

Article

A Preliminary Investigation of the Effectiveness of Quizizz on Vocabulary Acquisition Between Individual and Group Practices in Chinese as a Foreign Language High School Classes in the U.S.A.

Lih-Ching Chen Wang*

Eddie T. C. Lam

Cleveland State University, USA

Shi Jiang

University School, USA

Received: 21 December, 2022/Accepted: 15 June, 2023/Published: 7 April, 2024

Abstract

Using Quizizz as the practice tool, this study assessed the relative effectiveness of gamified individual practice vs. gamified group practice on Chinese vocabulary acquisition among American high school students. Participants were high school students enrolled in Chinese as a foreign language (CFL) courses at five different levels in a suburban all-male private high school in the midwestern region of the United States. Students were first taught as part of a single large-group class experience, and then divided into two groups: individual practice and group practice. Results of the mixed-design ANOVA indicated there was no significant ($p > .05$) difference in the outcome between the two groups (individual vs. group practice). However, there was a significant positive correlation between study time and posttest scores ($r = .668, p = .001$). It is suggested that further research should include a larger sample size with both male and female participants as well as other types of gamified practice tools besides Quizizz.

Keywords

Vocabulary acquisition, gamification, Mandarin Chinese, Mixed-Design ANOVA

1. Introduction

Li et al. (2014) asserted that vocabulary acquisition is a major challenge for people who want to learn a foreign/second language (L2). In order to have at least 80% understanding of the texts read in an L2, learners need to acquire at least a collection of 2,000 vocabulary in high frequency (Ghani et al., 2022). For Chinese L2 learners, this is even more of an issue since Chinese is using a phonologically opaque and logographic writing system, and it is extremely challenging for L2 learners with alphabetic language backgrounds to develop Chinese character and vocabulary knowledge (Li et al., 2014). The acquisition

*Corresponding author. Email: l.c.wang@csuohio.edu

of L2 vocabulary also affects other linguistic performances including grammatical competence and general communicative abilities (Cobb, 2007). The ability to express their thoughts using the vocabulary learned in class is one of the indicators of a more advanced language level. According to the ACTFL Performance Descriptors for Language Learners, at the intermediate level, students can understand and produce discrete sentences, strings of sentences, and some connected sentences (ACTFL Performance Descriptors for Language Learners, 2019). High school students typically need to acquire a large vocabulary in a relatively short period. They will apply this vocabulary to engage in interpersonal, interpretive, and presentational activities. Therefore, learning how to use vocabulary as building blocks for more advanced Chinese language learning is one of the major challenges for L2 learners in Chinese classrooms. In addition, lack of interest and engagement is a particular problem for students learning Chinese. Lo and Hew (2018) found that traditional strategies cannot provide a solution to the absence of student interest. Likewise, they cannot bring about engagement in learning (Ortiz-Rojas et al., 2019). In the United States, many high school Chinese teachers have tried to design various colorful worksheets for teaching through conventional games and gradually extended these into the digital format of games with an intention to engage students' interest and engagement in learning Chinese vocabulary at the same time. Game-based learning has gradually earned attention by Chinese teachers in Chinese as a foreign language (CFL) high school classrooms in the US.

In the high school where this study took place, there are approximately 20-30 students each year in the Chinese program. Every semester the instructor seems to spend a lot of time designing classes and finding efficient learning tools to both help the instructor conduct teaching effectively and help the students develop a deeper interest in learning this language. Students spend a lot of time practicing Chinese vocabulary but often find themselves right back to the very beginning after just weeks of winter vacation or spring break. The frustration students have shown in class has motivated the authors to understand related studies in the literature, to find the right tools to reduce their students' level of anxiety in learning Chinese, and to create a positive learning environment through a fun, relaxing approach, thus boosting their students' enthusiasm in learning CFL in class.

