EFFECTS OF ONLINE VOCABULARY INSTRUCTION USING NANO AUTHENTIC VIDEOS ON YOUNG CHINESE EFL LEARNERS' VOCABULARY KNOWLEDGE

BY

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Abstract

This study aimed to investigate the effects of online vocabulary instruction using nano authentic videos on young Chinese EFL learners' vocabulary knowledge and students' opinions. This study was a single group pre-test post-test research design study of young Chinese students aged from 10-12 years old in a primary school in China. A pre-test and a post-test were given to the students to analyze the effects of online vocabulary instruction using nano authentic. After the treatment, a questionnaire with twelve Likert-scale question items was applied to understand the students' overall opinions towards the online vocabulary instruction experience using nano authentic videos. Data analysis of pre-test and post-test was measured by a paired sample T-test value. The questionnaire was analyzed by descriptive statistics in mean score and standard deviation. The results of pre-test and post-test showed that the students' vocabulary knowledge gained improvement after the treatment. It revealed a higher mean score in the post-test (52.60) than the pre-test (40.73), and the significance (p) value (.000) was less than .05, which indicated that the use of online vocabulary instruction using nano authentic videos was effective in enhancing vocabulary knowledge. The results of questionnaire showed that the students mostly responded an overall positive opinion ($\bar{x}$= 3.95) towards online vocabulary instruction using nano authentic videos. The evidence from the features of online instructional platform was also observed for students' engagement and interaction while learning the lessons online.

(Total 130 pages)

Keywords: Nano Authentic Videos, EFL Vocabulary Knowledge, Online Vocabulary Instruction, Young Chinese EFL Learners

Student's Signature .... Thesis Advisor's Signature ....

Table of Contents

Table of Contents (continued)

Table of Contents (continued)

List of Tables

List of Figures

Abbreviations

Abbreviation	Meaning
EFL	English as a Foreign Language
L1	First Language
L2	Second Language or Foreign Language
YLs	Young Learners
CALL	Computer-Assisted Language Learning

Chapter 1

Introduction

This chapter provides the research foundation of this study. It introduces the background of the study, and it presents several main sessions including research objectives, research questions, scope of the study, conceptual framework, limitation of the study and definitions of key terms.

1.1 Background of the Study

With the development of science and technology and the popularization of social networking, there are many opportunities to obtain authentic native-accent materials, especially authentic audio-visual materials, such as authentic videos. According to Wilkins (1976, as cited in Polat & Eristi, 2019), one of the theorists of authentic materials, these authentic materials do not exist in the teaching of a certain language, but are related to the real world and real life. Along with the change of times and the development of science and technology, there were more and more types of materials, which were roughly divided into written materials, visual materials, auditory materials and audio-visual materials according to different senses. The authentic videos provided the possibility for EFL instruction out of class, thus encouraging the target language learners to participate in it, because they paid attention to information and understood it "consciously" in the process of unconscious language learning (Krashen, 1989). The authentic materials provided EFL learners opportunity to repeatedly "touch" the environment and information in native language, even though English was not used as their L1 in this environment (Berardo, 2006). The instruction with authentic videos was used to improve students' language learning and promote effective communication and language education. Students certainly benefited from more opportunities to interact with teachers and classmates, so as to continue their studies outside the classroom (Ariffin & Ismail, 2019). This was important for EFL learners to acquire English and

interact with native English speakers in a variety of language skills such as listening, speaking, reading and writing. Interaction occurs in an enjoyable environment that combined the visual and auditory senses.

Naturally, acquiring a new language is a complex process. These language learning processes, whether they were related to receptive skills such as listening and reading, or productive skills such as speaking and writing, were inseparable from vocabulary. Vocabulary was equally important for English learning (Cameron, 2001). For EFL learners, vocabulary was one of the most important factors that affect their ability to express themselves or their ideas accurately in English and to communicate fluently with others in English.

