Kasetsart Journal of Social Sciences

Effects of online vocabulary instruction using nano authentic videos on young Chinese EFL learners' vocabulary knowledge

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Article Info

Abstract

This study aimed to investigate the effects of online vocabulary instruction using nano authentic videos on young Chinese EFL learners' vocabulary knowledge, and the students' opinions were also investigated towards that in the study. This study was a single group pre-test and post-test research design study of 15 young Chinese students aged 10 to 12 years old in a primary school in China. A pre-test and post-test were given to the students measured by a pair sample t-test value, and the results revealed a higher mean score in the post-test (52.60) than the pre-test (40.73), and the significance p value (.00) was less than .05, which indicated that the use of online vocabulary instruction using nano authentic videos was effective in enhancing vocabulary knowledge. A questionnaire with 12 Likert-scale items analyzed by descriptive statistics provided an overall positive opinion ($\bar{x}$ = 3.95) to support the results of pre-test and post-test. In addition, the evidence from the features of the online instructional platform was also observed for students' engagement while learning the lesson online.

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Introduction

Vocabulary is important for learning English as a foreign language (Hereinafter, EFL) (Cameron, 2001). The significance of vocabulary has been accepted as a root of communication as quoted from Wilkins (1972, p.111), "without grammar, very little can be conveyed, without vocabulary nothing can be conveyed". Rupley et al. (1998; 1999) noted that "Vocabulary is the glue that holds stories, ideas and content together, which makes comprehension accessible for children". Vocabulary is a measurement of a degree of reading comprehension, and an indicator of one's language ability. Vocabulary experts revealed that adequate reading comprehension depends on individual's knowledge of the words between 90 and 95 percent in a text (Hirsch, 2003; Sedita, 2005). The higher percentage of vocabulary allows a reader to understand more the main ideas of what is being said as well as to correctly guess what the unfamiliar words probably mean (Hirsch, 2003).

With the implementation of China's new curriculum, the beliefs and instruction methods of English teachers in China are changing in many ways. Teachers need to change their views of language learning and teaching from traditional knowledge transmitters to multi-role instructors to develop students' English language knowledge, and to make students the centre of learning through the process of language learning and teaching (Wang, 2007). With the development of science and technology and the popularization of social networking, there are many opportunities to obtain authentic native-accent materials to develop vocabulary knowledge. A number of studies have explored the effects of using authentic videos to support EFL learners in enhancing their English listening skill (Kaynar & Sadik, 2021; Yang, 2014) and speaking skill (Wahyuni & Pratiwi, 2021). The majority of these studies' participants also have indicated a desire to use authentic videos as important audio-visual resources for learning a foreign language out of class. However, according to Shin (2006), attention is limited for young learners (Hereinafter, YLs). Language elements and image elements in the content were simultaneously processed in working memory by audio-visual channel (Mayer & Moreno, 2003). Nevertheless, the capacity of working memory is limited for YLs, and the complex elements exceeded the learners' affordability (Sweller, 2010). Thus, this study launches a vocabulary instruction through online platform and short-content authentic video materials, and aims to explore the effects of online vocabulary instruction using nano authentic videos.

Literature Review

This section presents several related studies about the online platform for foreign language learning and teaching, and nano videos. Some studies addressed the effects of short-video or interactive video-based language learning and teaching EFL vocabulary.

YLs' Characteristics to Learn Vocabulary Knowledge of English Vocabulary

Further discussions are needed on the principles and modes of appropriate instruction. There are several psychological characteristics of YLs related to the learning materials and learning process. For instance; (1) they are easily influenced by their surroundings (Wallace & Leong, 2020); (2) they are sensitive to the surroundings, and care about the views of their peers and teachers (Leona et al., 2021); and (3) they tend to comprehend content through real context and physical objects rather than abstract concepts (Setyaningsih, 2007). Hence, it is essential to consider young students' learning characteristics to create appropriate instruction for YLs.

Nano Authentic Videos

Second or foreign language (Hereinafter, L2) learning and teaching can be supported by various authentic materials which provide learners with opportunities to repeatedly "touch" the environment and information in native language (Berardo, 2006). As Silverman (2005) found, these YLs prefer visual experience. Authentic videos created by native speakers and not only for language education, have been noticed widely as important tools for language instruction and learning (Bernard, 2021; Kaynar & Sadik, 2021; Moeller et al., 2009; Su & Liang, 2014; Sinyashina, 2019; Yang, 2014). These videos allow foreign language learners to get in touch with the native pronunciation features and vocabulary usage scenarios of the target language. Foreign language learners are able to get benefits from authentic videos by practicing language skills out of class and become more motivated to learn the language (Ipek & Ustunbas, 2021). Furthermore, it is important to consider cognitive load when using authentic videos for foreign language learning and teaching (Afify, 2020). Multimedia like long authentic videos may provide a real context to show behaviors or characteristics that match the target vocabulary. The continuous information flow can contain complex content. Language elements and image elements in the content are simultaneously processed in working memory by visual-auditory channel (Mayer & Moreno, 2003). However, the capacity of working memory may be limited, and the complex elements exceeding the learners' affordability (Sweller, 2010). Mayer (2005) illustrates in Figure 1 how multimedia may help the learning process to link the short-term processing in working memory to the long-term memory.

