

Facilitating Students' Learning of Lower-Level Language Strategies of Classical Chinese Using a Game-Based Flipped Learning Design

Kit Ling Lau*

The Chinese University of Hong Kong, Hong Kong

Abstract

Part 1: Overview of the Research

Due to the significant linguistic differences between modern and classical Chinese, students encounter great difficulties at lexical and syntactic level when reading classical Chinese texts. This study aimed to explore the potential benefits of using a game-based flipped learning design to facilitate students' learning of language strategies, specifically designed to address students' lower-level reading difficulties of classical Chinese. A pretest-posttest treatment-control group quasi-experimental design was employed, involving a total of 243 students from two secondary schools in Hong Kong. Students from each school were assigned to the experimental group (EG) received flipped learning instruction and the control group (CG) received traditional teacher-centered instruction. Online teaching videos focusing on lower-level language strategies were used for EG students' pre-class preparation, game-based activities were used to facilitate their strategy application in class, and an online game platform was designed for post-class practice. Reading comprehension test, questionnaires, and interviews were used to assess the effectiveness of strategy learning on enhancing students' classical Chinese reading comprehension and motivation, and gain insights into students' perceptions on the flipped learning approach. The results revealed that the EG outperformed the CG in all post-test measures after controlling for the pre-test scores. In the interviews, EG students reported that the learning of lower-level language strategies significantly improved their reading comprehension and motivation and showed positive perceptions of the game-based elements of flipped learning.

*Corresponding Author E-mail: dinkylau@cuhk.edu.hk

Part 2: How the Research Presented Represents a Motivated Transition from Prior Work in Terms Technology, Practice, Content, Theory, and/or Research Methodology

This study represents a motivated transition from prior work by expanding research on strategy instruction, flipped learning, and game-based learning into an unexplored content area. While the effectiveness of these new instructional methods has been widely supported in previous research on English learning, it remains uncertain whether they can yield similar positive effects on classical Chinese learning, which predominantly relies on teacher-centered instruction. Different from previous studies which typically directly adopted reading strategies developed from English reading, this study specifically designed the strategies based on major linguistic differences between classical and modern Chinese. Students' improvements in this study highlight the importance of tailoring strategy design to align with the specific domain knowledge. Consistent with previous studies on other languages, the study's findings support that utilizing the flipped learning approach enables students to acquire lower-level language knowledge and skills through engaging self-paced online activities outside the classroom, and allows teachers to allocate more class time for interactive and higher-order activities to facilitate students' application of the knowledge and strategies. The positive feedback from students regarding the games designed in this study further reinforces the value of incorporating game-based activities to motivate students in practicing language strategies. The successful experiences documented in this study provide valuable pedagogical insights for transitioning the instructional approach of traditional language teaching through the use of technology.

Keywords: Classical chinese, Game-based learning, Flipped learning design, Lower-level language strategies

Introduction

Classical Chinese was an official written language in ancient China. Due to the linguistic differences between modern and classical Chinese, students always encounter difficulties at lexical and syntactic level when learning classical Chinese (Chen & Chen, 2020; Dong et al., 2021; Lau, 2017). The traditional classical Chinese reading instruction is predominantly teacher-centered. Students are accustomed to relying on their teachers' instruction and lack of independent ability to learn classical Chinese (Lau, 2018; Wang, 2015).

In recent years, flipped learning (FL), a major form of blended learning that involves out-of-class online learning and face-to-face classroom learning

(Bergmann & Sams, 2012), has been advocated as an effective approach for promoting language learning (Jiang et al., 2022; Li et al., 2022). Many studies on learning English as a second/foreign language have supported the positive effects of FL on enhancing various language skills and motivation (Li et al., 2022; Shahnama et al., 2021; Zou et al., 2022).

FL has potential advantages to enhance students' learning of lower-level language strategies of classical Chinese. Teaching videos have been proved to be particularly useful for students to learn and review lower-level language skills (Kirmizi & Kömeç, 2019). Out-of-class FL activities provide more opportunities for students to practice language skills (Li et al., 2022; Turan & Akdag-Cimen, 2020). In addition, incorporating game-based learning, which is defined as a type of game playing with specific educational objectives (Hung et al., 2018), into FL activities has been found to make language learning more interesting and interactive (Lin et al., 2020).

