

Unveiling the Pedagogical Potency of Quizlet: Enhancing Vocabulary Acquisition and Academic Performance Among Business English Major Students in China

Peng Wang*

School of Foreign Languages, Guangdong Peizheng College, Guangzhou 510800, Guangdong Province, China

*Corresponding author: Peng Wang, petew@foxmail.com

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: The effectiveness of Quizlet, an online vocabulary learning tool, in enhancing vocabulary acquisition and academic performance among Business English major students in China was investigated in this study. With emphasis on the importance of vocabulary proficiency for English learners, especially those in English-related majors, this research aimed to understand the impact of Quizlet on vocabulary mastery and its connection to overall academic success. A one-academic-year longitudinal experiment was carried out involving two classes, utilizing quantitative methods for assessing vocabulary retention and academic progress. Improvement was seen in the final exam rankings and vocabulary retention rates in Quizlet-engaged classes. Hopefully, this study could provide valuable insights for educators, curriculum designers, and researchers, guiding the optimization of language acquisition strategies in the digital age.

Keywords: Quizlet; Vocabulary acquisition; Business English; Academic performance; Language learning; China; EFL; Digital learning

Online publication: December 25, 2023

1. Introduction

Vocabulary proficiency is incredibly important for Chinese tertiary students who are learning English as a Foreign Language (EFL). This is especially true for English language-related major students in Chinese universities, as they often face situations that challenge their English language proficiency. They will need a strong vocabulary to comprehend complex English texts in university, participate in class discussions, and excel in assignments and exams. After graduation, English-related major students are likely to either pursue careers in fields where English proficiency is a fundamental requirement or opt for furthering their studies at institutions where impeccable language skills are required.

In the context of modern information technology and the growing prevalence of smart devices nowadays, the application of Computer-Assisted Language Learning (CALL) has emerged as a promising approach to help

English learners improve their vocabulary ^[1]. Within the broader domain of CALL, the utilization of Quizlet, an online platform dedicated to vocabulary learning, has gained significant attention as a recent development. This study critically assesses Quizlet's efficacy as a tool for enhancing vocabulary acquisition, with emphasis on its potential benefits for Business English major students in Chinese universities.

The central research questions driving this investigation are twofold: Firstly, the investigation seeks to ascertain whether Quizlet is effective in improving the vocabulary of Business English major students. Secondly, this study seeks to examine the correlation between an expanded vocabulary and overall academic success, particularly in the context of examinations. This study seeks to uncover the pedagogical and practical dimensions of Quizlet's role in vocabulary acquisition for Business English major students and, subsequently, its influence on their academic achievements.

In the following sections, this paper meticulously examines the intricate relationship between the application of Quizlet to learn lexical items and the acquisition of vocabulary among Business English major students. Several key components are involved in this study. This paper begins with a literature review where the importance of vocabulary instruction for EFL learners in China and the evolving landscape of CALL practices are explored, with a focus on Quizlet. The theoretical framework of the study highlights fundamental behaviorist, cognitivist, and humanistic learning theories. The methodology section provides a thorough exposition of the research design, participants, materials used, and ethical considerations observed during the study. Following this, the results of the investigation are analyzed to establish correlations between the utilization of Quizlet, retention of vocabulary, and academic performance. This analysis is situated within the existing body of literature, and implications for EFL teaching practices are thoughtfully expounded. The essay concludes with a succinct summary, emphasizing the key findings and their broader relevance in shaping effective pedagogical approaches tailored to the needs of English major students in terms of lexical learning.

2. Literature review

2.1. Significance of vocabulary instruction for EFL learners in China

The success of learning English could not be achieved without sufficient input of essential lexical items, as they are virtually the most fundamental and almost the smallest units that convey meaning in both written and verbal communication ^[2]. From this perspective, vocabulary mastery seems to be a crucial element in determining English proficiency. However, unlike native speakers of English, EFL learners often face distinctive challenges in their journey of mastering the English language, with vocabulary acquisition presenting a particularly formidable obstacle. The difficulties stem from several factors. For example, the immersive language environment that native speakers enjoy is lacking in EFL countries. Instead of being constantly exposed to English from an early age like the native, the EFL may have limited opportunities for authentic language immersion, making it challenging to develop an intuitive feel for English vocabulary. What is more, the lack of exposure to native English-speaking environments can hinder their ability to grasp the cultural and contextual aspects of certain vocabulary. Understanding the subtle connotations of words and idiomatic expressions in various social and cultural contexts is a nuanced skill that native speakers naturally acquire that EFL learners must actively cultivate. Thus, deliberate effort and extensive practice are often required for EFL learners to acquire new vocabulary. They must devote considerable time and energy to memorizing, understanding, and contextualizing words. This necessitates an active and persistent commitment to vocabulary building, which can be daunting amidst other academic and professional demands.

