Online Comic in Mandarin Chinese's Vocabulary Learning: A Case Study of Budi Utama Multilingual School in Yogyakarta, Indonesia

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Abstract

This study was aimed to investigate 1) the improvement of CFL elementary-school students' skill in learning Mandarin Chinese (hereafter referred to as Mandarin) vocabulary through creating comic without online resources, creating online comics individually and collaboratively, 2) the CFL elementary-school students' attitude towards the application of comics in learning Mandarin vocabulary, and 3) the CFL elementary-school students' attitude towards the application of collaborative activities in learning Mandarin vocabulary. The research design was based on a quasi-experiment using both qualitative and quantitative approaches. Three classes participated in this study: one class was the control group using text-based instruction without online resources; the other two classes were the experimental groups 1 and 2. In the experimental group 1, students worked individually on online comic whereas in the experimental group 2, students worked collaboratively on online comic. All participants were Grade 5 students of Budi Utama Multilingual School in Yogyakarta, Indonesia. The collected and analyzed data included performances on Mandarin vocabulary, in-class observation, questionnaires, and interview. In Mandarin vocabulary performances, the experimental group 2 outperformed the other two groups and the experimental group 1 performed better than the control group. In the students' attitude, the experimental group 2 behaved more positively than the two other groups, and the control group behaved more positively than the experimental group 1.

Keywords: Online comic; Mandarin; collaborative learning; computer supported collaborative learning (CSCL); technology enhanced language learning (TELL).

Introduction

At the present, Mandarin is an increasingly popular language to learn around the world and it has the largest number of people who speak it as their first language. Saville-troike (2006) noted that the four most commonly used languages in the world are Chinese, English, Spanish, and Hindi. In Indonesia, there were more than 620 Mandarin schools between 1965 and 1966. Due to the political problems, most of those schools were forced to close in 1967 (Wen, 1997, p.1). After reformation began in 1998 under President Abdurrahman Wahid, a new policy was implemented that would improve the status of Chinese-Indonesians by allowing them to acquire Chinese names and learn/speak Mandarin.

In early 2000, a number of private multilingual schools were established in Indonesia. Budi Utama is one of these multilingual schools where three languages (Indonesian, English, and Mandarin) are used daily as the languages of instruction. Established in 2007, this is the only multi-language school in Yogyakarta, Indonesia. Mandarin is taught in Budi Utama Multilingual School from kindergarten to secondary school. Presently, grade 7 is the highest level in that school. The school uses a Chinese Language textbook (小学华文) from Singapore for teaching primary school students. The students from Grade 5 who participate in this research have high competence in both pronunciation and speaking. According to the interview with one of the local teachers, some of the students have already achieved level 3 on the Youth Chinese Test (YCT). The school supports the students to take this Chinese proficiency test which is an internationally standardized test launched by Hanban in Mainland China. YCT is directed at examining non-native primary and secondary school students' capability in applying Chinese language in their studies, personal lives, and work. This would mean that the students already have acquired more than 300 words and characters in their vocabulary (Hanban, 2010). Yet, they still have some difficulties in dictation and writing Chinese characters, particularly because these students have been accustomed to writing in pinyin. These students may attempt to apply techniques used when they were brought up learning the Indonesian language, which is written using the Latin alphabet. Therefore, students find it difficult to write Chinese characters (Cook, 2003; Larsen-Freeman & Long, 1991; Jiang, 2008). The use of technology to enhance language learning, especially in writing Chinese characters (Zhao, 2003) can potentially improve their ability.

Based on the preliminary survey, Grade 5 students at that school stated that they have a PC computer at home, a laptop, tablet, and/or smart phone. The school also provides a computer class of two periods a week (total 80 minutes). However, the technology has not been integrated in supporting their Mandarin language learning. Therefore, many students rely on Google translate to help them complete their homework assignments.