In China, English has become a compulsory course since 2003 from primary education (Qi, 2016), and English learning was indispensable from compulsory education to higher education. But for Chinese learners, English was a foreign language. In traditional classroom for foreign language learning and teaching, teachers are concerned with what appears in textbooks and test papers, which caused English learning and teaching methods in China were based on classroom and text learning (Wang, 2007). Without proper language environment and cultural environment arrangement, language learning may seem to be depressing, and it was difficult to understand language expressions. With the implementation of China's new curriculum, the beliefs and instruction of English teachers in China are changing in many ways. Teachers need to change their view of language teaching from the traditional knowledge transmitter to a multi-role because the English language teaching objectives of the new curriculum require language teaching not only to transmit knowledge and skills, but also to care for the emotional needs of students through the process of language learning, to develop students' learning strategies, and to make students the center of learning (Wang, 2007). Teachers are also encouraged to use modern technology in foreign language teaching to create more effective resources for learning and using the language.

The role of culture in language learning was undeniable. Cultural features and changes affected the production, change, development, and the informal and formal use

of vocabulary (Karami, 2019). As far as the current situation of EFL learning in China English classes, text materials or listening materials were more often used in English learning. This intentional learning enabled EFL learners to recall this word in a short time. However, long-term memory was not formed without understanding it from the context. With this learning approach, they did not develop their language mindset in English, which meant that they did not choose appreciate vocabulary to communicate with others and express themselves. Moreover, this way of vocabulary learning may not inspire them. As a result, Chinese learners cannot acquire vocabulary well, which hinders the development of language level. This also affects their communication in English with native or non-native English speakers. In addition, their self-confidence decreased by the unsmooth communication with others, resulting in a loss of motivation and interest in EFL learning. English vocabulary learning plays an important role in developing types of English language skills. Besides, there were a lot of problems of vocabulary-related language ability faced by Chinese learners in the process of EFL learning.

In order to develop vocabulary knowledge, EFL learners would be better to dive into the natural language community around them, but most learners in China, especially for YLs may not have this opportunity. Therefore, a new approach is needed to achieve EFL vocabulary learning and teaching. In this digital era, it is possible to develop and achieve a foreign language with visual-audio materials and Web 2.0 tools. A number of studies have explored the effectiveness 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 the study participants also indicated a desire to use authentic videos as an important visual resource for learning a foreign language out of class. However, as Shin (2006) stated that it was worth to note that learners' attention was limited, especially YLs. Long authentic videos really provide real context to show behaviors or characteristics that match the target vocabulary. The continuous information flow contained complex contents. Language elements and image elements in the content were simultaneously processed in working memory by visual-auditory channel (Mayer & Moreno, 2003). However, the capacity of working memory was limited, and the complex elements

exceeded the learners' affordability (Sweller, 2010). Instead, this way was not able to help the learning process, and in the short-term processing, the information was retained for a short time (Mayer, 2017).

This study launched an online vocabulary instruction using nano authentic videos. The target population was young Chinese students aged from ten to twelve in China. A pre-test and post-test were used to investigate effects of online vocabulary instruction using nano authentic videos on young Chinese EFL learners' vocabulary knowledge. In addition, a questionnaire with 12 Likert-scale question items was organized to explore young Chinese EFL learners' opinions towards the online vocabulary instruction using nano authentic videos.

1.2 Research Objectives

1.2.1 To investigate the effects of online vocabulary instruciton using nano authentic videos on young EFL learners' vocabulary knowledge.

1.2.2 To identify the evidence of young Chinese learners' engagement in learning from the online vocabulary instructional platform.

1.2.3 To explore young Chinese learners' opinions towards the online vocabulary instruciton using nano authentic videos.

1.3 Research Questions

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

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

1.3.3 What are young Chinese EFL learners' opinions towards the online vocabulary instruction using nano authentic videos?

1.4 Significance of the Study

The findings of the study will be significant and useful for the groups of concerned parties as follows:

1.4.1 The teachers will get a new sight about online platform and video materials that are used to help students develop EFL vocabulary knowledge.

1.4.2 The students will get significant information about various techniques that are used to enhance EFL vocabulary knowledge and gain teachers' feedback online.

1.4.3 The researchers in the field of enhancing young Chinese EFL learners' vocabulary knowledge will get significant information about the online instruction and video materials that Chinese teachers can use in EFL vocabulary learning and teaching.

1.5 Scope of the Study

The research scope consists of research population and sample, variables of research design and content of lessons.