Therefore, teaching vocabulary is a crucial task for EFL teachers. However, implementing an effective lexical teaching approach within an EFL environment is notably challenging. To achieve successful vocabulary teaching

in such a context, it is imperative to seek inspiration by analyzing factors contributing to effective vocabulary acquisition. Scholars present diverse perspectives on these factors. Plonsky^[3] identified eight elements that significantly influence lexis learning. These include acknowledging the role of memory in vocabulary acquisition and recognizing the teacher's pivotal role in vocabulary teaching. The former involves recognizing forgetting as a natural part of learning and valuing recurrence as crucial for transitioning from short-term to long-term memory. The latter one emphasizes various strategies and activities believed to enhance language vocabulary learning efficiency. Hence, a successful vocabulary learning process should entail a focus on repetitive learning and the efficacy of teaching and learning practices. Understandably, the effectiveness of vocabulary learning must be adeptly aligned with the characteristics of the contemporary learning environment and student profiles, taking into account factors such as the widespread utilization of smart devices for learning purposes.

2.2. CALL in China

The evolution of CALL in China, as observed by Motteram^[4], is a dynamic process influenced by educational reforms and technological advancements. CALL emerged as a promising solution for enhancing language learning, gaining momentum through significant initiatives such as distance teacher training projects, distance education programs, and a 2002 Ministry of Education plan focused on developing high-quality, freely accessible online courses to encourage resource sharing.

Aligned with Motteram^[4], Chen^[5] underscores the impact of the College English Reform initiated in 2002 on the swift expansion of CALL in China, particularly since 2010. Highlighting the pivotal role of the network in this evolution, Chen's interview^[6] notes that the progression of teaching tools — from flipcharts to video clips, cassette tapes, and ultimately short films as popular language learning tools — reflects a transformative journey. The surge in popularity of personal computers (PCs) in China, coupled with the advent of the network fostering interconnectivity, has led to innovative learning experiences such as e-learning, Mobile Assisted Language Learning (MALL), and others. These technological advancements have positioned CALL as an indispensable component of language learning.

In summary, the trajectory of CALL in China represents a transition from conventional tools to sophisticated digital technologies, profoundly influenced by policies and technological developments. This evolution plays a pivotal role in language education and pedagogical reform.

2.3. The use of Quizlet for vocabulary instruction in China

Quizlet's involvement in English vocabulary teaching in China can be traced back over a decade since its establishment in 2005^[5], gradually gaining popularity among educators. The surge in Quizlet's application for educational purposes can be attributed to a variety of factors, which could be broadly categorized into three dimensions: educational policies, the evolving emphasis on vocabulary, and Quizlet's adaptability in study set design.

One contributing factor lies in the push towards digitization in education policies, encouraging schools to integrate digital methods into their teaching practices. Quizlet, being one of the popular apps, emerged as a facilitator in this digital transformation.

Another facet of Quizlet's expansion is linked to the increasing recognition of the importance of vocabulary instruction in English language learning. This shift is evident in various ways: the concept of vocabulary quantity is increasingly discussed, with bookstores offering a plethora of materials tailored for different exams and academic levels. Moreover, tutoring institutions in China have introduced specialized vocabulary courses, meeting the growing demand for both classroom and offline vocabulary learning. Notably, Quizlet's capacity

for creating customizable study sets contributes to a personalized learning experience, earning favor among educators.

The application of Quizlet in classrooms as a tool for vocabulary teaching started in some primary and secondary schools and gradually expanded to universities. Similarly, the scope of research in this domain spans from elementary to secondary education and has further reached specific disciplines at the university level, where the focus narrows on its impact on learners of varied majors.

