and instruction elements correspond to game movement. A set of rules, an individual objective or goal, an element of competitiveness, and an element of chance make up the core of all games. In addition to this, gamification features elements that inspire and engage users through the use of leaderboards, leaderboard points, badges, levels, and challenges.

Gamification was described by Dian Anisa et al. (2020) as the application of game mechanics into non-game contexts. Gamification is frequently referred to in the context of education and training as a technique to motivate students to take action and involve them in their learning activities. Gamification uses a variety of elements to create meaning, such as words, images, sounds, colors, and other elements. To understand the game in an educational setting, students learn to recognize the interrelationships between various characteristics.Understanding how various aspects (such as images, words, actions, symbols, and artifacts) are related to one another and combined to create a complex system is important for learning (Prabawa, 2017).

According to (Shortt et al., 2023), the gamified mobile-assisted language learning (MALL) application Duolingo is used by over 300 million individuals. Some of the features that show off this well-liked language learning application's strong gamification characteristics include demanding activities, reward incentives, leveling systems, and user ratings based on achievements. The widespread use, adaptable features, and freemium model of this application have raised awareness of gamification in MALL.

(Anton Adi Purwanto et al., 2023) proved that the Duolingo application improves the efficient, convenient, and easy study of languages, especially English. Most pupils were advised to use the Duolingo application to acquire vocabulary in English. Students are more engaged and enthusiastic about learning new words when they use the Duolingo app to acquire English vocabulary, which is easy to understand. Additionally, Duolingo aids students in thinking of creative ways to learn and prevents them from being bored while they are studying.

(Irawan et al., 2020) explained how using learning materials based on the mobile application Duolingo can enhance the effectiveness and variety of teaching and learning activities. These materials offer an alternative to the teaching-based mobile application and can be used to help students become more proficient in their vocabulary and speak English more fluently.

(Elaish et al., 2017) identified the crucial factors that are necessary to increase those who want to study English to a high degree by using Mobile Game Applications (MGAs). Moreover, the researchers identified the vast collection of factors that must be considered for developing a good application and proposed guidelines to develop effective applications of MGAs with the use of persuasive technologies. Additionally, they offer educational game creators a method to develop evidence-based applications, reinforced by the outcomes derived via expert validation. According to (Khowaja et al., 2015), together with Rolf Molich, and Jakob Nielsen, developed a set of 10 design principles known as guidelines because they resembled the rule of mind more than a set of user interface rules. The technique is based on an inspection where evaluators are asked to examine a particular interface using a predetermined set of 10 principles after being presented with a few instances. (Mustafa et al., 2019) mentioned providing a predetermined set of rules that can be customized for a particular domain, guidelines—a collection of usability principles.

The prior studies show that gamification in English language learning remains a challenge, and further investigation is required to identify additional issues and develop an approach for addressing them. Previous studies have shown that no research has been done in Libya that has developed a set of guidelines or chosen important factors to evaluate the effectiveness of gamification in teaching the English language. The purpose of this study is to offer a set of guidelines that will allow us to assess how well gamification applications work for English language acquisition.

3. Method

This section outlines the methodology utilized to create and assess the suggested principles for using gamification to teach English to Libyan students by using the Duolingo application, as well as how to measure the factors that affect this process. The procedure comprised developing guidelines and then having experts evaluate them (Elaish et al., 2017; Khowaja et al., 2015).

3.1. Guideline building

To develop the guidelines, a methodical approach was taken to choose pertinent factors for gamification in the context of teaching English to Libyan students using the Duolingo app. The following steps were implemented:

- Review the relevant literature: To determine what factors are impacting Libyan students' learning of the English language through gamification by using the Duolingo application, a detailed assessment of the literature was conducted. These reviews provided the foundation for developing guidelines.

- Factor selection: the factors were chosen based on the most popular factors and the most important factors mentioned in the prior studies as shown in Table 1.

- Guideline development: The most popular factors were selected and we will discuss each one in turn. Additionally, we will use a Google form to develop the questionnaire, introduce the researcher, and distribute it to specialists in the field who will be split into building and testing groups.

3.2. Guideline evaluation

According to (Mustafa et al., 2019) obtaining expert opinions was part of the review process for the proposed guidelines to confirm their application and efficacy. The steps listed below were taken.

- Expert choice: Based on their knowledge and experience in the area of merging technology into education, a panel of experts was chosen. The panel of experts included academics and researchers with extensive backgrounds in gamification, mobile learning, and their applications in educational settings.

- Design of the questionnaire: A questionnaire was developed to obtain professional feedback on the proposed guidelines. Sections of the questionnaire were designed to gather demographic data on the experts and assess the guidelines based on their applicability, comprehensibility, and possible influence.