Compared with the traditional long videos, presenting information in bite-size or small chunks allows better memory retention (Stahl et al., 2010). Nano learning is defined as bite-sized learning, which is a smaller unit of micro-learning (Khlaif & Salha, 2021). For instance, using nano videos can create a short language learning chunk. As Cesare et al. (2021) mentioned, videos of less than 6 minutes would be better for YLs' language learning. Khlaif and Salha (2021) also stated that language content in such a short video often provides small and single information with high relevance. Learners of different learning levels and ages may have different views on video length.
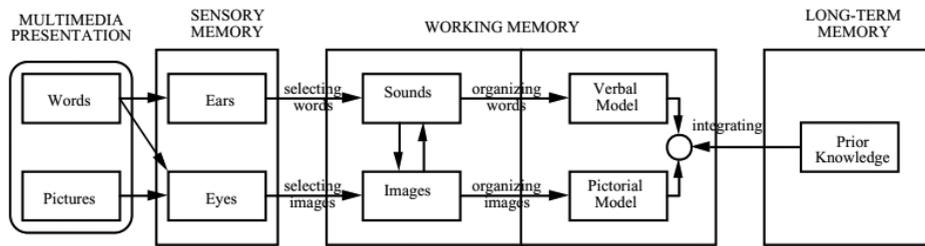
Figure 1 Multimedia learning process (Mayer, 2005)

Online Vocabulary Instruction Using Nano Authentic Videos on Interactive Platform

Many research studies in various educational levels have suggested that online vocabulary instruction using nano-videos may be able to help the students' learning vocabulary. Take for example, at a college level, Thompson et al. (2021) conducted an online experimental study to investigate whether video length affects college students' attitudes toward learning and perceptions of interaction patterns. As new information tends to enter short-term memory first, but the capacity of the short-term memory is limited and small, the information is held only for a short time. A "long" video lasting 14 minutes was compared, in which the same content was divided into three segments of four to five minutes each. The researchers predicted that participants would better recall the information presented in a series of four- or five-minute segments than in a single long video with the same content. The gap is that only college students' attitudes were being investigated, and with much attention on videos use, but not much to instruction model for developing vocabulary knowledge. At a junior high school level, Rahayu and Bhaskoro (2022) stated that there was a positive impact of interactive media Edpuzzle on English vocabulary instruction. This quantitative descriptive study was undertaken with 33 junior high school students with data analysis of observational method and questionnaire. It was found that those students experienced joyful emotions while learning vocabulary on this interactive platform. This may be the interactive platform used in a related study. Another study at a secondary school level, Ariffin and Ismail (2019) stated that videos through interactive online platform were useful to assist students in learning vocabulary through seeing and hearing. The effectiveness of the interactive video was tested on 50 secondary 1 students from two schools in Malaysia. Evaluations were conducted through pre-test and post-test. The results showed that the use of videos on the Edpuzzle platform engaged the students in the learning process. The gap is that Malaysia students were being investigated, and videos were not divided into short videos and long videos. According to the review of previous research, online interactive platform and nano authentic videos can provide short information and interaction activities for language learning and teaching. In addition, instruction program with short content allows students to get the necessary amount of material from the short capsule lessons themselves (Zhang & West, 2020). Consequently, the instruction combined with different computer media will provide for learners language input and types of interaction (Chapelle, 2003). However, more research is needed on the effects of online vocabulary instruction using nano authentic videos on English vocabulary knowledge for young Chinese learners in China, and attitudes among young Chinese students. Therefore, this study aims to address the research gap by answering the following research questions:

RQ1: To what extent does online vocabulary instruction using nano authentic videos affect young Chinese EFL learners' vocabulary knowledge?

RQ2: What evidence can be observed from the online vocabulary instructional platform to demonstrate the students' engagement in learning from nano authentic videos?

Methodology

Research Design

In this study, a single group pretest and posttest research design was used. The pre-test was designed to evaluate the participants' vocabulary knowledge before study period. During the process of the study period, Edpuzzle platform (http://www.edpuzzle.com) was selected to build up online vocabulary instruction using nano authentic videos. The vocabulary instruction was presented online to show target words for all the students in this study. There were 6 nano videos presented on the interactive platform with 12 target words in

this study period. After that, there was a post-test to evaluate the participants' vocabulary knowledge. The results of the pre-test and post-test were used to measure all participants' gained scores of receptive vocabulary knowledge to answer research question 1. The results of the questionnaire were used to support research question 1. Evidence of observing students' engagement during the treatment was used to answer research question 2.