2.4. Theoretical framework

2.4.1. Behaviorism

Behaviorism ^[7] holds relevance as it emphasizes the importance of repetition and reinforcement. Specifically, in the context of vocabulary learning, behaviorism believes that the repeated exposure of learners to words, often facilitated through tools like flashcards or quizzes, along with the provision of positive reinforcement for accurate responses, can facilitate and enhance the process of effective vocabulary acquisition. An example illustrating this principle is the use of a specialized flashcard application that presents a set of vocabulary words for learners to review. In this application, positive feedback is given when a learner accurately identifies a word, strengthening the connection between the word and its meaning. This process contributes to enhanced vocabulary retention and acquisition.

2.4.2. Cognitivism

In the realm of acquiring vocabulary, cognitivism ^[8] focuses on mental activities, particularly memory and problem-solving skills. This theory suggests that enhancing vocabulary retention can be achieved through different methods, such as organizing and categorizing words and utilizing mnemonic techniques. For instance, learners can improve their capacity to remember vocabulary by creating mental associations between words, like grouping them into categories such as animals, food, or emotions.

Moreover, applying this cognitivist approach to vocabulary learning, platforms like Quizlet are theoretically effective. Quizlet's interactive features, including flashcards and quizzes, align with the cognitivist emphasis on memory and mental processes. By engaging learners in activities that stimulate memory recall and problem-solving, Quizlet becomes a valuable tool in the cognitive aspects of vocabulary acquisition, supporting the principles of cognitivism in language learning.

2.4.3. Short-term memory and long-term memory

The ideas of short-term memory and long-term memory, as proposed by Miller ^[9] in 1956, play a crucial role in acquiring vocabulary. Successful vocabulary learning strategies acknowledge the importance of these memory systems to help words move from the temporary hold of short-term memory to the lasting storage of long-term memory. This transition ensures not only prolonged retention but also practical application of the acquired vocabulary. Recognizing and leveraging these memory processes provides valuable guidance for educators and learners looking to enhance vocabulary acquisition.

In line with these principles, Quizlet emerges as an effective tool. By engaging users through repeated exposure and reinforcement, Quizlet supports the transition of vocabulary from short-term to long-term memory. Its interactive features and diverse learning modes align with the understanding of memory processes, making it a valuable asset for educators and learners striving to optimize vocabulary acquisition.

2.4.4. Humanistic learning theory

The humanistic learning theory ^[10] focuses on the idea of self-actualization and personal growth within an

educational framework. It emphasizes the importance of meeting psychological needs, such as self-esteem and self-worth, as essential elements of the learning journey.

The participants in this study were English major students who were in urgent need to expand their vocabulary within a single semester to pass their exams. Therefore, these students were expected to be highly motivated and ambitious in terms of seeking practical success in learning new words.

Considering the self-actualization theory, the effectiveness of Quizlet in this scenario lies in its potential to empower students to take charge of their vocabulary learning. By providing a platform that allows them to actively engage with the material, Quizlet supports their psychological needs for self-esteem and accomplishment. The interactive and self-directed nature of Quizlet aligns with the principles of self-actualization, fostering a sense of autonomy and personal growth among students as they work towards achieving their vocabulary learning goals.

3. Methodology

3.1. Research design

A longitudinal experiment was conducted over the course of one year, involving two classes, each with an average of 30 students. The study spanned two academic semesters. The first semester was dedicated to familiarizing students with the use of Quizlet and acquainting them with the assessment mode. The second semester focused on high-frequency vocabulary input and periodic quizzes. The final evaluation entailed comparing quiz progress data with end-of-semester exam results and passing rates for the TEM-4 examination (Test for English Majors Band Four), benchmarked against students from other classes in the same grade. The study aimed to evaluate the impact of Quizlet on students' vocabulary acquisition and overall English proficiency enhancement.

The research methodology was predominantly quantitative, concentrating on evaluating students' English vocabulary retention and overall progress.

The research process consisted of four main stages.

- (1) Preparation and data collection: This stage took place during the first semester of the second year, focusing on acquainting students with the platform and preparing them for the assessment mode and the subsequent increased vocabulary input phase. The students' learning progress would be recorded.
- (2) Incremental learning and data collection stage: This phase occurred during the second semester of the second year and involved a more intensive introduction of a larger volume of vocabulary compared to the previous semester.