Against this background, the study investigated the effectiveness of using a game-based FL design to facilitate students' learning of lower-level language strategies, specifically designed to address the lexical and syntactic difficulties encountered in classical Chinese reading, and students' perceptions regarding the game-based FL design. While previous research on FL has largely focused on English as a second/foreign language, this study aimed to extend research on FL to an unexplored language learning area that has long been dominated by traditional teacher-centered instruction.

Overview of the Methodology

Participants

The study adopted a quasi-experimental design using a matching method to assign the experimental and control groups. It involved 243 Grade 8 students between 12 and 14 years of age (123 boys and 120 girls) from two secondary schools in Hong Kong; one school served as the experimental group ($n = 117$) and one served as the control group ($n = 126$). Both schools admitted students with a moderate level of achievement, used the same Chinese language textbook, and had a similar number of Chinese language lessons each week.

Instructional Design

The game-based flipped learning program was integrated into two units, each lasting for two weeks. Eight types of lower-level language strategies designed based on major linguistic differences between modern and classical Chinese were taught to students using pre-class online teaching videos. In-class

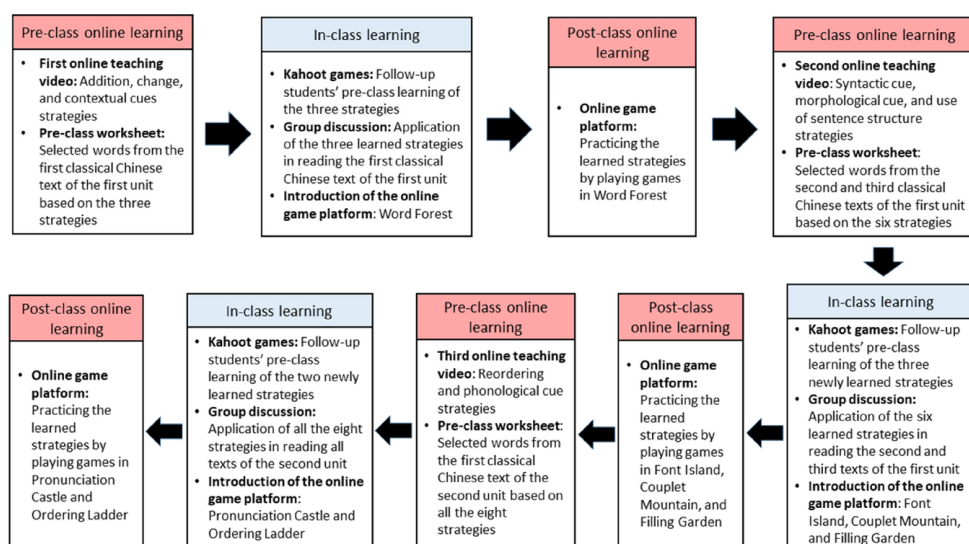


Figure 1. Instructional design of the game-based flipped learning program.

interactive games and group discussions were used to follow up on students' pre-class learning and facilitate their application of the learned strategies. An online game platform was designed for them to practice the strategies after class (see Figure 1).

Instruments

A classical Chinese reading test and a student questionnaire (Lau, 2022) were administered before and after the experiment to evaluate the effectiveness of the game-based FL instruction on enhancing students' reading performance, strategy use, and motivation. A Chinese version of the Technology Acceptance Questionnaire (Lau & Jong, 2023) was added in the post-test to measure students' perception of using FL to learn classical Chinese. Semi-structured group interviews were conducted with the representatives of the EG to collect their comments.

Representative Results

The findings of one-way ANCOVAs indicated that the EG scored significantly higher than the CG in all post-test measures after controlling their pre-test scores (see Table 1). During the interviews, all EG students agreed that learning the lower-level language strategies helped enhance their classical Chinese reading ability and self-efficacy because they were able to infer the meanings

of classical Chinese words and sentences more effectively. Some students mentioned that their intrinsic motivation was increased when they were able to understand the meaning of classical Chinese texts.