- Data gathering: The chosen experts were given the questionnaire, and they had a deadline within which to respond. The experts were invited to offer thorough criticism and recommendations to improve the standards even more.

- Analyzing data: The experts' opinions of the guidelines were determined by analyzing the data that had been gathered. Examining the experts' evaluations, remarks, and recommendations for every guideline was part of the analysis. The comments offered insightful information that helped us in improving and adjusting the rules.

- Improvement of guidelines: The perspectives and recommendations of the experts were carefully examined and taken into consideration. The expert reviews helped to modify the rules, making sure they appropriately reflected best practices and concerns for gamification and the Duolingo program used in English language learning for Libyan students.

By using this approach, a set of thorough guidelines was developed and evaluated, merging the viewpoints of experts and guaranteeing the applicability and efficacy of mobile learning and gamification in educational settings.

4. Guidelines development

At this point, gamification's efficacy, mobile learning, and its applications in educational settings are significant issues. Based on their repeatability in the main study and their similarity in other studies, these four criteria were chosen. Selection was made based on factors that were found in over 50% of the previously reviewed literature.

4.1. Guideline building:

The guideline building has been done in two parts: selecting the most popular factors and identifying the most important factors in the Arab world.

4.1.1. The most popular factors

The third column in Table 1 lists the most prevalent factors from the 15 examined studies, making it easy to choose the most regularly utilized factors from earlier research. 10 studies mentioned motivation, 8 studies cited engagement, and 8 studies addressed performance. These three factors were therefore the most prevalent in earlier research.

Table 1: Illustrate the 15 reviewed publications

Authors	Educational Level	Mentioned Factors	Content Language Learning	Country
(Dehghanzadeh et al., 2021)	Elementary and High school	Motivation Engagement Satisfaction	English (Vocabulary Speaking Pronunciation Writing Grammar Listening)	Europe Saudi Arabia
(Boyinbode, 2018)	Higher education	Performance Motivation Abilities	English (Vocabulary)	Nigeria
(Tamtama et al., 2020)	Kindergarten	Performance Motivation Engagement	English (Vocabulary)	Indonesia
(Dian Anisa et al., n.d.)	High school	Competence Autonomy Relatedness Motivation enjoyment	English	Saudi Arabia
(Mee Mee et al., 2020)	Primary schools	Motivation Performance Engagement Participation	English	Malaysia
(Putu Wulantari et al., n.d.)	Primary schools	Outcomes Motivation Performance Engagement	English	More than one country, including Saudi Arabia and the UAE

(Alshammari, 2020)	Primary schools	Relevance Confidence Satisfaction Motivation Attention	Arabic	Saudi Arabia
(Hashim et al., 2019)	High school	Enjoyment Motivation Engagement	English (Grammar)	Malaysia
(Govindarajan, 2021)	Primary schools	Engagement Participation	English	Sultanate of Oman
(Anton Adi Purwanto et al., 2023)	Primary schools	Enjoyment Engagement Performance	English (Vocabulary)	Indonesia
(Irawan et al., 2020)	Primary schools	Motivation Engagement Performance	English (Vocabulary)	Indonesia
(Ahmed, 2016)	Primary schools	Satisfaction Abilities Confidence	Spanish and English	Saudi Arabia
(Ajisoko, 2020)	High school	Motivation Performance	English	Indonesia
(Fui-Hoon Nah et al., 2014)	High school	Participation, Sense of achievement, Engagement, Productive learning experience, Performance	English	United States
(Shortt et al., 2023)	Primary schools	Performance Motivation	English	Saudi Arabia USA Brazil

4.1.2. The most important factors in the Arab world

The motivation, engagement, and performance factors are considered highly important; nevertheless, a fourth factor, participation, has been included since it is especially crucial in developing nations like Libya. Participation is regarded as a crucial, useful, and essential factor in the educational process. It has been studied in Malaysia, and (Mee Mee et al., 2020) brought up its significance. Using it in Libya could be highly beneficial.