3.2. Participants

Participants in this study were second-year university students of Business English major students, comprising approximately 70 students across two teaching classes. The selection of second-year Business English students was mainly based on the following considerations: (1) Their major was English-related and their motivations for improving their English language capacity should be granted; (2) second-year university students of English related major who were supposed to take the TEM-4 examination in China and were eager to expand their vocabulary due to exam pressure; (3) these students had a good English language foundation, enabling them to absorb a substantial vocabulary input as planned in the second phase of this study.

3.3. TEM-4

The TEM-4 is a standardized English language proficiency test in China. It is designed to assess the English

language proficiency of undergraduate students majoring in English or related fields. The test evaluates students' reading, listening, and writing skills in English and is widely used by Chinese universities as a benchmark for English language proficiency. TEM-4 is part of a series of English language tests, with TEM-8 being the most advanced level in the series. It is an important examination for English majors and plays a crucial role in their academic and career development.

3.4. Materials

The vocabulary used in this study primarily originates from two books, serving different purposes in the two main phases of the research. In the initial stage, designed to acquaint students with Quizlet and assess their learning of core words from the nine units covered in the textbooks, *Market Leader (3rd Edition)*, books 3 & 4, were used. Subsequently, in the second stage, the focus of their vocabulary learning shifted to the TEM-4 examination vocabulary, which includes approximately 1800 high-frequency words compiled in a test preparation book titled *Hua Yan Wai Yu TEM-4 English Vocabulary Breakthrough 8000* published by World Publishing Corporation.

3.5. Quizlet use and check-ups

In the initial phase of this research, the first step involved establishing a Quizlet class and inviting students to join. Subsequently, nine crucial study sets were created and incorporated into the class. The instructor explained and demonstrated how to use Quizlet sets for vocabulary learning during lessons, covering aspects like word pronunciation, definitions, and spelling exercises. In each curriculum unit, the instructor played the corresponding study set in the classroom for students to follow along pronouncing the words and memorizing their meanings. Students were informed that sporadic vocabulary listening tests would be conducted after each unit, with Quizlet study sets played in the random mode, and their word accuracy would be recorded. These tests occurred approximately every 1.5 weeks.

In the second phase, as students became accustomed to utilizing Quizlet for vocabulary acquisition, they joined a new class dedicated to the study of vocabulary specifically tailored for the TEM-4 examination in the platform for learning exam vocabulary. This collection comprised 20 study sets, each encompassing more than 90 words of high-frequency nature. On average, listening tests were conducted twice a week. Listening tests were conducted twice a week on average. Upon completing assessments for all 20 study sets, students were notified that the entire process would recommence, maintaining a twice-weekly frequency until the conclusion of the semester. The purpose of this cyclical process was to systematically evaluate the retention of vocabulary knowledge over time.

The evaluative framework in this study revolves around check-up assessments designed to appraise a student's proficiency in accurately spelling words encountered during dictation exercises. This assessment method exclusively measures the number of words correctly spelled by students in these dictations. The prescribed formula for calculating accuracy is expressed as follows:

This standardized formula provides a quantifiable measure of a student's spelling proficiency in relation to the words encountered during dictation exercises, thereby contributing to a comprehensive understanding of their language acquisition and retention capabilities.

$$Accuracy (\%) = \frac{\text{Words spelled correctly}}{\text{Total words in dictation}} \times 100\%$$

3.6. Data collection

In this research, diverse methods were employed for comprehensive data collection.

(1) Learning records on Quizlet

The individual learning records of each student on the Quizlet platform were analyzed. Students, organized into groups, used their personal accounts to track their vocabulary learning progress. This method was particularly crucial in the study's initial phases, aiding students in adapting to Quizlet for enhancing their vocabulary skills.

(2) Correction records after dictation

The second method involved recording the results of corrections made after dictation sessions. These corrections were analyzed to gain insights into the learning process.

(3) Classroom observation

The third method involved observing classrooms during dictation sessions. The students' responses were carefully observed, ensuring the assessment's integrity and preventing any instances of cheating.

(4) Classroom feedback

The fourth method was guiding students based on their inquiries and concerns regarding Quizlet's use for vocabulary learning. This guidance may include instructions on employing flashcards and spelling exercises to reinforce their learning.

(5) End-of-semester examination scores

The fifth method was comparing students' academic performances before joining the class and one year after, focusing on their relative ranking within their grades. This data was obtained through the school's examination system.

