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Rebecca Baucum

Northwestern College - Orange City

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Rebecca Baucum

Northwestern College

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Abstract

Many high school students have difficulty retaining Chinese characters. Students are expected to memorize Chinese characters from each lesson to enhance further learning. Chinese language teachers introduce an average of 20 new vocabulary words during a given lesson. Students are expected to pronounce and know how to write these new words during the first week they are introduced and master them during the following week. A tool that may be useful to engage students at the beginning of a Chinese class is the bell ringer activity. This study seeks to determine through analysis whether the bell ringer activity may be an effective tool to engage student learning. The participants for this study are two girls and seven boys from a Chinese II class. The study will be done in a control group.

Bell Ringer Activity to Retain Chinese

Mandarin Chinese classes are increasingly offered in schools around the United States. Research indicates that the number of students learning Chinese in America has tripled between 1995 and 2005 and only continues to expand (Xu, Padilla, & Silva, 2015). More and more students are learning Chinese and becoming aware of the global impact of the Chinese language and culture. Chinese is a tonal language with different tones indicating different meaning. Many students struggle to pronounce or remember the correct tones. While struggling with pronunciation, most students will also struggle with the written characters (Jen & Xu, 2000). This written form called, Hanzi requires learners to memorize parts of a character used to form a whole word as well as the proper stroke order. Language teachers have developed many ways to help students with these two main problems. However, what methods are most effective?

Literature Review

Due to the huge number of Chinese characters, complex structures, and various strokes, Chinese character is one of the most difficult language symbols to learn, comparing with other alphabetic writing (Liu, Tang, & Cai, 2015). Liu, Tang, and Cai, (2015) emphasize the study of Chinese radicals. The radicals found in Chinese characters are a foundational part of learning how to write Chinese. Students should master the radicals since this skill will help them to form characters correctly and allow them to recognize the various parts of each character. Most radicals have their own meaning and are an important foundational part of the written language. The authors highlight two rules students should follow when learning Chinese characters. The first rule is to learn how to recognize characters before learning how to write the characters. The study of Chinese characters should begin with simple characters before moving to more complicated characters. Next, the authors emphasize that study materials should be intuitive,

interesting, and repeatable. An example of this is having students read a book about colors that is filled with colorful images related to the target characters. This approach will help students to form bridges in their understanding and relate complicated characters to intuitive images.

Students who practice this approach have been found to gain better retention.

Banka (2013) promotes the practice of waving the hand to signal tonal changes as a signaling device to students. This practice helps learners recognize the direction of the tonal change and may help to develop pronunciation quicker. The author further recommends a two-method approach to characters retention (Banka, 2013). This method includes both memorizing by means of association and recognizing similarities between the parts of individual characters. Other research recommends the use of word processing software for students learning written characters. This is in contrast to the traditional method of requiring students to hand-write characters (Jen & Xu, 2000).

Past research has given limited and somewhat elementary methods to enhance student pronunciation and written abilities. An emerging tool developed by teachers has proven to be an effective resource in enhancing both spoken and written skills among learners. The hypothesis is that the bell ringer activity is an effective tool to use in Chinese language classes to help students retain their written skill and contribute to the improvement of accurate pronunciation. This exercise is comprised of a short review activity that teachers use at the beginning of a class. The teacher displays vocabulary words, sentences, or questions for students to translate or answer either independently or in pairs. Written tasks are done individually while spoken tasks are completed in pairs. These exercises serve as warmers to stimulate students at the beginning of a class period while providing students with a review of key words or sentences. Teachers are able to recognize problems in written work and provide feedback for problems with pronunciation.