EG students showed moderate to high degrees of perceived usefulness, enjoyment, ease of use, and intentional use of FL (see Table 1). In the interviews, students mentioned that the teaching videos provided them with

Table 1. Quantitative results of the study

Variables	Group	Pre-test		Post-test		Between-subjects Effects	
		Mean	SD	Mean	SD	F Value	Partial η^2
Classical Chinese Reading Test [#]							
Whole test	EG	23.00	7.54	26.23	7.46	6.72*	.032
	CG	20.78	6.32	22.39	7.68		
Classical Chinese Learning Questionnaire [#]							
Lower-level strategy	EG	3.04	.66	3.41	.63	22.56***	.098
	CG	2.98	.69	3.04	.69		
Self-efficacy	EG	2.62	.80	2.82	.74	12.74***	.056
	CG	2.35	.81	2.40	.80		
Intrinsic motivation	EG	2.76	1.02	2.94	.98	7.98**	.036
	CG	2.44	.92	2.52	.88		
Technology Acceptance Questionnaire [#]							
Perceived usefulness	EG	/	/	3.57	.99		
Perceived ease of use	EG	/	/	3.48	.90		
Perceived enjoyment	EG	/	/	3.42	1.03		
Intentional Use	EG	/	/	3.58	.97		

Note. EG = Experimental group; CG = Control Group.

* $p < .05$; ** $p < .01$; *** $p < .001$

[#]The full mark of the reading test is 56. The two questionnaires are in a 5-point Likert scale. The technology Acceptance Questionnaire was only administered to the EG in the post-test.

concrete ways to learn the strategies, the online game platform was interesting and beneficial for practicing the strategies, in-class Kahoot games encouraged active application of the strategies, and the teachers' feedback following the games helped them clarify the meanings of challenging words. Compared with teaching videos, students had better perception on the Kahoot games and the online game platform because these game-based activities were more interesting, exciting, and interactive.

Brief Discussion

This study's findings support the effectiveness of using a game-based FL design to facilitate students' learning of lower-level language strategies of classical Chinese which enhanced their reading performance and motivation. Different from previous studies which typically directly applied reading strategies developed from English reading, the strategies adopted in this study were specifically designed based on major linguistic differences between classical and modern Chinese. The positive findings of this study highlight the importance of tailor-making language strategies based on the specific nature of the target language.

With the substantial linguistic knowledge, memorization, and practice required in classical Chinese reading, utilizing the FL approach can facilitate students' learning of lower-level language knowledge and skills through out-of-class online activities, and allows teachers to allocate more class time for engaging students in interactive and application activities (Shahnama et al., 2021; Turan & Akdag-Cimen, 2019; Zou et al., 2022). Although the FL approach differs from the students' original classical Chinese reading instruction, students' positive perception of the FL instruction indicates that they are willing to accept this new approach as it is effective and engaging. Consistent with previous studies (Daliranfirouz et al., 2024; Lin et al., 2020; Muntrikaeo & Poonpon, 2022), students in this study held more positive perception on the game-based learning activities than the teaching videos because these activities increased their interest in learning and practicing lower-level language strategies, which was previously considered boring.

In conclusion, this study extended the FL research to an unexplored language learning area and provided empirical support for utilizing FL and game-based learning as an effective alternative approach to improve students' learning of classical Chinese. Considering only a small sample size from a single grade level was involved in the study, this limits generalizability and potential bias. Future research should include rigorous controls and representative samples for validation.