According to New Media Consortium (NMC) Horizon Report (2012), the workplace is increasingly collaborative, which subsequently leads to changes in the way student projects are structured. Moreover, the abundance of resources and relationships made easily accessible via internet is increasingly challenging us to constantly refocus on our roles as educators. Therefore, the education paradigms are shifting to include online learning and collaborative models. As a result of these conditions above, there consequently will be a new emphasis on more challenge-based and active learning in classrooms. In regards to comics as a learning activity, a research work done by Clark (2000) shows that comics have positive effects on students. Comics engage our attention and serves as entertainment; moreover, it presents information in a non-threatening manner. Doring (2002) adds that comics can also be used as stimuli to encourage thinking and discussion skills. Other research by Rule and Auge (2005) shows that students who learn using comics achieve higher test scores and can provide examples of why they enjoy learning in this manner. By using comics, the students engage themselves in self-motivated practice.

Mandarin Teaching in Indonesia

According to the Ministry of National Education of Indonesia, Curriculum of 2013 has been applied throughout the levels of education in Indonesia. Mandarin has the similar status as those of local languages and/or foreign languages; therefore, it is integrated into the local content of the subjects of Culture and Art Crafts (Group B) provided in Table 2-1 (KPK, 2013, p.3). Schools are allowed to teach Mandarin for Grade 5 students up to 5 periods in a week. Each period lasts for roughly 35 minutes. The integrative thematic learning is implemented in this 2013 curriculum.

Table 1. Curriculum 2013 for Elementary School (KPK, 2013, p.3)

Subjects	Time Duration of Learning in a Week					
	I	II	III	IV	V	VI
Group A						
Religion and Moral Education	4	4	4	4	4	4
Pancasila and Citizenship Education	5	5	6	4	4	4
Indonesian Language	8	9	10	7	7	7
Mathematics	5	6	6	6	6	6
Natural Sciences	-	-	-	3	3	3
Social Sciences	-	-	-	3	3	3
Group B						
Culture and Arts Crafts	4	4	4	5	5	5
Sports Science	4	4	4	4	4	4
Total	30	32	34	36	36	36

However, the school forms the learning unit, meaning it has the right to develop its own curriculum based on the needs of the students. It precisely means that the school may reduce or add the period's number and/or the time duration of subjects belonging to Group B in Table 1.

Budi Utama School develops its curriculum and gives 7 periods of Mandarin for 5th grade students. Each period consists of 40 minutes. There are 3 Mandarin teachers, two of them being native Mandarin -speaking teachers and only one of them being a local Mandarin teacher. The component of material and/or language skills is listed in Table 2.

Table 2. Mandarin Teaching Composition for 5 Grade Students

Language Skills/ Contents	Periods per Week	Teacher
Mandarin Speaking	3	Native
Chinese Culture	2	Native
Mandarin Reading and Writing	2	Local

People in Yogyakarta are either bilingual or multilingual (Margana, 2009). Somehow, Mandarin is a foreign language to most Indonesians, as it plays no major role in the community and it is primarily learnt only in the classroom. The students are getting language exposure only during the school period. During the class break, the students soon switch into Javanese or Indonesian language in oral communication with other students. Therefore, there is a lack of writing activity using Chinese characters.

Despite this, Budi Utama is flexibly allowed to modify the periods of teaching the subject in Group B in Table1; however, the language skills listed in Table 2 does not reflect the needs of the students. Students encounter more language differences in writing skills rather than other language skills (Sutami, 2008). Furthermore, since students in Budi Utama are used to using *Hanyu Pinyin*, the experiment would consist of both Chinese characters and *Hanyu Pinyin*. This is also stated by Saville-troike (2006) about the learner characteristic and circumstances.

Collaborative Learning

Collaborative learning has been found to benefit students in various disciplines as it contributes to student learning. Liao (2014) states that the contribution can be divided into two aspects: academic and social. In regards to the academic aspect, studies find that collaborative learning benefits students in academic achievement, as well as positive attitudes toward the subject matter, commitment to learning, critical thinking, and problem solving skills (Liao, 2006; Wong & Abbruzzese, 2011; Huynh, Jacho-Chaves, & Self, 2010; McDuff, 2012; Xie, 2011). In terms of the social aspect, researchers find that collaborative learning sharpens and strengthens students' overall communication skills, such as team working skills, emotional skills, and conflict resolution skills (Jarvenoja & Jarvela, 2009; Prichard, Stratford, & Bizo, 2006; Yates, 2006). Other advantages are also shown by Liao's (2014) research towards high school collaborative learning students in public speaking. The students managed to increase speech efficacy and decrease their speech anxiety.