1.5.1 Research Population and Sample

The target population in this study was in the group of 4th grade students in a Chinese public primary school. The students were YLs for EFL learning and teaching with the age range from 10 to 12 years old. The sample was a small group of 15 young Chinese EFL learners who voluntarily participated in this study with their parents' consent.

1.5.2 Variables of Research Design

In the single group pre-test and post-test research design of this study, there were two variables as follows:

1.5.2.1 The independent variable: The online EFL vocabulary instruction using nano authentic videos.

1.5.2.2 The dependent variable: The dependent variable: EFL vocabulary knowledge of the young Chinese EFL learners and their opinions towards the online vocabulary instruction using nano authentic videos.

1.5.3 Content of Lessons

The content of the lessons was vocabulary instruction. The target words were corresponded to vocabulary knowledge of the "English Curriculum Standards for Compulsory Education (2022 Edition)" (MOE, 2022), which is proposed to develop students' language ability, cultural awareness, thinking quality and learning ability. The themes of the lessons were those related to students' lives, and 2 target words were taught in each theme (Table 1.1). The theme-related nano videos were presented with Edpuzzle (http://www.edpuzzle.com).

Table 1.1 List of the lesson themes and its target words

| No. | Theme | Target words and its part of speech | |
		n.	v.
1	Birthday party	party, cake	
2	Farm trip	chicken,	fly
3	Reading books	library, book	
4	It was snowing	coat	snow
5	Doing grocery	cart, supermarket	
6	Summer activity	sunscreen	swim

1.6 Conceptual Framework

In this study, the students participated in the pre-test in the first week. Then, the researcher implemented the online vocabulary instruction using nano authentic videos through the Edpuzzle platform. There were six themes with twelve target words during the treatment process from week two to week four. After the treatment, the

students had the post-test, the scores of which were analyzed whether vocabulary knowledge had been developed after the treatment. Finally, the data of questionnaire collected at week five was used to analyze the students' opinions towards online vocabulary instruction and nano authentic videos.
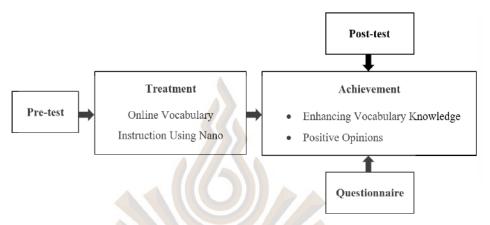
Figure 1.1 Conceptual framework

1.7 Limitation of the Study

1.7.1 This study only investigated online EFL vocabulary instruction within a short period for a group of Chinese primary school students aged 10 to 12 years old. It did not conduct a longitudinal study to investigate widening the effects of online vocabulary instruction nano authentic videos to improve EFL vocabulary learning among Chinese primary school students on a larger scale.

1.7.2 This study was only a small number of students' research conducted among 4th grade students in a primary school in one of the cities in China due to the limited number of free users of the platform. Therefore, the findings cannot be generalized to students in other locations.

1.7.3 Qualitative research instrument and qualitative data were not available for this study.

1.8 Definition of Terms

Online vocabulary instruction in this study referred to the online instruction which was designed using nano authentic videos through Edpuzzle platform and it used to explore the impact the EFL vocabulary learning and teaching on young Chinese EFL learners' vocabulary knowledge. The researcher conducted online vocabulary instruction using the online Edpuzzle platform, which presented nano authentic videos for students.

Nano authentic videos in this study referred to authentic videos which were created by native English speakers for purpose of not for language education as authentic video materials. In addition, the length of the videos was limited, which were less than 5 minutes and shorter than short videos. These videos selected from social media had six different themes according to the target words.

Online vocabulary instruction using nano authentic videos in this study referred to the online vocabulary instruction designed with nano authentic videos and interactive video platform. The students received nano information of the target words by visual-auditory dual channel in a short time. The students watched these videos diving into real context to comprehend word meaning, form and use. Meanwhile, they gained important information noted by their teacher, finished practices, provided their own opinions and gained feedback from their teacher. The detailed information was explained in-depth in Chapter 3 and sample lesson plan was provided in Appendix A.

EFL vocabulary knowledge in this study referred to different features of EFL vocabulary, including vocabulary meaning, form and use. There were different types of vocabulary tasks to measure all participants' vocabulary knowledge in real context after the vocabulary instruction by the pre-test and post-test designed by the researcher (Appendix B).