2. Review of Literature

2.1 Game-based learning

Erhel and Jamet (2013) described game-based learning as a “competitive activity in which students are set educational goals intended to promote knowledge acquisition” (p. 156). Although some researchers have presented concerns and conflicting findings regarding game-based learning, most researchers still firmly believe that game-based learning fosters more motivation for effective learning than traditional learning methods do (Foster, 2008), and substantially affect future education (Huang et al., 2010). In a second language learning classroom, contextual game-based language learning tends to positively influence language learning (Lan, 2015). In an experimental study conducted in higher learning institutions in Malaysia, Ghani et al. (2022) found that the digital game-based learning had a significant impact on non-native Arabic college students' achievement in their Arabic vocabulary acquisition. In addition, it could create a student-centered, interactive, and fun learning environment, increase students motivation, and improve students engagement in learning Arabic language.

2.2 Gamification

In the literature, the term “gamification” is often used interchangeably to represent “game-based learning”. It has been suggested that in an educational setting, gamification can support individuals to acquire the potential to develop critical thinking and multi-tasking, while training successful 21st-century

digital natives (Kapp, 2012). Furthermore, gamification frequently provides data on student learning by enabling more efficient, accurate, and timely information for teachers, parents, administrators, and public policymakers (Darling-Hammond, 2010).

Gamification is used to describe a type of connection between games and anything that is not a game (Campbell, 2016) or a method used to apply game elements to non-game contexts (Deterding et al., 2011). The aim of gamification is not to create a game-like new world, but to transfer the game elements into the real world to capture similar senses without leaving the reality (Arkün-Kocadere & Samur, 2016). Therefore, gamification learning can be used to improve learner engagement and interest. In education, gamification is a way of playing creative games in the classroom without jeopardizing the scientific nature of a curriculum (Nolan & McBride, 2014).

2.3 Quizizz as a gamification learning platform

What are the most popular gamification learning platforms that have been used in language education? “Kahoot!” and “Quizizz” are two of the popular free platforms that have been recently used globally for gamification learning activities (see Basuki & Hidayati, 2019; Lestari, 2019). Both platforms have advantages and disadvantages when used in the classrooms. Between these two platforms, Degirmenci (2021) observed that “Quizizz is one of the most used digital tools in language learning”, and learners can engage and participate in the lessons more actively. For this reason, Quizizz was selected with an intention to help CFL students in their vocabulary acquisition in the study.

There is a need to briefly describe what Quizizz is. Quizizz is an online learning platforms that was created in 2015 and based in Bengaluru, India. According to the information provided on Quizizz’s website <https://quizizz.com/>, as of spring in 2023, it has been used by more than 50 million educators worldwide. A user can sign up for a free account (except for its school and district plans) online at its website. It provides a variety of tools to make teaching and learning interactive and engaging with an intention to assist teacher to create quizzes as well as to assess and review learning content in a user-friendly manner, and to motivate student to master learning in a gamed-based fun way at student’s own pace and using any of these devices: PC, laptop, tablet, or smartphone.

2.4 Major functions of Quizizz

Based on research studies, Quizizz learning platform can be used online primarily in the areas of (1) quiz creation, (2) learning assessment and review tool, and (3) gamified student learning response system. When using Quizizz as an online quiz creation platform, it allows teachers to develop the quiz questions without any limitation on the number of characters and to preview the questions before posting them to the platform. The number of answering to the multiple-choice questions could be flexible. When an appropriate Internet connection is available, the instructor could initiate the quiz while the students could response to the instructor’s questions via a device. On each participant’s screen, both the questions and the answer options could be visuals if one chooses to do so as well as to be displayed individually in a different order. After answering the previous question or after time allowed to answer that question, each participant would be allowed to reply to the next question. Based on the correct or incorrect answer, each participant would receive positive or negative messages on the screen immediately after the response (Göksün & Gürsoy, 2019, p. 17). Degirmenci (2021) added that when preparing a quiz, the teacher could select appropriate quizzes from the library that were created previously and shared by other educators in addition to creating a new quiz from scratch, so that the instructor could reduce the duplicate efforts, save time to conduct other academic activities, and even share the mutual responsibilities among colleagues online. The types of quiz questions could include multiple-choice, fill-in-the-blanks, and open-ended questions (p. 2).