Another set of researchers find that collaborative learning that includes groups working together and peer assistance have been widely used in reading programs to create the necessary intensity and strong support for learning (Lan, Sung, & Chang, 2007). Collaborative learning (or peer-assisted learning) can improve their reading outcomes (Ranker, 2007; Cary, 2004; Liu, 2004). Collaborative learning does not only promote the development of positive attitudes towards other group members and learning material, but also builds social relationships and group cohesion (Kreijns, 2004). CSCL is synchronous cooperation/collaboration through shared workspaces (Baker & Lund, 1996). However, most of the empirical studies using innovative CSCL-specific tools (beyond windows sharing as part of video conferencing periods, etc.) were usually based on selective experiments that were often conducted in a laboratory (Fischer & Mandl, 2001).

Online Comics

Persha and Nawvi (2004) state that vision is the primary sensory system for most people. Vision plays an important role in all areas of development, especially the cognitive area, where intellectual function is the product of this early sensory input through the eyes. Furthermore, the simplified visual representation and the recurrent plot typical of comics help to elicit children's interest in them (Jylhä-Laide, 1994). Students have assessed comics positively as they make the course more entertaining and make learning easier. They can reduce repetition and allow teachers to run classes without the need of textbooks. They also make remembering words easy and promote creative skills and motivate students to learn. In addition, Liu (2004) states that because comics are highly visual texts, they have been shown to be especially effective for increasing reading comprehension for second and/or additional language learners. Figure 1 presents an example of an online comic.
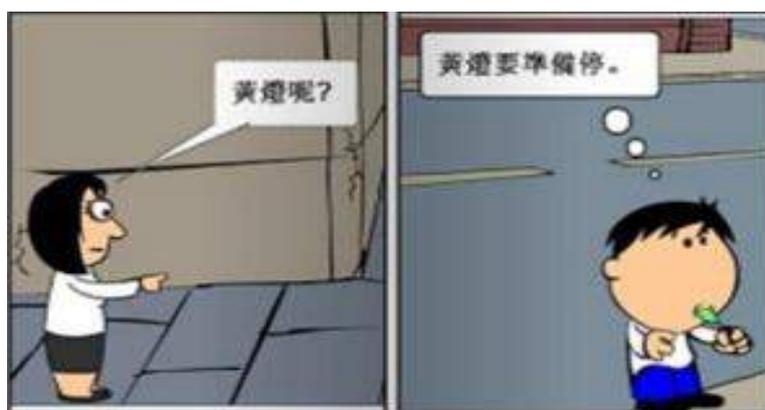
Figure 1. Example of an Online Comics

Previous comics' research conducted by France (2010) based on the different foreign language learning style provides learners with a prototype. An experiment toward high school students shows that the approach attracts the students to learn foreign languages. The findings shows that besides the positive side, however, the online comics have some limiting aspects such as limited collection, that users cannot easily identify the best characters, the different poses, or different moods to represent their ideas.

Based on the explanation above and the literature reviews the potential of online comics in collaborative learning in improving vocabulary learning will be confirmed by answering and the following questions:

1. What are the different improvements of CFL elementary-school students' Mandarin vocabulary among the three comics creation approaches (paper-based learning, individually online comics, and collaborative learning online comics)?

2. What are the different attitudes among CFL elementary-school students towards application of three comic creation approaches (paper-based learning, individually online comics, and collaborative learning online comics) in learning Mandarin vocabulary?

3. What are the different attitudes of CFL elementary-school students towards the online comics application between individual and collaborative creation in learning Mandarin vocabulary?

Online Comic in Mandarin Vocabulary Learning

Participants

Students of Grade 5 from Budi Utama Multilingual School were the participants of the research. There were three classes participating in this study: students in the control group were taught under a text-based instruction and created comics individually without online resources; those in the experimental group 1 created online comics individually; and those in the experimental group 2 created online comics collaboratively.