(6) TEM-4 passing rate

The sixth method involved comparing the passing rates of students in the experimental class with those in other classes. This comparison was based on data regarding student's exam results in the TEM-4 test, along with their pre-enrollment exam scores. This facilitates an assessment of the progress resulting from the study.

These diverse data collection methods play a crucial role in offering a comprehensive understanding of the effectiveness of Quizlet in vocabulary learning among English major students and its consequent impact on their academic performance.

3.7. Ethical considerations

Ethical principles are integral to safeguarding the rights and well-being of the participants in this study. The following key ethical considerations were considered in the research process:

(1) Informed consent

Before participating, individuals received comprehensive information about the study's objectives. Obtaining informed consent is a priority, emphasizing that participation is voluntary. Participants were informed of their right to withdraw without consequences.

(2) Confidentiality

Participant confidentiality is of utmost importance. All collected data were carefully dealt with, and any details that could reveal participants' identities were removed.

(3) Beneficence

The study was designed to enhance the educational experience of English major students, aiming for improved vocabulary acquisition and academic performance. Interventions were structured to maximize

benefits while minimizing potential harm.

(4) Minimization of harm

Participants got to engage in a language learning environment tailored to their academic needs. Measures were implemented to reduce stress or discomfort during assessments.

(5) Transparency

The research process was transparent. The participants were aware of the methods, assessments, and potential outcomes of the study. Transparency builds trust between researchers and participants, contributing to ethical research conduct.

Through adherence to these ethical principles, this study aimed to provide valuable insights into language learning while prioritizing the rights and well-being of participants.

4. Findings & discussions

4.1. End-of-semester exam performance

This section presents a comparative analysis of average final exam grades before and after the completion of a year-long course. The student population was composed of five distinct classes: Class 1*, Class 2, Class 3*, Class 4, and Class 5. Classes marked with an asterisk (*) indicate those actively engaged with Quizlet (**Figure 1**).

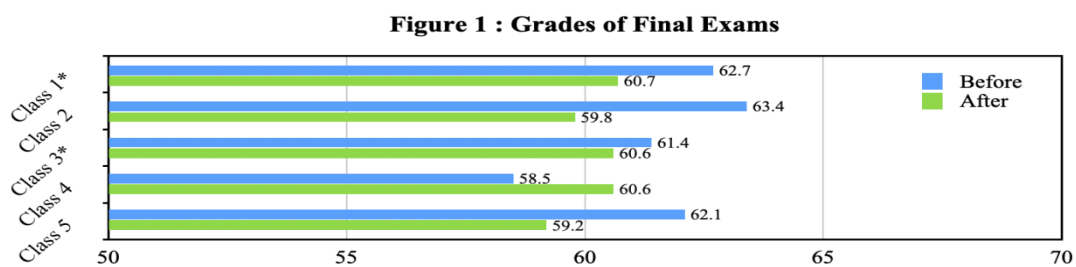


Figure 1. End-of-semester exam grades

Examining the data, noteworthy trends emerge in the average class rankings. Classes that actively utilized Quizlet demonstrated varying degrees of improvement. Class 1* ascended from its original position as the second-ranked class to secure the top spot, showcasing a notable advancement. Similarly, Class 3* experienced a significant positive shift, progressing from the second-to-last position to secure the second position in the overall class ranking.

This comparison offers insights into the potential correlation between Quizlet integration and enhanced academic performance. The marked improvements in class rankings underscore the relevance of Quizlet as a tool for positively influencing student outcomes. As we scrutinize these findings, the nuanced impact of Quizlet on academic achievement becomes a focal point for further exploration and discussion in the subsequent sections.

4.2. Vocabulary retention rate

In the latter half of the academic year, both classes utilizing the Quizlet platform underwent a series of 30 spelling tests, corresponding to 20 distinct study sets. Notably, the content of the final 10 assessments mirrored that of the initial 10, with an approximate interval of 2.6 months between them. To ensure a more precise measurement of vocabulary retention, it was deemed prudent to conduct before-and-after tests utilizing identical content. As such, the statistical analysis deliberately focused on the 10 study sets subjected to repeated dictation

tests. **Table 1** demonstrates the test outcomes for both classes.