When using Quizizz as a classroom learning assessment and review tool, it could assess students' learning outcome and provide them with a fun review. The test report feature in Quizizz allows students to receive instant test feedback and outcomes about their learning, while the teacher can check each student's performance and their scores. It gives data about what students need to review with, and what they understand well. It also provides students guidelines and opportunity on how to improve or learn better for those questions answered incorrectly as well as using other strategy on how to improve their learning content (Pitoyo et al., 2020). Furthermore, by using Quizizz as a learning assessment tool, learning could be made interactive, interesting, and engaging by using available memes, avatars, themes, music, and leaderboards available in the platform (Zainuddin et al., 2020, p. 5). Meanwhile, Pitoyo et al. (2020) pointed out that with the meme feature in Quizizz, it may reduce students' stress or anxiety by showing encouraging spirit, image, or word after answering each test question, whether it is correct or not. This could motivate and influence students' learning activities because the majority of students enjoy getting instant attention or feedback and being rewarded on their performance. This function is very useful in encouraging students while taking the test.

When using Quizizz as a gamified student response system, it allows users to create competitive environments during the test (Yong & Rudolph, 2022). With the time restriction feature of Quizizz, students need to stay focus on their tasks and there is no time for them to cheat because they were competing with the time during the test. Consequently, the test score should be able to be kept as authentic as possible with the students' real performance. In addition, the leaderboard feature in Quizizz can dynamically display each student's rank of real-time score on the board/screen right after answering each question and whether they can answer each quiz within the time limit (Pitoyo et al., 2020). Quizizz can engage students to master learning in a game-based interesting manner, and to compete against each other to get the highest scores. Consequently, it creates a competitive learning environment. This may benefit those students who enjoy learning by competition (e.g., the boys who participated in this study). However, it may be challenging for those students who dislike competing with their classmates. It depends on the teacher's judgement call to see who could receive the benefits of using this competition feature of Quizizz in the classroom.

2.5 Effectiveness of using Quizizz in education

After understanding the major functions of using Quizizz from previous studies that use Quizizz, the authors were curious to know the effectiveness of using Quizizz in education setting. For example, in an experimental study conducted with 67 of Indonesian high school students, Setiyani et al. (2020) found that students who used a Quizizz-aided interactive drill learning media to study mathematical content of the LESTV (Linear Equation System in Two Variables) showed significantly improved in problem-solving skills compared to those who studied without using the Quizizz-aided learning method. Furthermore, Gümüş and Gençoğlu (2020) used Quizizz to investigate a 2-year study toward 144 college human anatomy students in sport science in Turkey. The findings showed that students who used a new approach by using Quizizz interactive way to study human anatomy had better performance in the mid-term and course success when compared to those who studied using classical learning carried out with instruction-based PowerPoint method and with textbooks, models, and printed visualizations of anatomical materials.

In foreign language education, the authors were also curious to know in what extent the Quizizz gamification learning platforms could help students to learn and master the content of foreign languages. In recent years, Quizizz has gradually being used in foreign language education with its positive learning outcomes in a relaxing, interactive, and engaging learning environment (Yunus & Hua, 2021). For example, Pitoyo et al. (2020) used Quizizz to assess the effect of students learning motivation toward 18 English TOEFL college students in Indonesia, and the results revealed that Quizizz platform provided positive washback effect on helping students to achieve their learning goal in English as a foreign

language (EFL) classroom. Students were motivated to learn more on EFL which was tested with positive washback because the use of game elements (e.g., leaderboard, meme, time limit, and test report) were integrated in the Quizizz test. In the following year, Munuyandi et al. (2021) used Quizizz as a formative assessment tool to investigate the Malay grammar to 130 year-four Tamil students in Malaysia. The results revealed that Quizizz had facilitated this group of Tamil students in learning Malay grammar. It was essential to use Quizizz as a formative assessment tool to learn and teach Malay grammar in Tamil schools because using this fun and entertaining game-based Quizizz tool helped students to overcome anxiety and made them feel relaxed when studying in the classroom. Meanwhile, Yunus and Hua (2021) used Quizizz to support 30 English as a second language (ESL) Malaysian primary school students to learn irregular past tense verbs. The results showed that Quizizz had not only enhanced this group of ESL students' learning irregular past tense verbs but also motivated their enthusiasm in English language learning in general. Finally, Quizizz was used by Alhebshi and Gamlo (2022) as a game-based learning application to assess 56 EFL female foundation year college students' vocabulary acquisition in Saudi Arabia. The findings uncovered that students who used the Quizizz application intervention significantly performed better than those who used conventional textbook method in vocabulary acquisition. Overall, integrating Quizizz's mobile game-based learning into EFL lessons is an effective way to ease, preserve, and accelerate cognitive load during vocabulary learning in EFL classroom.