Repetition exercises may help students effectively retain the language if the new vocabulary is repeated multiple times in a short period of time. Students will treat this repetition as a rest opportunity and use the words without thinking and will develop their vocabulary naturally (Dempster, 1987). It is very important to increase time for student practice and to allow them to use newly introduced words (Shen, Cai, Xu & Zhu, 2011). The bell ringer activity may be an effective tool to use in Chinese language classes to help students retain their written skills and contribute to the improvement of accurate pronunciation. The bell ringer is a short activity for students to complete while teachers take attendance or collect homework and it is a good tool that students may use to review new words or sentences at the outset of each language class (Bell Ringer Activities, n.d.).

Method

Participants

Participants for this study are all students in tenth to eleventh grade currently enrolled in Chinese Level II at a high school located in a suburb of Des Moines, Iowa. The school has an enrollment of 496 students in Grades 9 through 12. Sixty-seven percent (332) of these students are currently studying a foreign language, but only 12% (40) of the students are studying Chinese. The students who are participating in this research include: nine students from the Chinese II class, seven boys and two girls. All of the participants are Caucasian with ages ranging between 15-17 years. All of the students have had one year of Chinese language experience in their school but none of them has had any exposure to the Chinese language or culture prior to attending high school.

Materials

The materials that will be used to monitor each student's progress in this study will be formative assessments and summative assessment. These assessments will include reading, speaking, listening, and writing in Chinese. The listening and speaking will be assessed together, and the reading and writing will be assessed together. The researcher will give a formative assessment every two days to evaluate each student's ability to retain new vocabulary words and characters. In addition, the student's progress was measured by a quiz from the Chinese textbook. Students took a quiz after completing each unit, which occurred every two to three weeks.

The data collected from students was compiled into an online grade book called Infinite Campus. The researcher considered data collected from the results of a unit of instruction in which the bell ringer activity was used. This data will be contrasted with the results of data from another unit in which the bell ringer activity was not used. The data from both units was analyzed to measure the success of the bell ringer activity.

Procedure

The research began in January of 2018. The study was conducted during a six-week period. This study will be conducted in a controlled group. The research will compare two units over the course of six weeks. A bell ringer activity will be implemented during the first three weeks of the first unit. The following three weeks will cover a second unit in which no bell ringer activity is implemented.

The bell ringer activity is comprised of three sections. The first involves the researcher displaying some newly introduced vocabulary words for students to write down in order to gain familiarity with both the English and Chinese meaning. During the next section the researcher

will use the new vocabulary words to form sentences. Students will learn the construction order by forming sentences with the vocabulary. The final section involves the researcher creating questions for the participants to translate or answer either independently or in pairs. Written tasks are done individually while spoken tasks are completed in pairs. These exercises serve as a review to stimulate students at the beginning of a class period while providing students with a review of key words or sentences. By following this pattern, the researcher will be able to recognize problems in written work and provide verbal feedback for any pronunciation problems.

During week three, a unit test (summative test) will be given to students. Students will study the second unit without the bell ringer activity. The researcher will also use formative assessment to evaluate student's speaking, reading and writing. A unit test will be given to students during week six. The grades from both unit assessments will be recorded into Infinite Campus. The results will be analyzed by the researcher and followed by comparison of the results in a graph form. The results of the data will be analyzed and suggestions for further improvement will be made.

Data Collection

Quantitative data analysis techniques were selected as the method used to analyze data. Quantitative data analysis allows for a direct and simplified method of viewing the results of data collected and allows researchers to chart student development through visual graphs. This data technique uses descriptive statistics to help make sense of findings and provides a shorthand way of giving lots of information about a range of numbers using only one or two numbers (Mills, 2014). Quantitative data collection is an effective way to help teachers to manage student learning in growing classrooms. Mills (2014) again writes that descriptive statistics can be used

to make sense out of quantitative data. Understanding student's progress through a collection of quantitative data will help to guide the focus of instruction and allow teachers to adapt as necessary. Choy, (2014) points out that quantitative data may be administered and evaluated quickly as well as tabulated quickly. Having the ability to quickly interpret data makes quantitative data collection appealing during action research. In order to enhance the usefulness of the data collected through quantitative data collection, figures must be placed in context and interpreted correctly.