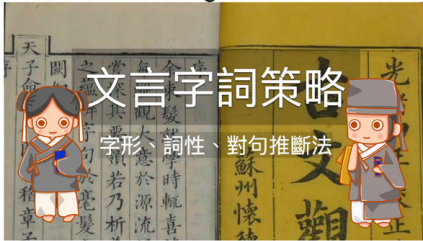
References

- Chen, H. S. (2020). The unified Chinese textbooks for junior middle school and the cultivation of reading ability of classical Chinese (in Chinese). *Curriculum, Teaching Material and Method*, 40(7), 57–62.
- Chen, M., & Chen, C. (2020). Do readers adjust their lower-and higher-level language skills according to text structures? Evidence from eye movements in Chinese text reading. *Journal of Research in Reading*, 43(2), 180–200. <https://doi.org/10.1111/1467-9817.12297>
- Daliranfirouz, E., Amiryousefi, M., Geld, R., & Ansari, D. N. (2024). Gamified-flipped English classes and L2 learners' achievement and perceptions. *Innovation in Language Learning and Teaching*, 1–15. <https://doi.org/10.1080/17501229.2024.2374356>
- Dong, Y., Chow, B. W. Y., Wu, S. X. Y., Zhou, J. D., & Zhao, Y. M. (2021). Enhancing poor readers' reading comprehension ability through word semantic knowledge training. *Reading & Writing Quarterly*, 37(4), 348–364. <https://doi.org/10.1080/10573569.2020.1820410>
- Hung, H. T., Yang, J. C., Hwang, G. J., Chu, H. C., & Wang, C. C. (2018). A scoping review of research on digital game-based language learning. *Computers & Education*, 126, 89–104. <https://doi.org/10.1016/j.compedu.2018.07.001>
- Jiang, M. Y. C., Jong, M. S. Y., Wu, N., Shen, B., Chai, C. S., Lau, W. W. F., & Huang, B. (2022). Integrating automatic speech recognition technology into vocabulary learning in a flipped English class for Chinese college students. *Frontiers in Psychology*, 13, 1–16. <https://doi.org/10.3389/fpsyg.2022.902429>
- Kirmizi, Ö., & Kömeç, F. (2019). The impact of the flipped classroom on receptive and productive vocabulary learning. *Journal of Language and Linguistic Studies*, 15(2), 437–449. <https://doi.org/10.17263/jlls.586096>
- Lau, K. L. (2017). Classical Chinese reading instruction: Current practices and their relationship with students' strategy use and reading motivation. *Teaching and Teacher Education*, 64, 175–186. <https://doi.org/10.1016/j.tate.2017.02.007>
- Lau, K. L. (2018). Language skills in classical Chinese text comprehension. *Journal of Psycholinguistic Research*, 47, 139–157. <https://doi.org/10.1007/s10936-017-9520-0>
- Lau, K. L. (2022). Exploring achievement-level differences in implementing self-regulated learning instruction in a classical Chinese reading intervention program. *Frontiers in Education, Educational Psychology Section*, 7, Article 948650. <https://doi.org/10.3389/feduc.2022.948650>

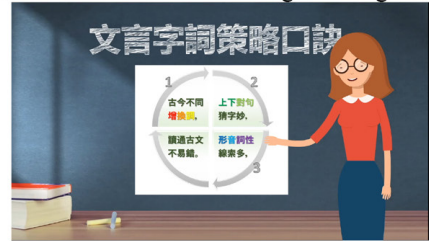
- Lau, K. L., & Jong, M. S. Y. (2023). Acceptance of and self-regulatory practices in online learning and their effects on the participation of Hong Kong secondary school students in online learning. *Education and Information Technologies*, 28, 8715–8732. <https://doi.org/10.1007/s10639-022-11546-y>
- Li, S., He, J., Tao, Y., & Liu, X. (2022). The effects of flipped classroom approach in EFL teaching: Can we strategically use the flipped method to acquire communicative competence? *Language Teaching Research*. Advance online publication. <https://doi.org/10.1177/13621688221081575>
- Lin, C. J., Hwang, G. J., Fu, Q. K., & Cao, Y. H. (2020). Facilitating EFL students' English grammar learning performance and behaviors: A contextual gaming approach. *Computers & Education*, 152, 1–20. <https://doi.org/10.1016/j.compedu.2020.103876>
- Muntrikao, K., & Poonpon, K. (2022). The effects of task-based instruction using online language games in a flipped learning environment (TGF) on English oral communication ability of Thai secondary students. *English Language Teaching*, 15(3), 9–21. <https://doi.org/10.5539/elt.v15n3p9>
- Shahnama, M., Ghonsooly, B., & Shirvan, M. E. (2021). A meta-analysis of relative effectiveness of flipped learning in English as second/foreign language research. *Educational Technology Research and Development*, 69(3), 1355–1386. <https://doi.org/10.1007/s11423-021-09996-1>
- Turan, Z., & Akdag-Cimen, B. (2020). Flipped classroom in English language teaching: a systematic review. *Computer Assisted Language Learning*, 33(5–6), 590–606. <https://doi.org/10.1080/09588221.2019.1584117>
- Xu, Z., Chen, Z., Eutsler, L., Geng, Z., & Kogut, A. (2020). A scoping review of digital game-based technology on English language learning. *Educational Technology Research and Development*, 68(3), 877–904. <https://doi.org/10.1007/s11423-019-09702-2>
- Wang, Y. (2015). Rethinking and reconstruction of the classical Chinese teaching in one century (in Chinese). *Curriculum, Teaching Material and Method*, 35(6), 50–55.
- Zou, D., Luo, S., Xie, H., & Hwang, G. J. (2020). A systematic review of research on flipped language classrooms: theoretical foundations, learning activities, tools, research topics and findings. *Computer Assisted Language Learning*. Advance online publication. <https://doi.org/10.1080/09588221.2020.1839502>