2.6 The purpose of study and the research question

Recent research studies indicate that gamification learning has become a trend in education and foreign language education. However, research on gamification Chinese language learning is just a recent phenomenon. Very few studies have been conducted on using Quizizz as a gamified learning platform to support CFL vocabulary acquisition. Therefore, the purpose of the study was to assess the relative effectiveness of gamification on Chinese vocabulary acquisition in American high school students. The following research questions authors would be examined for this preliminary study:

1. Would Quizizz be an effective gamified practice tool for improving Chinese vocabulary acquisition?
2. Would there be any difference in Chinese vocabulary acquisition between the students using gamified individual practice versus those who used gamified group practice?
3. Would there be a relationship between study time and the scores of Chinese vocabulary acquisition?

3. Methodology

3.1 Design

For the design of the study, each one of five levels of Chinese classes, ranging from the Chinese level-1 to the Chinese level-5 with 4 classes per week for each one of 5 levels, have received the same learning materials from the same Chinese teacher during a 3-week long period of one unit of learning content. Each participant has access to laptops and all classrooms are equipped with projectors and Apple Airplay. All participants were randomly assigned into two modes of groups: one used Quizizz as an individual practice tool while another one used Quizizz as a group practice tool. Students in both groups were first taught as part of a single large-group class experience, and then divided into their respective groups for practice sessions. When participating in the Quizizz games, all could see their relative ranking on the classroom screen while playing e-quizzes on the Quizizz platform. The pretest quiz was conducted in the beginning of first class of content of unit while the posttest quiz was conducted by the end of the unit.

3.2 Procedures

All participants took a demographic survey at the beginning of study. Parental consent forms were distributed in the classroom and participants were told to bring them back in a week. Each class last for 45 minutes, and it was typically structured (except for the first and last classes of the study) in the following: (a) 5-minute introduction, (b) 30-minute regular class instruction and learning activities, and (c) 10-minute Quizizz practice. A summary of the instructional intervention outline was given in the beginning of class. After learning the content, participants were divided into their respective groups for Quizizz games practice sessions, in which both groups could see their relative ranking on the classroom screen when playing Quizizz games in the classroom.

3.3 Participants

All participants were students enrolled in CFL classes (Grades 9-12) from a prestigious suburban private all-male high school in the Midwestern region of the United States. A total of 22 native English speakers, aged 15-18 years old, with different Chinese levels (four, six, three, five, and four students in Chinese Level-1, 2, 3, 4, and 5, respectively) participated in this study. Among those 22 students, there were two heritage Chinese speakers.

3.4 Instruments

A survey and identical pre- and posttests were used in this study for data collection. The survey contained self-designed demographic questions about the student's grade level, age, gender, level of study in Chinese, ethnicity, native English speaker or not, primary language spoken at home, and amount of time spent weekly on Chinese learning. The identical pre- and posttests were designed by the Chinese instructor, one of the co-authors of this article, who has substantial experience in the use of Quizizz as a practice tool in the Chinese classroom. The tests were more difficult by higher level of Chinese classes accordingly. The same Chinese instructor administered all the survey and tests in the classroom in the beginning and at the end of study.

3.5 Data Analysis

The data were analyzed using IBM SPSS (Version 25). Mixed-design ANOVA was used to examine the Progress (pretest and posttest scores) between the two groups (Individual Practice and Group Practice). Besides, bivariate correlation was used to examine the relationship between study time and the outcome score (posttest). The level of statistical significance to reject the null hypothesis was $\alpha < .05$.