Method of Data Collection

The infinite campus grade book was used to analyze data collected. Data was collected from homework, chapter tests and formative assessments as well as from student feedback both formally and informally. A formative assessment was given to students every other day. An online learning tool called Quizlet was used to assess targeted vocabulary for each student. Students were required to study new vocabulary, and then take an online-based test created by the teacher. The teacher collected grades from each student after the test. Polleverywhere was also used to evaluate student reading and writing progress using a formative assessment. The teacher had some sentence questions projected on the board. Students used the link that was provided by the teacher to sign in to answer the questions. Questions such as:

1. 你喜欢什么颜色? (What color do you like?)
2. 你想去哪儿旅游? (Where would you like to travel to?)
3. 你喜欢吃西餐还是中餐? (Do you like western food or Chinese food?)

The teacher checked each student's answers later and collected data to put into Infinite Campus.

Another website called Vocaroo was used to evaluate student listening and speaking. First, the teacher introduced a scenario to the class, and then paired up students to create their

own conversation based on the scenario. Each pair of students were required to record their dialogue on Vocaroo, and then email it to the teacher. A unit quiz was given as a summative assessment to assess student reading and writing at the end of the unit. The entire data collection process took place over a six weeks span from January to February 2018.

Findings

Data Analysis

This research goal was to find out if the bell ringer activity would help our Chinese language learners retain the language. The teacher taught unit 5.3 without using the bell ringer activity during the first three weeks. During the following three weeks the bell ringer activity was used for unit 5.4. The results from a comparison of the data showed that the bell ringer activity worked very well for six out of nine students evaluated. Six of the students evaluated showed improvement in their scores when using the bell ringer activity. The remaining three students did not score either higher or lower on the tests. Students were tested on reading, writing, listening and speaking skills.

Table 1

Reading and Writing Quiz

Student	5.3 Quiz	5.4 Quiz	Point Gain	Increase From 5.3 quiz to 5.4 quiz
Student 1	95	100	5	5%
Student 2	100	100	0	0%
Student 3	87	87	0	0%
Student 4	87	100	13	15%
Student 5	27	50	23	85%

Student 6	92	92	0	0%
Student 7	90	94	4	4%
Student 8	60	63	3	5%
Student 9	94	100	6	6%

Three students tested showed no increase or decrease in reading and writing scores after the bell ringer activity. These students normally study after class and take time to complete their homework assignments. The bell ringer activity did not benefit or hurt their performance.

The highest percent increase in reading and writing was 85%. This significant increase came from one student. The student who achieved this dramatic rise in performance was one who has a track record of not doing homework or putting forth effort in homework assignments after class. The daily bell ringer activity helped this student review new vocabulary and grammar points at the beginning of class before addressing new content. The bell ringer activity's dramatic results for this student illustrate the potential benefits of the activity for students with low motivation or engagement in course work after class. This research has developed the possibility that the bell ringer activity may have a significant benefit to low performing students who are not engaged in homework or study of course content outside of class. Although only one student showed such a dramatic benefit from the bell ringer activity, this study reveals the need for further research targeting low performing students.

The unit quiz results reveal the greatest percentage increase on the reading and writing quiz of 85%, while the lowest was 0%.

Table 2

Listening & Speaking Quiz

Student	Unit 5.3	Unit 5.4	Point Gain	Increase From 5.3 quiz to 5.4 quiz
Student 1	15	15	0	0%
Student 2	15	15	0	0%
Student 3	14.5	15	0.5	3%
Student 4	14.5	15	0.5	3%
Student 5	10	15	5	50%
Student 6	14.5	15	0.5	3%
Student 7	15	15	0	0%
Student 8	13	15	2	15%
Student 9	14.5	15	0.5	3%

Three students tested showed no increase or decrease in listening and speaking scores after the bell ringer activity. These students normally study after class and take time to complete their homework assignments. The bell ringer activity did not benefit or hurt their performance.