Learners' opinions towards the online EFL vocabulary instruction in this study referred to the attitudes of young Chinese EFL learners about the vocabulary instruction, which were was elicited by a questionnaire (Appendix C).

Young Chinese EFL learners in this study referred to Chinese primary school students who are aged from ten to twelve years old. The target population in this study was a group of 4th grade students in a Chinese public primary school.

Chapter 2

Literature Review

In this chapter, the review of literature about vocabulary instruction, authentic materials, nano video materials and interactive videos are presented. This chapter provides the research background related to EFL vocabulary and the trend on online EFL vocabulary instruction using nano authentic videos.

2.1 Studies on Vocabulary

Vocabulary is the foundation of learning a foreign language and developing other language skills. To explore EFL vocabulary learning and teaching, it is necessary to discuss the basic definition, significance, different types of vocabulary and related studies.

2.1.1 Definition of Vocabulary

Vocabulary was "a collection of words or of words and phrases" defined by Webster's Dictionary. It was widely considered to be a collection of languages that humans use in their lives, which can be evolved in response to cultural and technological development. Vocabulary was used to convey information in daily life or in academic settings (Min, 2013), meeting the requirements of oral communication or written presentation. As a quote from Wilkins (1972, as cited in Lessard-Clouston, 1994, p.69) said: "There was not much value in being able to produce grammatical sentences if one has not got the vocabulary that was needed to convey what one wishes to say ... While without grammar very little can be conveyed, without vocabulary nothing can be conveyed." Developing a strong vocabulary was an important factor in developing language skills for both native speakers and foreign language learners. It was difficult to understand content if there was a lack of vocabulary (Hiebert & Kamil, 2005, p.116).

Therefore, vocabulary was an essential component for the production and transmission of any language, providing the core condition for the development of language subskills (Richards & Schmidt, 2002). Vocabulary knowledge was an essential component of communicative competence. It was difficult to communicate effectively without adequate vocabulary, which may lead to confusion or misunderstanding. Furthermore, vocabulary was not just used in spoken language to communicate face-to-face with others or to understand what they were hearing. It was equally important to use vocabulary in writing and to retain and transmit the language, recording their feelings with it. In view of the importance of vocabulary to L2 development, it was important to improve L2's listening, speaking, reading and writing skills, and find materials and strategies to improve learners' vocabulary knowledge.

Vocabulary knowledge involved word form, meaning and use as shown in the table 2.1 (Nation, 2001, pp.40-41). Form, for instance, noun differed in singular or plural form. The plural word was added with -s or -es to the original word, and there was also a special case where the plural form remains unchanged. Meaning, for instance, the word "water" usually means a liquid in the form of a noun, but it was also be used as a verb to mean water a plant. This means that the same word can have different meanings in different context. Use, as in the above case "water", the word "water" in different real contexts can have different uses and different meanings, moreover, use and meaning were often interrelated.

Table 2.1 What was involved in knowledge a word

Aspects of Vocabulary Knowledge			
Form	spoken	Receptive	What does the word sound like?
		productive	How is the word pronounced?
	written	Receptive	What does the word look like?
		productive	How is the word written and spelled?
	word parts	Receptive	What parts are recognizable in this word?
		productive	What word parts are needed to express the meaning?

Table 2.1 What was involved in knowledge a word (cont.)

Aspects of Vocabulary Knowledge			
Meaning	form and meaning	Receptive	What meaning does this word form signal?
		productive	What word form can be used to express this meaning?
	concept and referents	Receptive	What is included in the concept?
		productive	What items can the concept refer to?
	associations	Receptive	What other words does this make us think of?
		productive	What other words could we use instead of this one?
Use	grammatical functions	Receptive	In what patterns does the word occur?
		productive	In what patterns must we use this word?
	collocations	Receptive	What words or types of words occur with this one?
		productive	What words or types of words must we use with this one?
	constraints on use (register, frequency ...)	Receptive	Where, when, and how often would we expect to meet this word?
		productive	Where, when, and how often can we use this word?