The following factors were highlighted in the guideline, which was developed based on the most prevalent factors previously discussed as well as the most important factors in the Arab world. We will also ask questions regarding the four factors. These factors are:

- **Motivation**
  According to (Dian Anisa et al., n.d.), motivation is a key factor that pushes learning. The use of gamification in the classroom can increase pupils' motivation. These days, the game makes use of technology, making enjoyment more accessible to pupils.
- **Engagement**
  The use of technology in classrooms has transformed traditional teaching strategies in recent years and opened up new opportunities for student engagement.(Putu Wulantari et al., n.d.). Additionally, Gamification has drawn interest as a possible way to improve language acquisition. The results show that student engagement in ELT is positively impacted by gamification. (Dehghanzadeh et al., 2021) mentioned one of the most popular teaching strategies to inspire students and boost their engagement and motivation throughout the learning process is the use of games in general and gamification in specific.
- **Performance**
  (Shortt et al., 2023) stated that language performance outcomes are comparable to those of students enrolled in comparable courses when participant demographics and background data are taken into consideration. Additionally, (Irawan et al., 2020) assessed the influence of the Duolingo application on the students by providing an exam to measure their performance improvement, as well as being aware of the students' prior performance levels. According to (Hashim et al., 2019), to measure students' performance, there must be a pre-test and a post-test after training.
- **Participation**
  (Putu Wulantari et al., n.d.) proved that gamification increases social interaction and collaboration by promoting peer feedback and teamwork. This improves interpersonal and language abilities. Gamification's instant feedback and progress tracking provide

worthwhile educational possibilities. Students receive real-time feedback and monitor their progress, enabling adjustments in learning strategies. However, there are obstacles to gamification in ELT, including pedagogical concerns and technological limitations. It is essential to strike a balance between educational objectives and student involvement. Both professional growth and teacher training are essential.

In summary, gamification improves motivation, engagement, collaboration, and active learning, all of which are important components of ELT. Despite obstacles, gamification best practices can be adopted to build immersive learning environments that enable students to improve their English language skills.

4.2. Guideline evaluation

4.2.1 Participants

The target audience and participants are 8 experts from among the faculty members and researchers in the field of mobile learning and gamification Four experts provided their responses. An email inviting them to review the questionnaire was sent to them. Every expert who responded to a question had their recommendations taken into consideration for the study.

4.2.2 Instrument

The instrument utilized in the study is a questionnaire that was created by the researcher utilizing the Google Form application, incorporating relevant questionnaire items adopted from Elaish's (2017) work.

It was divided into several sections while it was being designed:

- The questionnaire's initial section introduces a description of the problem and the title of his study, and explains why the four factors were selected. At the bottom, the expert is requested to respond to and assess the questions.

- The second section, we introduce the expert to a series of thought-provoking questions that aims to capture their valuable insights and opinions on the topic at hand. These questions serve as a platform for the expert to share their expertise and provide meaningful contributions..

- The opinions of experts on the four factors are presented in the third and final section. Each factor consists of six questions, and from the first to the sixth, the expert is questioned about each of the four factors that the study selected. The questions and answers include a variety of options, as follows:

  Q1- Is the factor related to the subject? (Agree / Disagree / Not sure).

Q2 -Is your description appropriate? (Agree / Disagree / Not sure).

Q3 -Are the name and description related to each other? (Agree / Disagree / Not sure).

Q4 -Does it require more data? (Agree / Disagree / Not sure).

Q5 -Are there external elements that were not mentioned in your opinion? And if you find items that are not mentioned, what is your description of them?

Q6 -What are your observations regarding the questionnaire?

4.2.3 Analysis

At this point, the data analyzed which answered by the experts using the frequency of responses about the four questions (Q1 to Q4) described above in the Instrument phase.

The experts responded to the questionnaire, and four experts participated in the analysis process. If two experts agree on one item, the result will be 50% and considered acceptable; If three experts agree, the result will be 75%.

The calculation was done by the researcher as shown in Figure 1. If the answer is in agreement (1), and if it is not in agreement (-1), and if it is uncertain (0).

The answers were based on the first question, if it is equal to (1) or (0), the second, third, and fourth questions are combined. If the sum is greater than or equal to zero, the item is valid, and if the first question is equal to (-1), the item is invalid from the first, and so on the analysis is verified.