4. Results

Descriptive statistics of the participants in the individual practice and group practice is presented in Table 1. The mean age, study time, and pretest score were similar between the two groups. However, the posttest score of the students in the group practice ($M = 85.09$) was more than 10% higher than that of the individual practice ($M = 76.36$). Results of the mixed-design ANOVA indicated the Progress \times Group interaction was not significant ($F [1,20] = .884, p = .358$). Likewise, the main effect for Group was not significant ($F [1,20] = .726, p = .404$). However, a significant main Progress effect was found ($F [1,20] = 298.125, p < .001$; partial eta squared = .973, power = 1.000). This indicated that students improved their scores overtime regardless of whether they were doing the practice individually or as a group. In other words, when using Quizizz as a competitive gamified learning practice tool in an all-boys high school, the students assigned to individual practice demonstrated no difference on Chinese vocabulary

acquisition when compared to those who were assigned to group practice. On the other hand, there was a significant positive correlation between the study time and posttest scores ($r = .668, p = .001$). This indicates that the more time the students spent in studying Chinese vocabulary using Quizizz as a gamified practice tool, the better posttest scores in Chinese vocabulary acquisition they could achieve.

Table 1.

Descriptive Statistics of Participants in the Individual and Group Practices (N = 22)

Practice	Age (Year)	Study Time (Hour)	Pretest Score	Posttest Score
Individual	$M = 16.73$	$M = 2.64$	$M = 4.55$	$M = 76.36$
Group	$M = 16.27$	$M = 2.27$	$M = 5.00$	$M = 85.09$

$M = \text{Mean}$

5. Discussion

The purpose of the study was to assess the relative effectiveness of gamification on Chinese vocabulary acquisition in American high school students, and three research questions were examined. The answer to the first research question was positive. Quizizz was found to be an effective gamified practice tool for improving Chinese vocabulary acquisition. This finding is consistent with previous research studies. For example, the Quizizz was found to be effective for improving Indonesian high school students in their mathematical problem-solving skills (e.g., [Setiyani et al., 2020](#)), can facilitate Turkish college students studying human anatomy (e.g., [Gümüş & Gençoğlu, 2020](#)), can improve Indonesian college students to achieve their learning goal in EFL classroom (e.g., [Pitoyo et al., 2020](#)), can motivate Tamil students in Malaysia to learn Malay grammar (e.g., [Munuyandi et al., 2021](#)), can facilitate ESL Malaysian primary school students to learn irregular past tense verbs (e.g., [Yunus & Hua, 2021](#)), and can improve Saudi Arabians EFL college students' vocabulary acquisition (e.g., [Alhebshi & Gamlo, 2022](#)).

The second research question of this study was whether difference could be found in Chinese vocabulary acquisition between the students using gamified individual practice and those who used gamified group practice. The answer to this research question was negative based on the statistical significance. That is, using Quizizz as a gamified practice tool for both groups demonstrated no significant difference in Chinese vocabulary acquisition for this all-male CFL high school students. However, when examining the absolute score of each group, the mean posttest score of the group practice ($M = 85.09$) was higher than that of the individual practice ($M = 76.36$) by over 10%. In a similar study conducted by Karatas (2011), who also found that students engaged in group practice might perform better than those practicing individually. Thus, we can conclude that group practice seems to be more beneficial to the students (the major reason for having a non-significant result in the current study is probably because of the small sample size). Besides, because of the COVID-19 pandemic, the original one-semester schedule for the study was forced to reduce to a three-week period. Due to the short duration of the intervention, it was not surprising that there was no significant difference on their Chinese vocabulary acquisition regardless of whether they were doing the practice individually or as a group.

The third research question examined whether there would be a relationship between study time and the scores of Chinese vocabulary acquisition. The answer to this research question was positive since the results indicated that the more time the students spent in studying Chinese vocabulary using Quizizz as a gamified practice tool, the better their posttest scores on Chinese vocabulary acquisition. This study confirms one thing we have known for a very long time – time on task (i.e., time spent studying or practicing) in a subject area has a strong positive correlation with academic achievement in that subject area. CFL is, unsurprisingly, no exception to this principle.