Source: Nation, 2001, pp.40-41

2.1.2 Receptive and Productive Vocabulary

As Hiebert and Kamil (2005, p.3) explained, receptive vocabulary was vocabulary acquired during reading and listening. During these processes, vocabulary was formed as a result of receptive language. it was possible that learners may not be

able to achieve communication or writing well. Generally, productive vocabulary was vocabulary that learners use in their spoken and written communication, and it was familiar and used more often by learners. Leona and others (2021) mentioned that using multimedia to learn languages helps young learners develop receptive vocabulary. It was easier for students to learn when they receive visual support. In addition, video-based vocabulary learning makes it easier to receive vocabulary knowledge (Alastuey & García, 2019).

2.1.3 Content Word and Function Word

Words can be classified into two main categories in linguistics, for instance, content words and function words (Pulvermüller, Lutzenberger, & Birbaumer, 1995; Schmitt, 2010, p.54). According to Pulvermüller and others (1995), the cerebral cortex reacts differently when content and function words were present in the same context. The experimental results confirm the predictions, and were in agreement with those of Mohr and others (1994, as cited in Pulvermüller et al., 1995). These experimental results provide biological evidence for the classification of content words and function words.

The keywords in sentences were usually highlighted by stress or high pitch in spoken English. These keywords were usually content words (Malkina, 2014). The meaning and form of content words present the main meaning of the sentence, for instance, content words in a sentence were the main subject that present the central information. Content words generally include nouns, verbs and adjectives (e.g., garden, play, happy), which belong to open-class words (Pulvermüller et al., 1995), that is, new vocabulary was produced with the change of language in the social environment, and the number was changing. In addition, according to Krejtz and others (2016), content words can have complex variations (e.g., -ing, -ed, en), derivations (e.g., -tion, -al) or combinations (e.g., brunch, cellphone, smog, swipe).

Functional words were close-class words, for instance, the number generally does not change with the development of language. In addition, functional words were words that reflect the grammatical structure of sentences, the number of which was

much less than that of content words, but the frequency of their appearance was usually relatively high (Pulvermüller et al., 1995). Generally, function words include articles, pronouns, auxiliary verbs and conjunctions (e.g., the, an, him, is, are, and, but). In addition, function words were usually simple in structure, and it was often weak in spoken language.

In this study, content words were selected as target words, and the depth of knowledge of these words were measured (Schmitt, 2010, p.53), including the form, meaning and use of words, which helped to understand the process of meaningful vocabulary use and cognitive building of YLs involved in the research. The selected target vocabulary was in line with the "English Curriculum Standards for Compulsory Education (2022 Edition)" (MOE, 2022), mainly nouns and verbs. This new edition English curriculum standards is clear that the content of English course includes theme, discourse, language knowledge, cultural knowledge and language skills. The standard states that students in grades 3-4 need to be at level 1 (Jiang, 2023). The content of the first-level curriculum should consist of the three main themes of "man and self", "man and society" and "man and nature".

Due to the different language backgrounds of the young learners in the study, nouns and verbs that meet the vocabulary range were selected as target vocabulary, because nouns and verbs were easier to learn than adjectives (Lee & Park, 2017).

2.2 Materials on Vocabulary Learning and Teaching

To further explain vocabulary instruction through online platforms and nano authentic videos, the researcher explains the concepts of original videos, nano videos, and online platform applications and related studies.

2.2.1 Authentic Videos

Authentic materials were employed in vocabulary learning and teaching, learners would pay more attention on content than language structure (Setyaningsih,

2007). Authentic materials used in language education highlight the importance of authenticity. Mishan (2005, pp.18-19) believed the following features emphasizing "authenticity":

1) Reflecting a creator's key ideas.

2) Used for interaction and communication.

3) Presenting humanistic and social background.

L2 learning and teaching were supported by various authentic materials. High-level visual learners may benefit from videos in reducing cognitive load, as Homer and others (2008) stated that there were individual differences in the video influence on the cognitive for foreign language learners. Silverman (2005) surveyed elementary school students in 4th-6th grades, and found that these young learners prefer visual experience, for instance, they liked to use those visual-auditory tools as learning materials, perceiving and understanding in real context with dynamic images and sounds. Therefore, most YLs tended to be high-level visual learners, in which case teacher-centered instruction or rote memorization did not conducive to them.