Table 3. Students' Profile

Items	Criterion	Control Group (N=16)	Individual Comics (N=14)	Collaborative Learning (N=16)
Gender	M	5	7	6
	F	11	7	10
Age	(in average)	10.07 yrs.	9,79 yrs.	10,1 yrs.
Have computer, tablet, or smart phone	Yes	16	12	16
	No	0	2	0
Experience in using computer, tablet or smart phone in learning Mandarin	Yes	1	6	7
	No	15	8	9

Research Design

The research design was based on the quasi-experiment design. Qualitative and quantitative approaches have been used to collect and analyze data.

Instruments

Vocabulary Performance Test

A vocabulary performance test consists of both a pretest and posttest. This parallel test between pre and posttest was developed based on the Student Book and Student Activity Book. It was also combined with the Standard test YCT and TOCFL beginner level.

Comic Lesson Plan

The lesson plan was arranged based on the school curriculum for grade 5 students (日惹崇德三語國民學校 課程活動安排表) and Mandarin writing activity for lesson 1 (學習寫字:完成活動本 1 頁到 2 頁寫字練習一課時).

Table 4. Comic Lesson Plan

Task Topic	Grammar Point	Pre-Activity	Students' Main Task
去野餐	回答這些 疑問詞；什麼時候去?， 去哪裡野餐?，怎麼去?，跟誰去?，帶了什麼東西?，看什麼?，幾點回家?	**Control group:** teacher distributes paper, and asks the students to create comics; they can create a story by answering the questions that have been prepared by the teacher; teacher uses PPT to expose some pictures that would stimulate students in creating the story. Example: 1) The teacher asks the students about the weather of that day,"今天天氣怎麼樣?or 今天天氣好不好? This question tends to stimulate students in creating a story. 2) 去哪裡野餐?	Student manually create comics 1) Students may answer,"今天天氣很好" or ,"今天天氣好" 2) Students can answer "去山下野餐", "去海邊野餐"or "去公園野餐"
		Experiment Group 1: the students need to move to the computer lab; students operate the computer in the laboratory and go to www.toondoo.com to create comics individually using online resources; teacher also uses PPT to expose some pictures that would stimulate students in creating the story	The students create comics individually online on www.toondoo.com Students answer the questions by choosing character, background, and accessories provided in www.toondoo.com
		Experiment Group 2: the students work in small groups; the teacher gives an animal name to the groups such as 青蛙，貓，蛇子，狗，兔子和老虎; the student also needs to move to the computer laboratory, 1 set computer for 1 group; the teacher also uses PPT to expose some pictures that would stimulate students in creating the story	The students work in groups to create the story. In the group, students will communicate each other before deciding the story. Students also negotiate prior to making group decision.
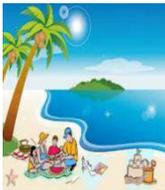
Toondoo Online Comics

Toondoo (www.toondoo.com) is a free comic website which will be used as a media source in the learning of Mandarin during the course of this research. The website says, "Toondoo is a cool, comic-creating tool from Jambay, a fun site for kids. Jambay is devoted to creating a unique array of free and customizable online games of educational value for children of all abilities."

In-Class Observation List

The observation list was revised from the previous research proposed by Lan, Sung, and Chang (2007). The list consists of three learning-related behaviors and learning-unrelated behaviors.

Questionnaire about Students' Attitude towards Applying Comic in

Learning Mandarin

The questionnaire is based on Lund (2001) Measuring Usability with the USE. Initially, the questionnaire was adapted from a document that consists of three dimensions: usefulness, satisfaction, and easiness.

Interview List

There are 6 questions about the application of online comic and collaborative learning.

PC Computers

There were 18 sets of computers in the computer lab which were connected to the internet. On the keyboard, the Simplified Chinese Language feature has been added to the language choice.

Procedure

To obtain both qualitative and quantitative data, the mixed method has been applied in this research. Figure2 shows the cycles about this mixed method in collecting data.
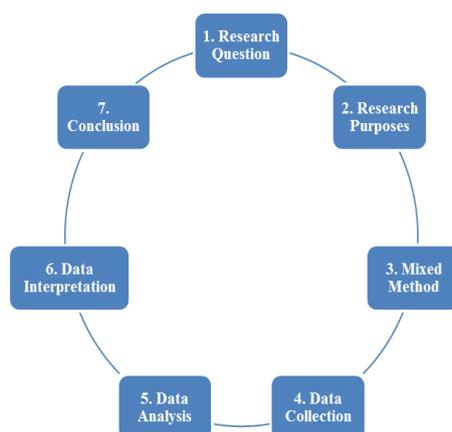
Figure 2. Mixed Research Model

Data Collection

The quantitative data was collected from scores of students' pre and posttest vocabulary performance.