Research participants

The research participants of this study consisted of a small group of 15 Chinese students in 4th grade in a primary school, who were obtained voluntarily by the help of two students to participate in this study, and the school teacher, who the researcher already knew. The limited number of students participating in this study was due to the platform's limitation policy of free participants in China.

Research Instruments

Three research instruments: pre-test and post-test of vocabulary knowledge, online vocabulary instruction using nano authentic videos, and questionnaire are used in this study. Pre-test and post-test with same test items were designed to measure if there was a statistical difference of vocabulary knowledge before and after the treatment. The tests consisting of 36 test items and 60 scores measured different aspects of receptive vocabulary knowledge. The pre-test and post-test with different types of items aimed to assess all participants' results with the aspects of word knowledge (Nation, 2013). All 12 target words in this study were selected according to the "English Curriculum Standards for Compulsory Education (2022 Edition)" (Ministry of Education, 2022) in 4th grade course. To ensure that all students understood the requirements and objectives of pre-test and post-test, an explanation was provided in both English and Chinese. The details of types of test tasks and scoring are shown in Table 1 below.

During the treatment, the students learned English vocabulary via online EFL vocabulary instruction using nano authentic videos containing three lessons and six themes of twelve words taught from week 2 to week 4. The treatment lasted three weeks. Each video content showed the daily lives of some children and their families or friends. The dialogues in each video were simple, natural and easy for YLs. Nano authentic videos of less than 5 minutes were presented on Edpuzzle platform. Edpuzzle platform is online tool that enable teachers to edit content of videos (Graham, 2016). There are different types of editing functions after adding appropriate videos to help teachers create relevant notes and quiz question for students to comprehend target words during this online instruction. All lessons were presented on the Edpuzzle platform. The lesson plan demonstrated the online instruction process of learning and teaching English words to young Chinese students. Lesson videos selected can be presented on this platform and used to build explicit vocabulary instruction, which helped offer suitable practices and gained immediate responses and feedback, and the teacher could monitor students' performance during the instruction (Cesare et al., 2021). The current study adopted the concept of Nation (2007) that vocabulary learning requires two basic conditions--repetition (quantity of meetings with words) and good quality mental processing of the meetings, and so four strands on vocabulary instruction and nano authentic videos presented on Edpuzzle platform (Cesare et al., 2021) were designed in lesson steps illustrated in Figure 2.

A questionnaire was constructed to assess the students' attitudes towards online vocabulary instruction using nano authentic videos, such as learning engagement and anxiety during the online instruction, personal attitudes towards nano video materials and feedback provisions based on the interactive platform with nano authentic videos. Twelve questionnaire items in 5 degrees were adapted from Yu and Gao (2022). To ensure that all students understood the requirements and objectives of the questionnaire, an explanation was provided in Chinese.

Table 1 The items and scoring of the pre-test and post-test

| No.	Task objective	Test task	Items	Scoring	Aspect of vocabulary knowledge
1	Recall the appropriate meaning for a given word	Pick up a correct picture to match a given word or word chunks	12	1	Meaning
2	Recognize the written form of a given word	Choose and correct word form	12	2	Form
3	Recognize the correct use of a given word in context	Choose and correct word use	12	2	Use
			Σ36	Σ60	
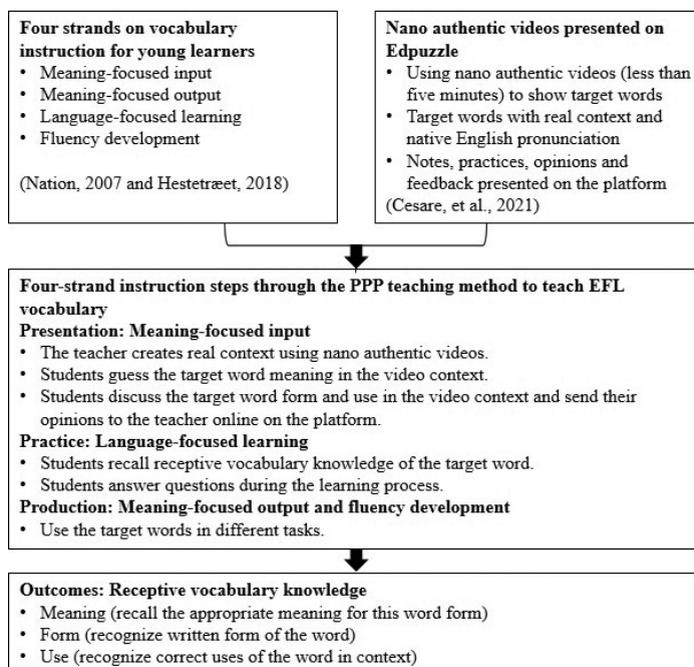
Figure 2 The steps of vocabulary instruction using nano authentic videos