Table 1. Dictation results

	Class 1*	Class 3*
Average score (1 st)	86.6	79.11
Average score (2 nd)	87.1	80.88
Vocabulary retention rate	100.58%	102.24%
Number of students who improved	16	23
Proportion of improved participants	59.3%	76.7%
	Effective response: 27	Effective response: 30

In the context of this research, the collection of data involved meticulous considerations, including factors like class attendance and punctuality. Acknowledging the challenge of guaranteeing 100% attendance and recognizing the potential for students to arrive late or miss tests, data lacking reference value were systematically excluded from the analytical framework. Consequently, after the exclusion of such non-contributory data, the effective number of students for Class 1* in the comparison of dictation tests conducted twice amounted to 27, while for Class 3*, it tallied to 30.

Given the inherent variations in students' English proficiency and vocabulary levels, a more objective assessment emerged by comparing the average accuracy rates before and after the tests. The discerned data unmistakably highlight a modest enhancement in average scores during the second retest conducted two months subsequent (with a proportion exceeding 100%). This observation suggests that Quizlet significantly contributes to aiding students in recognizing and memorizing words. Results from the dual comparisons affirm that in both classes, an average of over 65% of students exhibited higher scores in the second test than in the first, underscoring the efficacious role of Quizlet in vocabulary acquisition.

4.3. TEM-4 results

The TEM-4 examination took place in the latter part of the second semester, following the completion of all Quizlet study set dictation listening exercises. Examining the results reveals a resemblance to the above discussion on final exam performance, with Classes 1* and Class 3* holding a competitive edge in grade rankings. Considering the pre-course ranking of the marks, it was anticipated that Class 1*'s pass rate would fall behind Class 2, and Class 3* would be positioned in the middle or towards the latter part of the grade rankings.

However, closer scrutiny of the actual number of students participating in the examination and those who successfully passed provides a different perspective. Astonishingly, Class 3* achieved a remarkable pass rate of 38.71%, securing the second position in the grade hierarchy. Notably, the ranking of Class 1* surpassed Class 2 by approximately 10% (**Table 2**).

Table 2. TEM-4 results

	Class 1	Class 2	Class 3	Class 4	Class 5
Number of passes	10	7	12	14	10
Number exam candidates	28	29	31	32	33
Passing rate	35.71%	24.14%	38.71%	43.75%	30.30%

This unexpected outcome prompts a deeper exploration into the dynamics influencing performance, challenging initial expectations based solely on pre-enrollment rankings. The juxtaposition of the TEM-4 results against Quizlet participation and success unveils intriguing insights into the intersection of vocabulary acquisition tools and academic achievement. This unexpected surge in success within Class 3* beckons further investigation into the factors contributing to their exceptional performance, presenting an intriguing avenue for future academic exploration.

5. Limitations of the study

While this investigation sheds light on the interplay between Quizlet utilization, vocabulary acquisition, and academic performance among English-related major students, it is crucial to acknowledge certain limitations that may impact the generalizability and interpretability of the findings.

(1) Sample specificity

The study's focus on Business English major students within a specific academic context may limit the broader applicability of the results. The nuances of vocabulary acquisition and Quizlet effectiveness could differ across other English-related major students and educational levels.

(2) Short-term assessment

The study's design, particularly the reliance on a semester timeframe, offers insights into short-term outcomes. A more reliable study would be necessary to assess the sustainability of vocabulary retention and academic performance over an extended period.

(3) External factors

External variables, such as students' engagement in supplementary language learning activities outside the classroom, could influence the observed outcomes. Factors like socioeconomic background, individual study habits, and access to resources may contribute to variations in results.

(4) Assessment methodology

The exclusive use of dictation exercises as a measure of vocabulary proficiency may not capture the full spectrum of language skills. A more comprehensive assessment, encompassing speaking, reading, and writing abilities, would provide a holistic understanding of language acquisition.

(5) Classroom dynamics

The study's reliance on classroom settings for Quizlet engagement and assessments may overlook the impact of individualized learning preferences. Students' responses to technology-assisted learning tools can vary, and a more personalized approach might yield diverse results.

(6) Technology accessibility

The effectiveness of Quizlet assumes a certain level of technology accessibility. Variances in students' access to devices and the internet might introduce disparities in engagement and, consequently, outcomes.

Acknowledging these limitations is important for a nuanced interpretation of the study's findings. Future research endeavors should consider expanding the scope of participants, employing a more diverse set of assessment tools, and exploring the long-term implications of incorporating Quizlet into language learning curricula.