The qualitative data will consist of 1) students comic creation of two teaching units, 2) a video recording to document in-class activity, 3) an in-class observation in an observation checklist, 4) questionnaire, and 5) interview.

Data Analysis

The quantitative data were students' scores from pretest and posttest on Mandarin vocabulary performance. A two-way analysis of covariance was conducted, while the covariate is the students' summative score in the previous semester. The score of comics creation will be analyzed using a one-way Anova. Qualitative data consists of an in-class observation about students' behaviors. Data were collected from the video recording, and then rated by two raters, which is noted on the in-class observation list; later, the data was analyzed by using Chi-Square analysis to investigate the comparison between three nonparametric data. Descriptive statistics were conducted to analyze the qualitative data.

Results

Pretest and Posttest of Vocabulary Performance

Table 4 lists the descriptive statistics results of both pre and posttest. Regarding the scores of pretest and posttest, the homogeneity test was significant ($F(4.790)=.001$, $p<.05$).

Table 5. The Mean and Standard Deviation (SD) of Pretest and Posttest's Score

Test	Control Group (N=16)		Individual Comics (N=14)		Collaborative Learning (N=16)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Pretest	60.68	17.12	60.00	12.61	60.25	13.65
Posttest	63.43	19.57	62.21	15.64	68.18	11.37

Table 5 presents a summary of the two-way analysis of covariance on students' scores in pre and posttest of vocabulary performance, with the score of previous semester as the covariates. The table shows that the interaction effect between test and group is not significant. This means that there are no differences varied according to levels. The group factor is not significant ($F(0.88)=0.41$, $p>.05$). This means that no difference exists between the scores between pretest and posttest in the three groups. The test factor is significant ($F(9.67)=0.007$, $p<.05$), meaning that the grouping of control group, individual comics, and collaborative learning gives significantly different scores between pre and posttest.

Test within group (1) or control group is not significant ($F(0.85)=0.359$, $p>.05$); neither is the test within group (2) or individual comics group ($F(0.48)=0.489$, $p>.05$). This means that both groups still made some improvements due to the training, yet does not vary. While the test within group (3) or the collaborative learning group is significant ($F(7.10)=.009$, $p<.05$), meaning that the experiment significantly benefited students' vocabulary performance in the collaborative learning group.

Table 6. Two-Way Analysis of Covariance of Vocabulary Performance

Source of Variation	Type III sum of squares	df	Mean square	F	Sig.
Within Cells	6037.84	85	71.03		
Test by Group	135.98	2	67.99	.91	.409
Group	131.97	2	65.99	.88	.419
Group within Test (1)	2.69	2	1.35	.02	.981
Group within Test (2)	304.42	2	152.21	2.14	.124
Test	458.11	1	458.11	9.67	.007**
Test within Group(1)	60.50	1	60.50	.85	.359
Test within Group(2)	34.32	1	34.32	.48	.489
Test within Group(3)	504.03	1	504.03	7.10	.009**
Error	710.79	15	47.39		

*Note *p<.05 **p<.01 ***p<.001`*

Comic Creation

This section provides the comics creation done by control group, individual comics, and collaborative learning. First, each comics creation will be scored based on a writing rubric (Jacobs et al., 1981); then, after being scored by two teachers, the final comics score stood as the dependent variable in a one-way analysis of variance.