The highest percent increase in speaking and listening was 50%. This significant increase came from a single student. The student who achieved this dramatic rise in performance was one who has a track record of not doing homework or putting forth effort after class. The daily bell ringer activity helped this student review new vocabulary and grammar points at the beginning of class before addressing new content. The bell ringer activity's dramatic results for this student illustrate the potential benefits of the activity for students with low motivation or engagement in course work after class. This research has developed the possibility that the bell ringer activity

may have a significant benefit to low performing students who are not engaged in homework or study of course content outside of class. Although only one student showed such a dramatic benefit from the bell ringer activity, this study reveals the need for further research targeting low performing students.

The unit quiz results reveal the greatest percentage increase on the listening and speaking quiz revealed the highest score of 50% with the lowest score being reported as 0%.

Discussion

Summary of Major Findings

The data reports that the majority of students benefitted from the bell ringer activity. The data confirms that the students who did not have an increase in quiz scores also did not have a decrease in quiz scores. The results conclude that the bell ringer activity did not negatively affect students most students, however one student was significantly helped by the activity. The significant benefits to one student demonstrate the potential benefit of the bell ringer activity for students with low motivation. Students with moderate to high motivation for learning did not show a significant benefit from the use of the bell ringer activity. The bell ringer activity may be a helpful tool that teachers may use to assist students who struggle to complete homework outside of class.

The data collected reveals an 8.5% increase overall among all students evaluated in listening and speaking while the reading and writing evaluation revealed a 13% increase in student scores overall. The benefits demonstrated by students in reading and writing are far greater than the benefits in listening and speaking. These results should not be surprising however, since the bell ringer activity is a written exercise that primarily engages students in a reading and writing focus. The nature of learning Chinese characters requires a great deal of

wrote memory from learners and the effective results from the bell ringer activity highlights the importance of repetitive review of targeted vocabulary.

The teacher conducted interview surveys with students after the research ended. The question the teacher asked each student was, “Do you think that the bell ringer activity helped you to retain your Chinese?” Five students answered yes, and three students gave a neutral answer. One student highly recommended the use of the bell ringer activity in their Chinese class. The student who showed the most significant percent increase from the use of the bell ringer activity responded to this question positively.

Limitations of Study

Student tardiness and absence were major limitations during this study. There was one student that missed almost a week of class, and some students missed one or two days. Some students would be late to class on a repetitive basis. Student participation was another limitation during this study. At times some students disregarded the assigned activity or ignored instructions. Student behavioral challenges presented a unique obstacle during the study. A final limitation of this study is the small pool of participants. The number of students in the classes targeted by this study is limited by enrollment factors. The data collected during this study is not a conclusive benchmark for decision making regarding the effectiveness of the bell ringer activity. The data collected simply forms the groundwork for further testing and evaluation.

Further Study

The bell ringer activity helped most students to score higher on evaluations. Quiz scores are one method of evaluation but must be coupled with other evaluations in order to gain a clear and conclusive result of student effectiveness. This evaluation is not meant to be a conclusive measure, rather it effectively highlights the effectiveness of the bell ringer activity on a limited

scale. Further evaluation should be conducted using other evaluative measures in order to gain more substantial data. For now, this limited evaluation provides enough data to motivate further testing in order to gain a fuller data construct as to the effectiveness of the bell ringer activity. Further testing should include a larger audience in order to provide a more substantial analysis.

Conclusion

The results of this study have demonstrated that the bell ringer activity has shown to be an effective tool to aid Chinese teachers in developing student retention of character formation and memorization. While the data is not conclusive, it does demonstrate positive results among students that were evaluated. More research should be done to expand these preliminary results. This study focused on the bell ringer activity, but the results of the study should motivate future research that evaluates other activities that engage students in substantive interaction with focused language skills. The bell ringer activity is one among many activities that teachers may use to engage students in the target language and promote cognitive development of key language features. The successful acquisition of Chinese characters by Chinese language learners has driven this study and will continue to motivate future research.