Authentic videos were one kind of authentic visual-auditory materials, for instance, these materials were able to help learners receive information with visual-auditory dual channel. Authentic videos have been noticed widely as an important tool for language instruction and learning (Moeller, Ketsman, & Masmaliyeva, 2009; Su & Liang, 2014; Yang, 2014; Sinyashina, 2019; Kaynar & Sadik, 2021; Bernard, 2021). Authentic videos were video-type materials created by native speakers, and the original purpose were not for language teaching. The content in authentic videos comes from the living environment, and the language used was for daily communication. In addition, video content reflected the humanistic culture and social culture of the target language, including behaviors, lifestyles, and values, which have impacted on language development and using. Authentic videos provided a real-life environment that helped foreign language learners connect with their personal prior experience or knowledge (Mayer & DaPra, 2012). The meaning of words can be connected with dynamic images through the visual channel, and the pronunciation of words can also be known through the auditory channel, it also can help recognize the rhythmic changes of vocabulary in

a sentence (Grégis & Carvalho, 2019). As Oxford and Scarcella (1994) claimed, contextualization was pragmatic for vocabulary learning and was helpful for exploring vocabulary knowledge in the real context. Context learning includes listening to stories or watching movies, TV, etc. (Nation, 2001, p.369). This real language environment allows foreign language learners to get in touch with the pronunciation features and vocabulary usage scenarios of the target language. Foreign language learners can also benefit from authentic videos by practicing language skills out of class and be more motivated to learn the language (Ipek & Ustunbas, 2021). All these characteristics were meaningful for young learners to learn foreign languages. Indeed, multisensory experiences can attract learners' attention.

However, the cognitive capacity of obtaining and processing information through dual channels was limited (Mayer & Moreno, 2003; Mayer, Fennell, Farmer, & Campbell, 2004). According to Tetzlaff and others (2012, as cited in Kelley & Whatson, 2013), time patten was one of the key factors affecting memory. The content of long authentic videos would be continuous, and YLs' attention span were usually narrow (Shin, 2006). As Sweller and others (2011, p.58) claimed that long videos diverted attention, and unnecessary or additional information will over cognitive capacity, leading to too much extinct cognitive load, this way was less helpful in the learning process.

2.2.2 Nano Authentic Videos

It was important to consider cognitive load when using authentic videos for EFL vocabulary learning and teaching (Afify, 2020). Authentic videos show real emotion, attitudes, actions, sounds (might have different accents), using visual-auditory dual channel form to attract attention during the language developing process. However, learners' attention on complex information was limited, especially for YLs (Shin, 2006). It was beyond cognitive load to receive and process information at the same time. Compared with the traditional long videos, Stahl and others (2010) mentioned that presenting information in bite-size or small chunks allows better memory retention. Taking in content in small-chunk form at a time allows learners to concentrate on a

single goal well, which was critical for YLs to reduce cognitive load (especially extraneous cognitive load). Slemmons and others (2018) believed that the way of inputting and processing information in small-chunk form was accepted by young learners. Teng (2020) also believed that short videos have a positive impact on learners' cognitive load. The researcher believed that young learners (participants in the study were sixth grade primary school students) may not be able to build up cognitive from four long videos in a short time. Furthermore, short videos should also be appropriate for these YLs in terms of topics and difficulty of content.

As Thompson, Xiu, Tsotsoros, and Robertson (2021) stated, segmenting long videos (dividing into three short 4- or 5-minute video clips from a 14-minute video) reduces the need to input too much information in a single time. It was important to consider several factors when determining the length of video materials for language learning and teaching. Firstly, cognitive load and working memory capacity should be considered, considering whether these videos content can be connected with personal previous experience. Secondly, individual differences and cognitive presences should be considered. The high-level visual learners prefer to use videos to help them learn, while the low-level visual learners may be the opposite (Yang, 2014).