6. Limitations and Directions for Future Research

Our findings may be restricted by the following limitations. First, it was limited by the nature and size of its sample. Because this study took place in an all-boys high school, therefore the sample was solely all male which made it impractical to investigate gender-related differences in performance. Further research efforts in this area could be improved by including all-girls high school participating in the study if one wants to generalize the findings related to gender-related differences populations.

Second, our study was conducted in this all-boys college preparatory high school that has relatively restricted number of students due to its prestigious admission criteria and expensive tuition, among others. Consequently, it limited the number of students who chose CFL to roughly 20-30 students for the whole high school annually. As a result, it limited the number of 22 students who were voluntarily participated in this study. While some may see this as a reliability of implementation concern, we argue that findings of our study are particularly encouraging considering the limit sample size availability and still make a significant contribution to understanding the use of Quizizz in real situation on vocabulary acquisition in CFL high school classrooms. Future studies could be improved by inviting other prestigious high school students to join the study to increase the sample size, which would improve the generalizability and statistical power. On the other hand, a sample includes both males and females would allow the examination of interaction between gender and group status. Modification of the experimental procedure to conceal the performance of individuals in the “individual practice” group relative to the class would provide a clearer “bright line” between the treatment of the two groups.

Third, Quizizz is one of many free online platforms that provide gamification learning activities for vocabulary learning. It is unknown whether our findings may be generalizable to other vocabulary learning. Future studies may compare Quizizz with other gamification learning platforms such as Quizlet and/or Kahoot! to investigate the effectiveness of designated learning activities. Use of other (or more than one) gamification learning platforms would allow for comparison of relative performance between different learning programs or platforms.

Finally, there was no control group in our study. Future studies should try to address such limitations by adding a control group using true experimental or quasi-experimental design, by involving a younger or older student population such as elementary school or college students including both male and female subjects, and by modifying the experimental procedure to conceal the performance of individuals in the “individual practice” group relative to the class would provide a clearer “bright line” between the treatment of the two groups.

In summary, future research would benefit from examining potential gender interaction effects, differences between the treatment groups that more thoroughly excluded knowledge of one’s own performance relative to the class for those students practicing individually, and considering the relative merits of different pieces of practice software and their potential interactions with both gender and the practice conditions.

References

- ACTFL Performance Descriptors for Language Learners (2019). https://www.actfl.org/sites/default/files/pdfs/ACTFLPerformance_Descriptors-Interpersonal.pdf
- Alhebshi, A. A., & Gamlo, N. (2022). The effects of mobile game-based learning on Saudi EFL foundation year students’ vocabulary acquisition. *Arab World English Journal*, 13(1), 408-425. <https://dx.doi.org/10.24093/awej/vol13no1.27>
- Arkün-Kocadere, S., & Samur, Y. (2016). From game to gamification. In A. İşman, H. F. Odabaşı, & B. Akkoyunlu (Eds.), *Educational technology readings 2016* (Vol. 24; pp. 397–415). Salmat.