Validity and Reliability

Content validity of three research instruments was performed by inviting one Thai expert and two Chinese experts to evaluate by using The Index of Item Objective Congruence (Hereinafter IOC) (Jusoh et al., 2018). The IOC was used to assess the correspondence of projects to objectives based on scores (+1, 0, 1), and the results of all items were in valuable range (more than 0.67). Before data collection, a pilot test was conducted with students who shared similar characteristic with the main target group to ensure reliability of all instruments. The test-retest method (Davidshofer & Murphy, 2005, p. 123) was used to estimate the reliability of pre-test and post-test items by intraclass correlation consistency reliability, and the result (r value = 0.91) showed that it was in good reliability level. Furthermore, the Cronbach's Coefficient Alpha (George & Mallery, 2016) was used to measure the reliability of the questionnaire, and the result (α value = 0.86) showed that it was in good reliability level. One lesson was also conducted online on the Edpuzzle platform with the pilot group to check for the features and the effective arrangement of the lesson. All tested students responded well on taking in the online class and understood how to finish test tasks and send comments.

Data Collection

Data collection of the pre-test and post-test was undertaken in week 1 and week 5 respectively. The scores of pre-tests and post-test were measured to identify if the students' vocabulary knowledge had improved after the study period. The evidence of observation of students' engagement and performance was collected from week 2 to week 4. Regarding the data collection of the questionnaire, it was collected in week 5 to assess these young Chinese EFL learners' opinions towards online vocabulary instruction using nano authentic videos.

Data Analysis

Data from the questionnaire were analyzed using descriptive analysis; i.e.; the mean ($\bar{x}$) and the standard deviation (*SD*). Due to the limitation numbers of research participants in this study, it is necessary to assess whether the data of pre- and post-tests follows a normal distribution before running the t-test. Therefore, Shapiro-Wilk tests were performed in this study to assess such, and if the p value obtained from the test is greater than a significance level (e.g., 0.05), it can be concluded that the data follow a normal distribution. According to the results of the Shapiro-Wilk tests for the data of pre-test (*p* value = 0.421) and post-test (0.224), both were greater

than p value (.05). Consequently, the results suggested that the data of pre-test and post-test followed a normal distribution assumption. Then, the paired-sample t-test was used to make statistical analysis to compare the scores of the pre- and post-test. The result of p value (Sig.) was used to evaluate if there was a statistically significant difference between the pre-test and posttest, which would answer research question 1. And, the results of questionnaire items were analyzed in descriptive analysis with the mean ($\overline{x}$), the data which were used to support research question 1 regarding students' opinions towards the instruction. In addition, the data recorded in the features of the platform in the online vocabulary instructional platform were observed for the evidence of the students' engagement in learning and their interaction while learning the lesson online. The examined evidence was the frequencies of their self-learning when they entered the platform and some of the answers when they were asked to join the vocabulary activities, which answered research question 2.

Results

Response to Research Question 1

Table 2 shows a significant difference between the students' scores in the pre-test and the post-test. The results revealed a higher mean score of the post-test (52.60) than the pre-test (40.73) with the mean difference between the pre-test and the post-test of 11.87, the t value was 8.873, and there was a statistical difference between the students' scores in the pre-test and the post-test at .05 level (*p value < .05). The *p value (.000) was less than .05, which indicated that there was a significant effect of online vocabulary instruction using nano authentic videos on young Chinese learners' vocabulary knowledge, which confirmed the answer of research question 1.

Additionally, it was found that overall value of young Chinese EFL learners' opinions towards online vocabulary instruction using nano authentic videos was positive (M = 3.95). The top three highest mean scores are item 3-The short content in each nano authentic

video is helpful to reduce anxiety while learning English vocabulary, item 4-The length of each nano authentic video is suitable, and the limited content allows me to focus on a single learning goal and item 2-The content capacity of each nano authentic video is sufficient. It allows me to focus on content and vocabulary at the same time (See the details in Appendix A).