Then, at the same stage, the expert's comments on the fourth and fifth questions are viewed and known. Were they answered similarly or were they left blank? Figure 1 shows how the analysis method works.
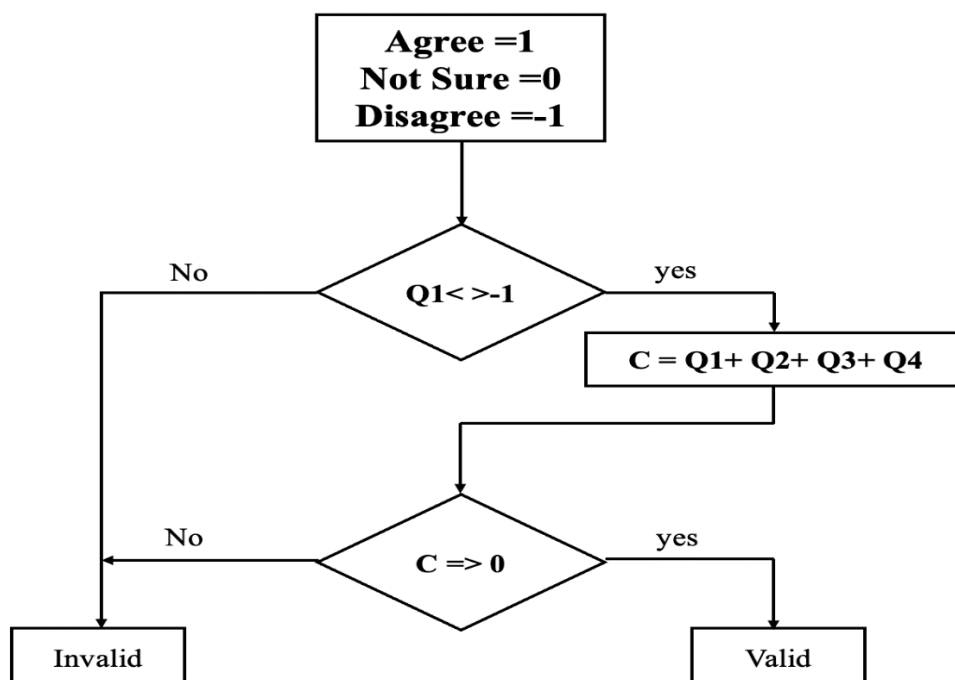
Figure 1 Analysis Method

4.2.4 Result and Discussion

The findings of this study show that motivation, engagement, performance, and participation are really important when it comes to evaluating how effective gamification is in helping Libyan primary school students learn English. We came to these conclusions by doing a thorough review of existing research and getting validation from experts in the field.

The experts we consulted all agreed that these factors are highly relevant in assessing the impact of gamification on English language education. We had a panel of experts who specialize in gamification, mobile learning, and how they can be used in educational settings, which adds credibility to our findings.

Motivation is a huge factor in language learning, and gamification can really help boost students' motivation by incorporating things like challenges, rewards, and keeping track of their progress. When language learning feels more like a game with interactive activities, students become more engaged and interested, which ultimately keeps their motivation levels high.

Engagement is another important aspect of learning through gamification. By immersing students in interactive activities and creating a gamified learning environment, we encourage them to actively participate and deeply engage with the language content. This leads to better understanding, retention, and application of vocabulary.

To measure students' progress and achievements in language learning, performance assessment is crucial. Gamification applications can provide immediate feedback, track progress, and offer rewards based on performance. This allows students to monitor their own progress and strive for improvement. Having these feedback mechanisms not only gives students a sense of accomplishment but also motivates them to keep learning and master English vocabulary.

Participation, or collaboration as one of our experts suggested, plays a vital role in gamified language learning. Collaborative activities, like multiplayer games or group challenges, encourage social interaction and peer learning. This not only helps students practice the language but also develops their communication skills and ability to work as a team, which are valuable in language acquisition.

The guidelines we developed offer a framework for evaluating the effectiveness of gamification in English language learning. Educators, policymakers, and researchers can use these guidelines to assess the impact of gamification interventions and make informed decisions about how to implement them. By considering the factors of motivation, engagement, performance, and participation, stakeholders can design gamified learning experiences that effectively support language acquisition and address the challenges students face with traditional methods..

In the end, the participation factor has been accepted based on calculating the total score for all experts, provided that the final result is equal to 50% or more, as shown in Table 2.

Table 2 Expert Validation Results

The factor	Acceptance rate %
Motivation	100%
Engagement	100%
Performance	100%
Participation	100%

5. Conclusion:

In this study, our focus was on identifying and developing guidelines for measuring the impact of gamification on English language learning among Libyan primary school students. We carefully reviewed the existing literature and sought validation from experts to ensure the reliability of the identified factors: motivation, engagement, performance, and participation.

However, it is important to note that while the guidelines have been developed, their implementation and validation in real-world educational settings are crucial for further research. By implementing these guidelines in actual classrooms and assessing their impact on students' English language learning outcomes, we can gain valuable insights into the effectiveness of gamification in improving language acquisition and refine the guidelines accordingly.

While we did not test the impact of the developed factors on students in this particular study, the guidelines serve as a foundation for future research and implementation. We acknowledge the limitations of our study, including the specific applicability of the developed guidelines to Libyan primary school students, the limited sample size in the expert validation process, potential implementation challenges, the need for investigating long-term effects, and the subjective nature of assessing certain factors.

Our intention was to highlight the development of guidelines for measuring the impact of gamification on English language learning, rather than testing the direct impact on students. Once again, we stress the importance of further research and real-world implementation to validate the efficacy of these guidelines and their impact on students' language learning outcomes..

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