"Nano" means one-billionth in the international system of units. The small learning model based on e-learning was called nano-learning (Aburizaizah & Albaiz, 2021). Nano-learning was defined as bite-sized learning (Kayalar, 2021), which was a smaller unit of micro-learning (Khlaif & Salha, 2021). In other words, micro content was divided into much smaller pieces of content. A number of nano learning chunks constitute micro content. For learning a foreign language, this was worth considering and exploring. For instance, using authentic videos can create a short language learning chunk. At present, there was no unified statement about the time length of the nano-learning video. Gramming, Ejemyr, and Thunell (2019) said nano-learning videos should less than 5 minutes. Kayalar (2021) also said learning content of videos can be presented in 2 minutes or less. Cesare, Kaczorowski, and Hashey (2021) mentioned that videos would be better in less than 6 minutes for YLs' language learning. The social media TikTok can offer short videos in less than 1 minute (Khlaif & Salha,

2021), and the content in such a short video often provides small and single information with high relevance. Kayalar (2021) also believed that learners can concentrate on the content of nano-learning video, and it was not easy to get tired. According to Afify (2020), short interactive videos have positive impact on reducing cognitive load and long-term memory retention. In addition, such nano videos were highly flexible and interactive, and can be used by a series of technological devices, including mobile devices such as iPad or mobile phones (Gramming et al., 2019; Kayalar, 2021), which helped learners receive single piece of information in a short time.

There should be professional judgment on the length of videos used for language learning and teaching. Learners of different learning levels and ages may have different views on video length. For instance, YLs' views on nano authentic videos were different from those of college students (Thompson et al., 2021). In order to explore how YLs can use authentic videos to improve their vocabulary knowledge, the main factor considered in this study was nano video materials based on CALL. Considering the characteristics of nano authentic videos and technology, this paper provides a real context to help learners learn vocabulary and deal with unfamiliar vocabulary that may be encountered.

2.2.3 Online Interactive Platform

Interaction provided L2 learners with input, feedback and output during the learning process (Azkarai, Oliver, & Gil-Berrio, 2022). Learners were engaged in different types of interactions through the technology-mediated learning process and tasks. In the interpersonal interaction, learners had more opportunities to express their personal reflections, or discuss with peers and teachers. This was essential for learners to recognize that they were the insiders and increase their engagement. Learner-computer interaction focuses on enhancing learners' attention of the content, and increasing input. For instance, an interactive short video provides learners with the opportunity to interact with the content and gain input, this was an active experience unlike watching a traditional video passively. Interpersonal interaction was an integral part of the cognitive process. Learners worked with the input information, transfer and

create their personal knowledge. Edpuzzle (http://www.edpuzzle.com) was the CALL-based interactive media that can be used to create interactive videos, switching the traditional liner videos to interactive videos (Cesare et al., 2021). The study by Rahayu and Bhaskoro (2022) suggested a positive impact of interactive media Edpuzzle on English vocabulary instruction. It encouraged learners to study and memorize English vocabulary because they were able to experience joyful emotions during the learning process. The EFL vocabulary instruction in this study provided learners with limited visual-auditory vocabulary knowledge in a short time. In addition, various types of interaction will help learners understand the content, and learn EFL vocabulary knowledge in the real context.

2.3 Vocabulary Instruction for YLs

It is essential to consider young students' learning characteristics when conducting vocabulary instruction. Further discussions are needed on the principles and modes of appropriate instruction.

2.3.1 YLs' Characteristics to Learn EFL

The age of learners was a key factor that educators should pay attention to in language education. Age was often related to language development needs, cognitive level, and developmental ability (Harmer, 2007, p.81). Adults might have clear extrinsic motivation to learn a foreign language (Harmer, 2007, p.98), such as mastering one more foreign language can lead to more job opportunities. It also existed in most teenagers. Their purposes were to pass a formal language exam or get the opportunity to study aboard. Certainly, some intrinsic motivations made adults or teenagers take the initiative to learn a foreign language (Harmer, 2007, p.99). They like the popular culture in the target language area, such as the life scenes in TV series and movies, or the rhythms or lyrics in popular songs. However, the cognition, behavior and emotion of YLs were still in an unstable developing process. There were not enough intrinsic motivations that make them want to learn a foreign language (Moon, 2005). As for YLs in this age group, there was no other extrinsic motivation that can drive them to

learn EFL except for exams. Some YLs want to learn a foreign language because their parents or relatives of the same age were bilingual and want to learn and communicate with them. This shows that young learners were easily influenced by their surroundings (Wallace & Leong, 2020). It may be related to the characteristics of children's psychological development (Setyaningsih, 2007). In other words, the psychological characteristics of young learners were related to the learning materials and learning process. Table 2.2 shows the psychological characteristics of young learners in the process of learning a foreign language.