Comic creations done by the control group, the individual group, and the collaborative learning group are then being commented by the teachers and also scored based writing rubric. Figures 3 to 5 show some examples of students' comic creation and the teacher's comment based on the writing rubric.
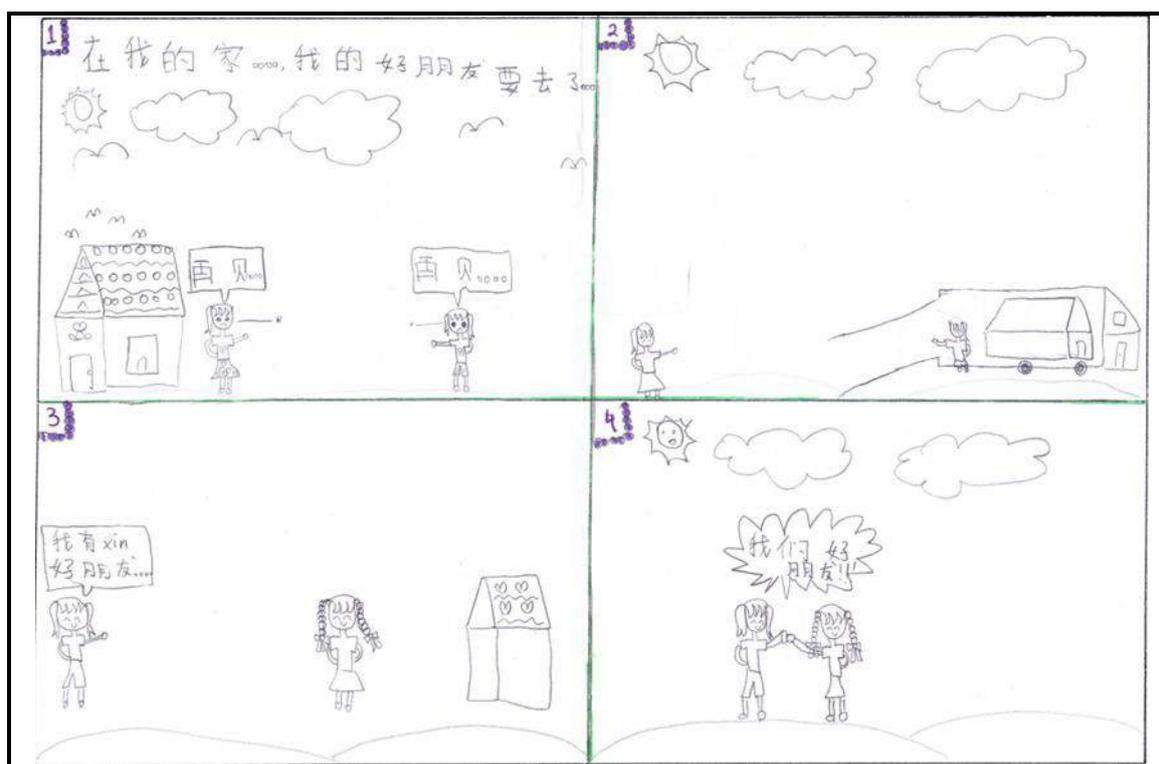
Writing Rubrics	
Content/ Idea Development	The plot of the unclear scene is delivered. The female student wanted to tell that after her friend left. She met a new friend. They became close friends. They used 我的 xin* instead of 新.
Organization	Opening, development, and closing is developed, although was so limited.
Vocabulary/ Word Choice	There was no feeling of expression (難過，開心)
Language Use/ Grammar	搬到……*
Mechanics	All sentences were written using Chinese characters (except for the word xin*)

Figure 3. Example of Control Group's Comic Creation

Writing Rubrics	
Content/ Idea Development	The student is a female student. The idea is not about 搬家, but rather 旅行. 新家破* should be 新加坡.
Organization	There is no completed story.
Vocabulary/ Word Choice	The student mixed 要 and 有; mentioned 新加坡, 真的啊, but no other vocabulary words.
Language Use/ Grammar	我也有去* should be 我也要去.
Mechanics	There is no development in the story. It is also impossible for people to say goodbye when too close to the aircraft.

Figure 4. Example of Individual Comics' Creation

Writing Rubrics	
Content/ Idea Development	The main character is chosen by a male student Story can be developed a bit longer Some exclamation word was not written in Mandarin such as "yipi" or "uh"
Organization	There is an opening, development, but still needs a closing
Vocabulary/ Word Choice	There is no feeling expression (開心，難過)
Language Use/ Grammar	No related story between picture 4 and 5
Mechanics	More Chinese characters are applied in the comics

Figure 5. Example of Collaborative Learning's Comic Creation

Table 7 presents a summary of the one-way analysis of variance on students' scores of comics creation. This analysis is then followed by the post hoc analysis in Table 8.