Appendix

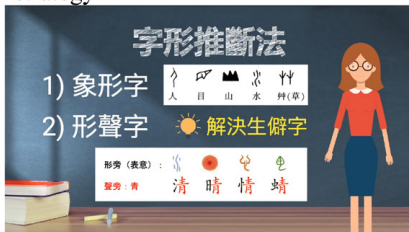
1. Titles of the strategies



2. An oral formula of the eight strategies



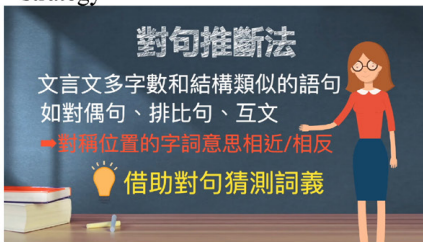
3. Explanation on how to use the first strategy



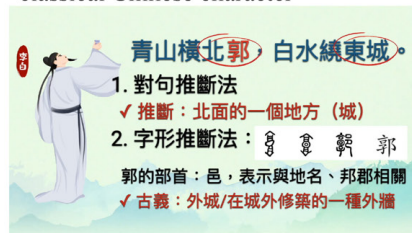
4. Examples demonstrating how to use the first strategy to infer the meaning of a classical Chinese character



5. Explanation on how to use the second strategy



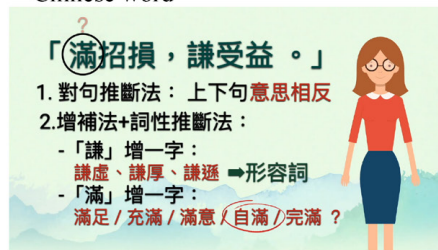
6. Examples demonstrating how to use the second strategy to infer the meaning of a classical Chinese character



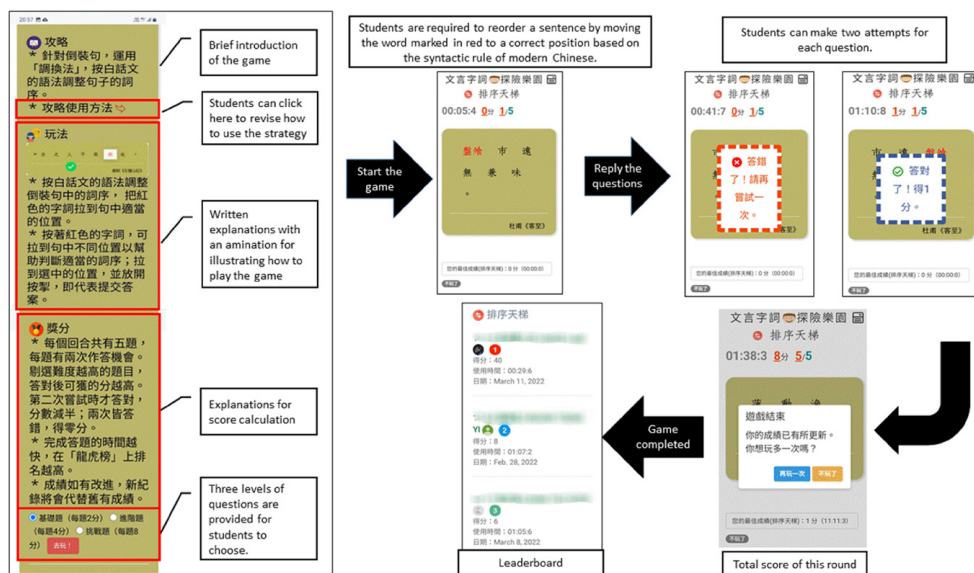
7. A quiz on combining different strategies to infer the meaning of a classical Chinese word



8. A quiz on combining different strategies to infer the meaning of a classical Chinese word



Appendix 1. Snapshot examples from one of the pre-class online teaching videos.



Appendix 2. An example of the online game platform (ordering ladder).