- Basuki, Y., & Hidayati, Y. (2019). Kahoot! or Quizizz: The students' perspectives. Proceedings of the 3rd English Language and Literature International Conference (ELLiC). Semarang, Indonesia. https://www.researchgate.net/publication/334358438_Kahoot_or_Quizizz_the_Students'_Perspectives
- Campbell, A. A. (2016). *Gamification in higher education: Not a trivial pursuit* (Publication No. 10195917) [Doctoral dissertation, St. Thomas University]. ProQuest Dissertations Publishing.
- Cobb, T. (2007). Computing the vocabulary demands of L2 reading. *Language Learning & Technology*, 11(3), 38–63.
- Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education*, 61, 35–47. <https://doi.org/10.1177/0022487109348024>
- Degirmenci, R. (2021). The use of Quizizz in language learning and teaching from the teachers' and students' perspectives: A literature review. *Language Education and Technology*, 1(1), 1–11. <https://langedutech.com/letjournal/index.php/let/article/view/12/1>
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining “gamification”. In proceedings of the 15th International Academic MindTrek Conference: *Envisioning future media environments* (pp. 9–15). Tampere, Finland.
- Erhel, S., & Jamet, E. (2013). Digital game-based learning: Impact of instructions and feedback on motivation and learning effectiveness. *Computers & Education*, 67, 156–167.
- Foster, A. (2008). Games and motivation to learn science: Personal identity, applicability, relevance and meaningfulness. *Journal of Interactive Learning Research*, 19(4), 597–614.
- Ghani, M. T. A., Hamzah, M., Daud, W. A. A. W., & Romli, T. R. M. (2022). The impact of mobile digital game in learning Arabic language at tertiary level. *Contemporary Educational Technology*, 14(1), 1-18. <https://doi.org/10.30935/cedtech/11480>
- Göksün, D. O., & Gürsoy, G. (2019). Comparing success and engagement in gamified learning experiences via Kahoot and Quizizz. *Computers & Education*, 135, 15–29. <https://doi.org/10.1016/j.compedu.2019.02.015>
- Gümüş, H., & Gençoğlu, C. (2020). The usage of “Quizizz” app by sport sciences students in the bachelor's degree anatomy lecture and its effects on attitude and course success. *International Education Studies*, 13(11), 66-73. <https://doi.org/10.5539/ies.v13n11p66>
- Hilao, M. P., & Wichadee, S. (2017). Gender differences in mobile phone usage for language learning, attitude, and performance. *Turkish Online Journal of Distance Education*, 18(2), 68–79.
- Huang, W. H., Huang, W. Y., & Tschopp, J. (2010). Sustaining iterative game playing processes in DGBL: The relationship between motivational processing and outcome processing. *Computer & Education*, 55(2), 789–797.
- Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. Pfeiffer.
- Karataş, Z. (2011). Investigating the effects of group practice performed using psychodrama techniques on adolescents' conflict resolution skills. *Educational Sciences: Theory & Practice*, 11(2), 609–614.
- Lan, Y. J. (2015). Contextual EFL learning in a 3D virtual environment. *Language Learning & Technology*, 19(2), 16–31.
- Lestari, T. W. (2019). Kahoot! and Quizizz: A comparative study on the implementation of e-learning application toward students' motivation. *Journal of English Language Teaching, Learning and Literature*, 2(2), 13-22.
- Li, P., Zhang, F., Tsai, E., & Puls, B. (2014). Language History Questionnaire (LHQ 2.0): A new dynamic web-based research tool. *Bilingualism: Language and Cognition*, 17, 673–680.
- Lo, C. K., & Hew, K. F. (2018). A comparison of flipped learning with gamification, traditional learning, and online independent study: The effects on students' mathematics achievement and cognitive engagement. *Interactive Learning Environments*, 28(4), 464–481. <https://doi.org/10.1080/10494820.2018.1541910>

- Munuyandi, T. A/P., Husain, S., Jabar, M. A. A., & Jusoh, Z. (2021). Effectiveness of Quizizz in interactive teaching and learning Malay grammar. *Asian Journal of University Education*, 17(3), 109-118. <https://doi.org/10.24191/ajue.v17i3.14516>
- Nolan, J., & McBride, M. (2014). Beyond gamification: Reconceptualizing game-based learning in early childhood environments. *Information, Communication & Society*, 17(5), 594–608.
- Ortiz-Rojas, M., Chiluiza, K., & Valcke, M. (2019). Gamification through leaderboards: An empirical study in engineering education. *Computer Applications in Engineering Education*. <https://doi.org/10.1002/cae.12116>
- Pitoyo, M. D., Sumardi., & Asib, A. (2020). Gamification-based assessment: The washback effect of Quizizz on students' learning in higher education. *International Journal of language Education*, 4(1), 1-10.
- Setiyani, S., Fitriyani, N., & Sagita, L. (2020). Improving student's mathematical problem solving skills through Quizizz. *Journal of Research and Advances in Mathematics Education*, 5(3), 276-288. <https://doi.org/10.23917/jramathedu.v5i3.10696>
- Yeh, Y. L., Lan, Y. J., & Lin, Y. T. R. (2018). Gender-related differences in collaborative learning in a 3D virtual reality environment by elementary school students. *Educational Technology & Society*, 21(4), 204–216.
- Yong, A., & Rudolph, J. (2022). A review of Quizizz – a gamified student response system. *Journal of Applied Learning & Teaching*, 5(1), 146-155. <https://doi.org/10.37074/jalt.2022.5.1.18>
- Yunus, C. C. A., & Hua, T. K. (2021). Exploring a gamified learning tool in the ESL classroom: The case of Quizizz. *Journal of Education and e-Learning Research*, 8(1), 103-108. <https://doi.org/10.20448/JOURNAL.509.2021.81.103.108>
- Zainuddin, Z., Shujahat, M., Haruna, H., & Chu, S. K. W. (2020). The role of gamified e-quizzes on student learning and engagement: An interactive gamification solution for a formative assessment system. *Computers & Education*, 145, 103729. <https://doi.org/10.1016/j.compedu.2019.103729>