6. Conclusion and pedagogical implication

Concluding this comprehensive investigation into the interplay among Quizlet utilization, vocabulary

acquisition, and academic performance among Business English major students in China yields several significant findings and implications. This study aimed to address two primary research questions: the efficacy of Quizlet as a tool for aiding Business English major students in vocabulary mastery and the correlation between an expanded vocabulary and overall academic success.

6.1. Key findings

- (1) Academic performance improvement: Classes actively engaging with Quizlet displayed improvements in average final exam rankings, indicating a potential correlation between Quizlet utilization and enhanced academic performance.
- (2) Vocabulary retention enhancement: The study's second phase, focused on vocabulary retention, revealed a notable increase in average scores during repeated dictation tests after exposure to Quizlet.
- (3) TEM-4 examination outcomes: The TEM-4 results mirrored trends observed in final exam performance, with Quizlet used classes showcasing competitive pass rates.

6.2. Pedagogical implications

- (1) Technology integration for vocabulary acquisition
The study underscores the pedagogical potential of Quizlet in enhancing vocabulary acquisition. Educators can consider integrating Quizlet into language learning curricula, particularly for vocabulary-focused courses.
- (2) Adaptive teaching strategies
The findings suggest that adaptive teaching strategies, incorporating digital tools like Quizlet, can positively influence academic outcomes. Educators are encouraged to explore diverse methods aligned with students' preferences and needs.
- (3) Long-term vocabulary planning
While this study provides insights into short-term outcomes, future research should delve into the sustainability of vocabulary retention over an extended period. Longitudinal studies can offer a more comprehensive understanding of the long-term impact of vocabulary-focused interventions.
- (4) Consideration of individual differences
Acknowledging the diversity of students' backgrounds, study habits, and technological access, educators should consider individual differences in designing language learning interventions.

6.3. Pedagogical implications for English major students in China

This study illuminates the potential benefits of integrating Quizlet into language learning practices for Business English major students. By emphasizing the role of technology in enhancing vocabulary acquisition and academic performance, educators can tailor their approaches to meet the specific needs of English major students. The findings encourage a forward-looking perspective on the integration of digital tools for effective language learning strategies.

In conclusion, this study contributes valuable insights to the discourse on technology-assisted language learning, offering implications for educators, curriculum designers, and researchers seeking to optimize language acquisition strategies among English major students in China. The multifaceted exploration of Quizlet's impact provides a foundation for further inquiry into the evolving landscape of language education in the digital age.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Anjaniputra AG, Salsabila VA, 2018, The Merits of Quizlet for Vocabulary Learning at Tertiary Level. *Indonesian EFL Journal*, 4(2): 1. <https://doi.org/10.25134/ieflj.v4i2.1370>
- [2] Carter R, Mccarthy M, 1988, *Vocabulary and Language Teaching*, Routledge, London.
- [3] Plonsky L, 2009, Vocabulary Learning Strategies and Foreign Language Acquisition. *Visnja Pavičić Takač*. Clevedon, UK: Multilingual Matters, 2008. Pp. vii + 197. *Studies in Second Language Acquisition*, 31(3): 518–519. <https://doi.org/10.1017/s0272263109090494>
- [4] Wang W, Motteram G, 2006, CALL in China. *Iatefl Voices*, 2006(190): 7–8.
- [5] Chen J, 2005, Computer-Assisted Teaching or Autonomous Teaching. *Computer-Assisted Foreign Language Education*, 104: 9–12 + 49.
- [6] Ma M, 2020, Computer-Assisted Language Learning in China: What Opportunities and Challenges Are We Facing? An Interview with Jianlin Chen. *International Journal of Chinese Language Teaching*, 1(2): 62–69. <https://doi.org/10.46451/ijclt.2020.09.05>
- [7] Lightbown PM, Spada, N, 2021, *How Languages Are Learned (5th Edition)*, Oxford University Press, Oxford.
- [8] Schunk DH, Greene JA, (eds) 2018, *Handbook of Self-Regulation of Learning and Performance (2nd Edition)*, Routledge, London.
- [9] Miller GA, 1956, The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information. *Psychological Review*, 63(2): 81–97. <https://doi.org/10.1037/h0043158>
- [10] Rogers C, 1969, *Freedom to Learn*, Charles E. Merrill, Columbus.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.