Response to Research Question 2

Learners' achievement and retention of target word knowledge was a key outcome of this study. While watching nano authentic videos on the platform, the learning situation of students were considerable to their knowledge development. In the first meaning input step, better and deeper comprehension of the target words is facilitated by visual and auditory channels in a short time. Recognition and recall tasks in the second practice provision step, are prepared as part of the instructional activities in order to provide learners with the opportunity to encounter the repetition of the target word. Students provided their learning situation and own opinion to their teacher through the platform. In the output step, students were asked to practise word knowledge using activities from both receptive output methods. The main aim of this stage is to stimulate sufficient extraction of memory for the target word knowledge. All records of the above instruction steps provided significant information to comprehend their performance and attitudes towards this online instruction using nano authentic videos. For instance, the results of two students named "Ben" and "Emily" showed that they rewatched a nano video four times (*Note*: "Ben" and "Emily" are not real names under the ethic consideration of this study). For Ben, there was evidence that he rewatched the video in lesson 1 four times, but just spent two minutes to check and finish all quiz questions. He did them quickly and well, which meant that he already comprehended this part well. Besides, with his comments after the study period, he seemed to be interested in all lesson videos. The reason was that he was able to relate them to his daily life with his family and friends. He was actively engaged in other nano authentic videos during the instruction because he could have suitable input with good pronunciation,

Table 2 Paired sample *t*-test of pre-test and post-test

Paired sample *t*-test		N	Min	Max	Mean	*SD*	Mean Difference	*t*	Sig. (two-tailed)
Pair 1	Pre-test	15	27.00	50.00	40.73	7.76	11.87	8.873	.000
	Post-test	15	47.00	56.00	52.60	3.31			

natural communication and culture background in a short time. In contrast, Emily, who also rewatched the video in lesson 1 four times, spent about 5 minutes to finish all quiz questions. According to her comments of lesson one, she wanted to receive more support from the teacher to help understand more about the target words. Nonetheless, she added more comments to express her positive attitudes towards the online instruction using those nano authentic videos, the reason being that she was happy to watch those interesting nano videos with real context and natural communication, and she could try to understand and practice target words whenever and wherever online. She was also engaged into self-learning and felt comfortable to express her own opinions and confusion to the teacher without face-to-face encounter. Additionally, most of the students asked their teacher to provide more information of target words, and sent comments to express their own opinions but also interests on this type of online instruction using nano authentic videos, because they were allowed to rewatched them whenever and wherever they wanted to. They liked these short videos made by native speakers because they were able to learn how to say and pronounce words correctly. They were interested in the video content that was suitable for them and did not make them tired because of long and boring content.

Discussion

Through the quantitative data analysis of the pre-test, the post-test, the evidence of observation from students' engagements and the questionnaire and performance during the process, the two research questions have been answered.

According to Alastuey and García (2019), students in the group with visual support performed better in vocabulary learning compared to the group without visual support. However, the low result obtained through the video approach was not as predicted by the researchers, which may be related to video information overload. Instead, overloading content may not effectively facilitate vocabulary learning. Therefore, nano authentic videos helped students to acquire knowledge rapidly and effectively with short-term content to dive into real context in target language (Bernard, 2021). By combining these videos and interactive platforms, the researcher designed appropriate online vocabulary instruction according to the objectives and students' backgrounds, to some extent, the time and space in which learning occurs for students has changed. In addition, the mode of teaching and the role of the teacher has also changed. Students' learning level, video length, and students' responses are important factors considered in the survey when designing vocabulary instruction. Because YLs focus on content rather than language structure, inappropriate material or timing can make some students confused about the information they received (Castillo et al., 2017). Therefore, for young students, it is reasonable to limit the length to 6 minutes (Cesare et al., 2021). In the process, the teacher took on the role of facilitator to motivate students (Kaynar & Sadik, 2021). Meanwhile, the questions and practices related to the content of those videos on the online platform, and all videos and tasks were created and locked down to ensure that the students would not pass any of those. Therefore, it enabled us to assess whether the students had watched the videos and completed the tasks, and to check for any repeated viewings, which indicates that the students were more interested in the section or needed additional support (Cesare et al., 2021). Moreover, students were able to receive feedback in time (Ariffin & Ismail, 2019).

As Yu and Gao (2022) determined, short videos (less than 5 minutes) had significant effect on improvement of English proficiency as well as student engagement and satisfaction in English class in China, because these videos had important factors, such as vocabulary use, collocation, and cultural background. For students, it was important to learn at their own pace during the process of self-learning (Correa, 2015). Pop up quiz questions and interactive activities enable students to enhance their comprehension and practice what they have learned, and express their thoughts and advice to their teachers through comments, and receive feedback. For teachers, it was important to guide students to create need for learning at the beginning of watching videos, for instance, by designing pop up keynotes which were relevant to their existing experiences to facilitate students' comprehension. The observation during the process actually showed that interactive activities through online platform based on short videos indeed assisted the students in comprehending content and expressing personal opinions.