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Appendix A

5.3 Quiz

1. Choose the correct word to fill in the blank.

卡通 下饺子 就 一会儿 晚饭 应该 考试 回来 怎么 父母 饺子 冰
--

Parent _____ cartoon _____ cook dumplings _____

How come _____ ice _____ dumpling _____ then _____

a little while _____ diner _____ should _____

test _____ return _____

2. Use the words to rewrite the sentences.

可以 _____ 了...就... 多...少... 一边...一边

A. 她回家做作业。

B. 你应该运动，玩电脑游戏。

C. 他们看电视看一个小时。

D. 我上中文课上数学课。

E. 她做作业听音乐。

3. Put the following scrambled sentences into the correct order, based on the English clues.

A. 我 中餐 吃 想

(I'd like to eat Chinese food.)

B. 喜欢 听 看书 音乐 她 一边 一边

(She likes to listen to music while reading)

C. 他 卡通 回 看了 家 就

(He watches cartoon as soon as he comes home.)

D. 大卫 明天 考试 不知道 有 汉语

(David doesn't know there is a Chinese test tomorrow.)

E. 我 让 玩 父母 三 小时 个

(My parents let me play for three hours.)

4. Read the following questions and chose the most appropriate response.

A. 你父母让你玩电脑游戏吗？

- a. 对不起。
- b. 我带我的书包。
- c. 他们让我玩一个小时。

B. 我们明天有什么考试？

- a. 数学考试。
- b. 中文课。
- c. 玩一个小时。

C. 你上了物理课就上什么课？

- a. 数学考试。
- b. 中文课。
- c. 太好了。

D. 晚上你想吃什么？

- a. 我喜欢一边吃饭一边看电视。
- b. 我吃了饭就去。
- c. 我们有饺子吗？

E. 你怎么不做作业？

- a. 我知道了。
- b. 我吃了饭就做。
- c. 我上中文课

Appendix B

5.4 Quiz

3. Choose the correct word to fill in the blank.

旅行	风景	古典音乐	饿	流行音乐
照片	厕所	西餐	中餐	停

- a. 他们一家这个周末要去南京_____ (travel) 。
- b. 爸爸开车的时候, 妈妈照_____ (pictures) 。
- c. 北京的_____ (scenery) 很美。
- d. _____ (classical music) 和_____ (popular music) 他们都喜欢听。
- e. 我想去_____ (bathroom), 你可以_____ (stop) 一下吗?
- f. 我_____ (hungry) 了, 我们去吃_____ (Chinese food) 还是_____ (Western food) 呢?

4. Translate the following sentences into English.

- A. 我们坐车的时候可以看书。
- B. 你喜欢听古典音乐还是流行音乐?
- C. 我很饿, 我们去吃午饭吧。
- D. 你可以在那儿停一停吗?
- E. 我可以等十分钟。

3. Put the following scrambled sentences into the correct order, based on the English clues.

F. 他 吃 汉堡包 一点儿 和 晚上 色拉 了 一个

(He had a hamburger and a little salad at night.)

G. 说 必须 我 妈妈 吃 多 水果 我 蔬菜 和

(My mom said I must eat more vegetable and fruit)

H. 电脑 你 我 跟 一样 的 的

(My computer is the same as yours.)

I. 差不多 苹果 贵 草莓 一样 和

(Apple and strawberry are about the same in price.)

J. 好吃 水果 巧克力 比 冰淇淋 冰淇淋

(Fruit ice cream is tastier than chocolate ice cream.)

5. Translate the following sentences into Chinese.

F. Do you like to eat salad?

G. Can we buy a piece of chocolate?

H. Don't you eat sandwiches?

I. We had a little ice cream and fruit.

J. The fruit salad is as expensive as the vegetable salad.

Appendix C