Dr. Lih-Ching Chen Wang, a Fulbright Scholar, is tenured Full Professor of Education in the area of Educational Technology in the Department of Educational Studies, Research and Technology within the Levin College of Public Affairs and Education at Cleveland State University in Cleveland, Ohio. Her main research interests focus on technology integration in teacher education and eLearning.

Dr. Eddie T. C. Lam is a Full Professor of the Sport and Entertainment Management Program at Cleveland State University. Besides publishing over 100 refereed articles and made over 170 presentations, Dr. Lam was the Editor-in-Chief of the Measurement in Physical Education and Exercise Science journal and has served as a reviewer of more than 30 journals.

Ms. Shi Jiang is a certified PreK-12 Mandarin teacher at the University School in Cleveland, Ohio. Her interest lies in using authentic materials in task-based projects. Ms. Jiang serves as the faculty advisor for the East Asian Platform, Global Citizenship Advisory Board, and the Online Academy at the University School.

美国高中中文外语课程使用 Quizizz 对个人和小组词汇习得成效的初步调查

陳麗卿

林德正

克利夫兰州立大学, 美国

蒋诗

University School, 美国

摘要

本研究使用 Quizizz 作为学习中文词汇的练习工具, 评估美国中文外语课程高中生对游戏化个人与小组中文词汇习得的相对有效性。参与者是美国中西部郊区一所全男性私立高中五个不同等级的中文外语课程学生。他们首先体验整体大班课堂中文词汇的教学, 然后分为两组: 个人练习和小组练习。混合设计方差分析 (mixed-design ANOVA) 的结果发现, 两组(个人与小组练习)之间对于词汇习得的成效并没有显著性的差异 ($p > .05$)。然而, 学习时间和后测分数之间却存在着显著的正相关性 ($r = .668, p = .001$)。进一步的研究应包括男性和女性参与者更大的样本量, 以及使用 Quizizz 之外其他类型的游戏化学习和练习工具。

关键词

词汇习得, 游戏化, 普通话, 混合设计方差分析

陳麗卿博士 (Dr. Lih-Ching Chen Wang) 是一位终身的教育科技正教授。她也是一位富尔布赖特学者。现任教于美国俄亥俄州克利夫兰州立大学 (Cleveland State University) 莱文公共事务与教育学院 (Levin College of Public Affairs and Education) 教育研读、研究与技术学系 (Department of Educational Studies, Research and Technology)。陳博士的主要研究兴趣专注于教育科技在教师教育中的整合与应用, 以及电子在线学习等等。

林德正博士是美国克利夫兰州立大学体育及娱乐管理课程的正教授。除了发表 100 多篇审稿文章和 170 多场演讲外, 林博士还担任《体育与运动科学测量》的主编, 并担任超过 30 种期刊的审稿人。

蒋诗女士是美国俄亥俄州克利夫兰市 University School 高中部的中文老师。她热衷于在中文课堂里使用真实语料任务教学法。蒋女士还担任该校东亚团体的指导老师, 同时是该校“全球公民咨询委员会”和线上课堂项目的骨干成员。