The questionnaire was used to explore all participants' opinions towards online vocabulary instruction using nano authentic videos. It revealed the general mean score of all items was 3.95. As Wang et al. (2022) said, the emergence of video teaching methods represented by new media can make up for the dullness of traditional teaching methods. In addition, using the interactive platform, students can watch videos for learning and interactions at the same time. Interactive activities help

to increase motivation for learning (Wang et al., 2022). These interaction activities are useful for students to easily understand new words inside, and attractive to grab their attention on the learning materials (Rahayu & Bhaskoro, 2022). As a result, students take an active role in converting the learning process from a one-way information input to an information exchange process (Afify, 2020). In this study, the researcher was able to examine how students engaged with video content and to observe students' performance from watching videos and doing practices. The researcher took into account the background of the EFL instruction in China and young Chinese students' cognition, emotion and other relevant mantal situation when creating the EFL learning instrument for them. As Aburizaizah and Albaiz (2021) stated, the nano-type of new language instruction is attractive for students to learn the meaning and structure of new words in a new language because it is simple and requires limited time. Furthermore, short content in each nano video is easy to comprehend. Learners will not get tired of content and having active interaction while gaining new information. Using this method, students would not be overloaded compared to receiving information from long content of multimedia materials (Alastuey & García, 2019). The difference between the traditional and the new methods was a main factor considered in this study. In conclusion, it is found that most students responded positively to the implementation of the vocabulary instruction and nano authentic videos presented on the interactive platform in this study.

Conclusion, Limitations and Recommendations

This study revealed main findings as follows. Firstly, there was a significant difference in vocabulary scores between the pre-test and the post-test, which stated positive impact on young Chinese students' English vocabulary knowledge, and the overall result of questionnaire was significant to support it. In addition, according to the evidence of students' performance during the instruction process, the online instructional model using nano authentic videos was useful for the researcher to guide and encourage the young Chinese students to develop their EFL vocabulary knowledge, and students could learn themselves in a short time and interact with their teacher online in time. There were several limitations of this study including the small group of research participants, the short period of research process, and the lack of qualitative data. Therefore, for future studies, it is recommended that the study could

expand research participants and period or conduct in other cities in China to collect more data and clarify the results, and qualitative data through students' interview can be added to provide more in-depth data.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Aburizaizah, S. J., & Albaiz, T. A. (2021). Review of the use and impact of nano-learning in education. *4th International Conference on Research in Education*, 83–93. https://www.dpublication.com/wp-content/uploads/2021/09/56-4146.pdf

Afify, M. K. (2020). Effect of interactive video length within e-learning environments on cognitive load, cognitive achievement and retention of learning. *Turkish Online Journal of Distance Education*, *21*(4), 68–89.https://doi.org/10.177 18/tojde.803360

Alastuey, M. C. B., & García, D. N. (2019). The effectiveness of translation, image-based and video-based methodologies for receptive and productive vocabulary acquisition. *Huarte de San Juan. Filología y Didáctica de la Lengua*, (19), 6–31. https://typeset.io/pdf/the-effectiveness-of-translation-image-based-and-video-based-3e3tzur2p0.pdf

Ariffin, S. N. M., & Ismail, M. (2019). Design of the icon-based interactive video for English vocabulary learning. In M. Mohamad Noor, B. Ahmad, M. Ismail, H. Hashim, M. Abdullah Baharum. (Eds.), *Proceedings of the Regional Conference on Science, Technology and Social Sciences (RCSTSS 2016)* (pp. 203–212). Springer. https://doi.org/10.1007/978-981-13-0203-9_19

Berardo, S. A. (2006). The use of authentic materials in the teaching of reading. *The reading matrix*, *6*(2), 60–69. https://www.researchgate.net/publication/237413136_The_Use_of_Authentic_Materials_in_the_Teaching_of_Reading

Bernard, A. V. (2021). Expanding ESL students' vocabulary through TikTok videos. *Lensa: Kajian Kebahasaan, Kesusastraan, dan Budaya, 11*(2), 171–184. https://doi.org/10.26714/lensa.11.2.2021.171-184

Cameron, L. (2001). *Teaching languages to young learners*. Cambridge University Press.

Castillo, L. C. A., Insuasty, E. A., & Jaime, O. M. F. (2017). The impact of authentic materials and tasks on students' communicative competence at a Colombian language school. *Profile Issues in Teachers Professional Development*, *19*(1), 89–104. https://doi.org/10.15446/profile.v19n1.56763

Cesare, D. M. D., Kaczorowski, T., & Hashey, A. (2021). A piece of the (Ed) puzzle: Using the Edpuzzle interactive video platform to facilitate explicit instruction. *Journal of Special Education Technology*, *36*(2), 77–83. https://doi.org/10.1177/0162643421994266

Chapelle, C. A. (2003). *English language learning and technology: Lectures on applied linguistics in the age of information and communication technology* (Vol. 7). John Benjamins Publishing.

Correa, M. (2015). Flipping the foreign language classroom and critical pedagogies: A (New) old trend. *Higher Education for the Future, 2*(2), 114–125.