Table 7. One-way Analysis of Variance of Comic Creation

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	428.826	2	214.413	33.523	.000***
Within Groups	275.027	43	6.396		
Total	703.853	45			

*Note *p<.05 **p<.01 ***p<.001`*

Table 8. Post Hoc Analysis

(I) Students_Group	(J) Students_Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Tukey HSD Control Group	Individual Comics	-0.64286	0.92553	0.768	-2.8895	1.6038
	Collaborative learning	-6.68750*	0.89415	**.000***	-8.858	-4.517
Individual Comics	Control Group	0.64286	0.92553	0.768	-1.6038	2.8895
	Collaborative learning	-6.04464*	0.92553	**.000***	-8.2913	-3.798
Collaborative learning	Control Group	6.68750*	0.89415	**.000***	4.517	8.858
	Individual Comics	6.04464*	0.92553	**.000***	3.798	8.2913

*Note *p<.05 **p<.01 ***p<.001*

In-Class Observation

There are 2 categories of students' behaviors in the classroom: learning related and learning unrelated behavior (Lan, Sung, & Chang, 2007). In-class observation is based on their activities in the classroom that has been recorded and then decoded by 2 raters. The Pearson correlation was 0.000 and it is significant at the 0.01 level.

Table 9. Chi Square Analysis Result

Groups		Value	df	Asymp. Sig. (2-sided)
Control Group	Pearson Chi-Square	495.000	25	.000***
	Likelihood Ratio	230.067	25	.000
	Linear-by-Linear Association	72.094	1	.000
	N of Valid Cases	99		
Individual Comics	Pearson Chi-Square	500.000	25	.000***
	Likelihood Ratio	319.851	25	.000
	Linear-by-Linear Association	84.017	1	.000
	N of Valid Cases	100		
Collaborative Learning	Pearson Chi-Square	400.000	25	.000***
	Likelihood Ratio	235.901	25	.000
	Linear-by-Linear Association	76.320	1	.000
	N of Valid Cases	100		

*Note *p<.05 **p<.01 ***p<.001*

Table 10. The Frequency of the Learning Behavior (in %)

Group	Learning-Related Behavior			Learning-Unrelated Behavior		
	Create Comic	Create comic with dialogue	Create comic with dialogue in Chinese writing	Playing with others	Moving around	Playing alone
Control Group	64.89	12.33	8.47	5.08	6.28	2.94
Individual Comic	38.13	23.47	10.59	12.5	8.91	6.41
Collaborative Learning	39.06	29.50	29.41	0.94	0.47	0.63

*Note *p<.05 **p<.01 ***p<.001*

Students' Perception about Comics Learning

Students' perspective about Comics learning is presented in Table 11. Based on the mean of each group, the collaborative learning group students show the highest in every dimension. The individual comics group students show the highest mean at every dimension in comparison with the control group students. The data also notes that the satisfaction dimension was the highest mean among the three groups. The control group and individual comics group have the same preference; that is, usefulness of comics learning has the lowest mean. In regards to the collaborative learning group students, the easiness was at the lowest dimension.

Table 11. *Usability of Comic Learning*

Questionnaire Dimensions		Control Group (N=16)		Individual Comics (N=14)		Collaborative Learning (N=16)	
		M	SD	M	SD	M	SD
The whole questionnaire		3.122	0.678	3.259	0.652	3.396	0.626
Usefulness		2.990	0.692	3.208	0.649	3.426	0.606
Easiness	Ease of Using						
	Ease of Learning	3.185	0.693	3.223	0.692	3.262	0.692
Satisfaction		3.188	0.658	3.381	0.597	3.574	0.535

The questionnaire also provided the essay section. There are 12 students expressing their satisfaction in operating online comics; 2 students did not give any other comments. There are 8 students, who also said that the internet connection was too bad, and 1 student said that the computer needed to be upgraded; 3 students said they need much more time to create online comics. In the collaborative learning group, 10 students showed their satisfaction by rating online comics as being fun and interesting, and that they love working on online comics. 7 students stated that the internet connection was very unsupported, 7 students mentioned about the limited time given; 2 students said that online comics was easy, and 1 student declared that online comics is fun, but a bit difficult.