Davidshofer, K. R. & Murphy, C. O. (2005). *Psychological testing: Principles and Applications* (6th ed.). Pearson.

George, D., & Mallery, P. (2016). *IBM SPSS Statistics 23 Step by Step: A simple guide and reference* (14th ed.). Routledge.

Graham, K. (2016). TechMatters: Let's get interactive, (videos that is), with EdPuzzle and Vialogues. *LOEX Quarterly*, *43*(1), 4–6. https://commons.emich.edu/loexquarterly/vol43/iss1/3

Hirsch, E. D. (2003). Reading comprehension requires knowledge of words and the world. *American educator*, *27*(1), 10–13. http://geoffbarton.co.uk/files/teacher-resources/2016/Teachology/Hirsch.pdf

Ipek, O. F., & Ustunbas, Z. (2021). Applications used in distance education for English language classrooms. *JET (Journal of English Teaching)*, *7*(3), 260–272. http://ejournal.uki.ac.id/index.php/jet/article/view/3027

Jusoh, Z., Zubairi, A. M., & Badrasawi, K. J. (2018). Validity evidence using expert judgment: A study of using item congruence involving expert judgements for evidence for validity of a reading test. *Al-Shajarah: Journal of the International Institute of Islamic Thought and Civilization (ISTAC)*, 307–320. https://journals.iium.edu.my/shajarah/index.php/shaj/article/view/766

Kaynar, N., & Sadik, O. (2021). The effects of authentic and interactive video tasks on students' extra listening practices. *Journal of Theoretical Educational Science*, *14*(3), 291–307. https://doi.org/10.30831/akukeg.836313

Khlaif, Z. N., & Salha, S. (2021). Using TikTok in education: A form of micro-learning or nano-learning? *Interdisciplinary Journal of Virtual Learning in Medical Sciences, 12*(3), 213–218. https://doi.org/10.30476/ijvlms.2021.90211.1087

Leona, N. L., Van Koert, M. J., Vander Molen, M. W., Rispens, J. E., Tijms, J., & Snellings, P. (2021). Explaining individual differences in young English language learners' vocabulary knowledge: The role of Extramural English Exposure and motivation. *System*, *96*, *102402*, 1–13. https://doi.org/10.1016/j.system.2020.102402

Mayer, R. E. (2005). Cognitive theory of multimedia learning. *The Cambridge handbook of multimedia learning*, *41*, 31–48. https://doi.org/10.1017/CBO9780511816819.004

Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, *38*(1), 43–52. https://doi.org/10.1207 /S15326985EP3801_6

Ministry of Education (MOE). (2022). Circular of the Ministry of Education on the issuance of the compulsory education curriculum program and curriculum standards. *Ministry of Education of the People's Republic of China*. http://www.moe.gov.cn/srcsite/A26/s8001/202204/t20220420_619921.html

Moeller, A. J., Ketsman, O., & Masmaliyeva, L. (2009). The essential of vocabulary teaching: From theory to practice. *Diverse by Design: Central State Conference on the Teaching of Foreign Language Report*, *1*(1), 16–31. https://digitalcommons.unl.edu/teachlearnfacpub/171

Nation, I. S. P. (2013). Testing vocabulary knowledge and use. *In Learning Vocabulary in Another Language. Cambridge University Press*, 514–568. https://doi.org/10.1017/CBO9781139858656.015

Nation, P. (2007). The four strands. *International Journal of Innovation in Language Learning and Teaching*, *1*(1), 2–13. https://doi.org/10.2167/illt039.0

Rahayu, E. M., & Bhaskoro, P. (2022). Interactive media Edpuzzle and its implementation in teaching vocabulary in new normal era. *Jo-ELT (Journal of English Language Teaching) Fakultas Pendidikan Bahasa & Seni Prodi Pendidikan Bahasa Inggris IKIP*, *9*(1), 1–12. https://doi.org/10.33394/jo-elt.v9i1.4425

Rupley, W. H., Logan, J. W., & Nichols, W. D. (1998,1999). Vocabulary instruction in a balanced reading program. *The Reading Teacher*, *52*(4), 336–346.http://www.jstor.org/stable/20202074

Sedita, J. (2005). Effective vocabulary instruction. *Insights on learning disabilities*, *2*(1), 33–45. http://arovista.pbworks.com/w/file/fetch/48423847/effective-vocabulary-instruction.pdf

Setyaningsih, A. (2007). Teaching English to young learners through songs. *JEE: Journal of English and Education*, *1*(2), 75–85. https://journal.uii.ac.id/JEE/article/view/6443

Shin, J. K. (2006). Ten helpful ideas for teaching English to young learners. *UMBC Student Collection*. https://americanenglish.state.gov/files/ae/resource _files/06-44-2-b.pdf. http://hdl.handle.net/11603/16931

Silverman, L. K. (2005). Upside-down brilliance: The visual-spatial learner. *Maria J. Krabbe Foundation for Visual Thinking*. https://croydondyslexia.files.wordpress.com/2016/06/151006-upside-down-brilliance.pdf

Sinyashina, E. (2019). The effect of repetition on incidental legal vocabulary learning through long-term exposure to authentic videos. *ESP Today journal of English for specific purposes at tertiary level*, *7*(1), 44–67.

Stahl, S. M., Davis, R. L., Kim, D. H., Lowe, N. G., Carlson, R. E., Fountain, K., & Grady, M. M. (2010). Play it again: The master psychopharmacology program as an example of interval learning in bite-sized portions. *CNS spectrums*, *15*(8), 491–504. https://doi.org/10.1017/S1092852900000444

Su, S. C., & Liang, E. (2014). Elementary students' motivation and attitudes toward English animated cartoons at a cram school. *International journal of arts and commerce*, *3*(5), 15–36. https://www.ijac.org.uk/images/frontImages /gallery/Vol._3_No._5/2.pdf

Sweller, J. (2010). Element interactivity and intrinsic, extraneous, and germane cognitive load. *Educational psychology review*, *22*(2), 123–138. https://doi.org/10.1007/s10648-010-9128-5

Thompson, P., Xiu, Y., Tsotsoros, J. D., & Robertson, M. A. (2021). The effect of designing and segmenting instructional video. *Journal of Information Technology Education: Research*, *20*, 173–200.

Wahyuni, L. G. E., & Pratiwi, N. P. A. (2021). Enhancing EFL students' speaking competency through animated learning video. *4th International Conference on Innovative Research Across Disciplines (ICIRAD 2021)*, 181–187.

Wallace, M. P., & Leong, E. I. L. (2020). Exploring language learning motivation among primary EFL learners. *Journal of Language Teaching and Research*, *11*(2), 221–230. https://doi.org/ 10.17507/jltr.1102.10

Wang, M., Wang, J., & Wang, Y. (2022). Application of new media in international Chinese education. *Journal of Contemporary Educational Research*, *6*(6), 19–23. https://doi.org/10.26689/jcer.v6i6.4063

Wang, Q. (2007). The national curriculum changes and their effects on English language teaching in the people's Republic of China. *International Handbook of English Language Teaching*, 87–105. https://doi.org/10.1007/978-0-387-46301-8_8

Wilkins, D. A. (1972). *Linguistics in language teaching* (Vol. 111). Edward Arnold.

Yang, H. Y. (2014). Does multimedia support individual differences? -EFL learners' listening comprehension and cognitive load. *Australasian Journal of Educational Technology*, *30*(6), 699–713. https://doi.org/10.14742/ajet.639

Yu, Z., & Gao, M. (2022). Effects of video length on a flipped English classroom. *SAGE Open*, *12*(1). https://doi.org/10.1177/2158244021106847

Zhang, J., & West, R. E. (2020). Designing microlearning instruction for professional development through a competency based approach. *TechTrends*, *64*(2), 310−318. https://doi.org/10.1007/s11528-019-00449-4

Appendix A Means of students' attitudes towards vocabulary instruction using nano authentic videos

	Item	Mean	SD	Evaluation
1	I enjoy the online vocabulary instruction using these nano authentic videos.	4.00	0.38	Positive
2	The content capacity of each nano authentic video is sufficient. It allows me to focus on content and vocabulary at the same time.	4.07	0.26	Positive
3	The short content in each nano authentic video is helpful to reduce anxiety while learning English vocabulary.	4.13	0.52	Positive
4	The length of each nano authentic video is suitable, and the limited content allows me to focus on a single learning goal.	4.13	0.52	Positive
5	The sentences and vocabulary in each nano video are highly natural and interesting, and help to increase my motivation to learn English vocabulary.	3.80	0.42	Positive
6	The content in each nano authentic video is suitable for my present learning level.	3.93	0.26	Positive
7	The language environment and natural communication in each nano authentic video are helpful in developing correct vocabulary knowledge.	3.93	0.46	Positive
8	I can dive into the language environment completely with the natural dynamic images and sounds in each nano authentic video. In this way, I can comprehend word meaning and form in a real context.	3.87	0.35	Positive
9	The scenes in each nano authentic video are helpful to recognize different uses of the same vocabulary.	3.80	0.42	Positive
10	These online interactive nano authentic videos offer interactive activities to help increase vocabulary knowledge comprehension.	4.00	0.38	Positive
11	These online interactive nano authentic videos provide essential opportunities to ask any question or advice.	3.87	0.52	Positive
12	Suitable and instant feedback during vocabulary instruction is helpful for me when I am bewildered by learning issues.	3.87	0.52	Positive
Total Degree		3.95	0.42	Positive