Interview

Table 12. Interview Reports

Questions	Individual Comics Group (N=14)		Collaborative Learning Group (N=16)	
	Yes	No	Yes	No
Q1. Can you create comics using Toondoo?	100	0	100	0

Q2. Do you like create comics using Toondoo?	100	0	100	0
Q3. Do you practice Toondoo at home?	71	29	75	25
Q4. Do you like the activity?	50	50	54	44
Q5. If you are interested in Toondoo, will you tell about it to your friends? How?	42	58	75	25

*Note *p<.05 **p<.01 ***p<.001`*

Conclusions, Limitation, and Recommendations

Conclusions

There is development in students' Mandarin vocabulary, the collaborative learning group shows the uppermost result, followed by the individual comics group and control group. The mean between pre and posttest for the control group is 60.68 and 63.43 respectively; individual comics group is 60.00 and 62.21 respectively; and collaborative learning group is 60.25 and 68.18 respectively. This performance was also reinforced by their comic creation performance where the collaborative learning group got the highest score based on the rubric writing score with the mean of 5.90, followed by the individual comic group with the mean of 1.14, and the control group with the mean of 1.02.

Students from three group who created comic in different approaches showed that satisfaction is the highest dimension (Mean= 3.381). Control group and individual comics students declared that the easiness dimension is better than the usefulness dimension. Students from the experimental groups stated that they are satisfied about applying online comic in learning Mandarin. The satisfaction dimension showed the highest percentage (28.26%), followed by the usefulness dimension (26.80%), and the easiness dimension (22.34%). From the essay section, students also mentioned about adding some periods of time and increasing the stability of internet connection during the experiment.

The general attitude among students about collaborative learning was strongly positive. They managed time to accomplish the task, and showed no signs of distractions such as playing around, chatting with other, etc. For most of the time, they would discuss about which character they should choose, how to deliver the story, etc. This attitude also reinforced their comics creation performance that they can do better than the other 2 groups. Based on the further interview, there were 5 students who preferred to work individually, 7 students who preferred to work collaboratively, and 4 students who can work both individually and collaboratively.

These findings mentioned above imply that 1) working collaboratively is more beneficial for the students to accomplish a project/task, 2) time duration and internet stability are inevitable in online activity, and that 3) creating story or writing activity is hard for any children of that age.

Limitations

This research does not cover the different preference about male and female students in creating

their character in comics creation, nor the different styles between male and female students in delivering dialogue. Some comic creations showed the tendency that male students prefer adding the animal character into their comic creation, while the female students prefer the female character to represent them in the story. Male students use more interjection (oh, yipi, wow, arghhghgh, etc.) than female students. In the future, it will be more sounding if both terms were included in the research area.

It was the first time for the students to practice typing Chinese characters. Therefore, it is ideal for the need of more training towards typing Chinese characters. Students were still confused when they tried to switch into typing Chinese characters, in which case they asked the teacher for assistance. After typing the Chinese character, they still chose which one was deemed the most correct. A student typed xīn 新 jiā 家 pò 破* instead of xīn 新 jiā 加 pō 坡 given the same Hanyu Pinyin. If only learning strategy was incorporated into this scope of research, the finding would be more abundant. A student opened Google Translate to know whether his typing was correct or not; other students checked their textbook to confirm the Chinese character. This phenomenon implies that even the Hanyu Pinyin system is still needed in learning Mandarin, yet when typing a character, there is always another application that they can use to support their writing. Based on the school curriculum, the higher the level of Mandarin learning, the more writing activity students will practice.

This research also neglected the learning style of the students. Some students may have visual style, audio style, or kinesthetic style. For higher level of education, the regrouping based on the different learning style in creating comics may give better impact not only in learning language, but also in developing skills in the animation business in the future.

Recommendations

It is recommended for the schools in Indonesia, especially in Yogyakarta, to integrate technology in learning language, for example apply online learning.

Collaborative learning, especially CSCL, should be applied in daily activity, as it is significantly beneficial for students to excel in a learning activity, learning behavior, and learning products.

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