Table 2.2 The psychological characteristics of YLs in the process of learning a foreign language

Psychological Characteristics	Detail Performance
It was easy to get tired of inappropriate learning materials and learning patterns.	Choosing appropriate and engaging learning models and materials can stimulate YLs' interest in learning.
YLs like to use senses to help their understanding.	Using realia or immerse in real context with target language.
With a strong curiosity.	Encouraging YLs to explore on their own. Providing appropriate advice or clues was allowed.
Understanding content in real context.	Paying little attention to language form or language structure. Errors in language form or language structure were allowed.
Be sensitive to the surroundings, and care about the views of peers and teachers (Leona, et al. 2021).	Increasing interactive activities. A teacher should give feedback in time.

Source: Setyaningsih, 2007

2.3.2 EFL Vocabulary Teaching for YLs

2.3.2.1 Teacher' Belief to Teach Vocabulary for YLs

When teaching vocabulary to YLs, teachers have to consider their learning characteristics and find out some suitable principles. In order to create an interesting and engaging learning environment with high participation, it was worth thinking about what kind of materials and teaching strategies to choose. It was necessary to provide a natural, real-life language environment for beginners to comprehend the meaning of each word and its word family better. In addition, small chunks of word information and repetition were also significant for vocabulary learning (Decarrico, 2001). As new information tends to enter short-term memory first, the capacity of the short-term memory was limited and small, therefore, the information was held for only a short time. Small chunks of information can reduce the cognitive load. And meaningful repetition in a real context was necessary if long-term memory was to be formed. The following principles shown in the table 2.3 below.

Table 2.3 Materials principles for YLs

Principle	Example activity
To attract the attention of learners.	There were interesting and attractive activities or games.
	There was rich sensory experience, including visual and auditory input channels. For example, authentic videos provided more real-life language and performance, which were presented in visual-auditory form. As Su and Liang (2014) mentioned, this way could help reduce those high-level visual learners' cognitive load while they were exposed in the real-life language content.
To give enough opportunities for self-learning.	There was enough time to learn and practice.
	Repetitions (need to pay attention about the frequency and method).

Table 2.3 Materials principles for YLs (cont.)

Principle	Example activity
To provide suitable supports	It was acceptable to use L1 while learning a foreign language, especially for YLs, but could not depend on it (Shin, 2006). Peers' activities. A teacher's guidance. Affirming and inspiring YLs' efforts.
To enter information in a small chunk form.	Appropriate input was reasonable. Excessive or difficult content will increase cognitive load. Afify (2020) declares that short interactive videos were more effective in reducing cognitive load.
To build up a connection with real-life content.	It took daily life content as a theme in the target language. For YLs, it was significant to connect their culture and life with a new language (Shin, 2006).

Source: Crosse, 2007, pp.25-30

2.3.2.2 Implicit EFL Vocabulary Instruction

Implicit vocabulary instruction was non-conscious and without awareness of they were learning vocabulary (Nezhad, Moghali, & Soori, 2015). It was the aside production during the learners' instruction process. Different types of activities in real context created an attractive and natural linguistic environment for learners to take part in. Vocabulary learning was encountered during the process. Different aspects of vocabulary knowledge were presented and repeated in the context. Learners had the opportunity to comprehend those unknown words "incidentally". Implicit instruction emphasized vocabulary learning in the real context. However, it could be a slow and easy-confused process.

2.3.2.3 Explicit EFL Vocabulary Instruction

Explicit approach emphasized to teach EFL vocabulary requiring clear instructional approaches and activities (Young-Davy, 2014). The explicit instruction was to deepen the comprehension of vocabulary knowledge, such as a word with different meanings and forms, or a word used in different linguistic scenes. Learners gained much more explicit supports during their words learning process. Explicit instruction strategies (e.g., students learning and teaching methods, materials and language skills) were based on learners' characteristics and needs (Archer & Hughes, 2010, p.19). Table 2.4 shown a variety of explicit approach principles to teach vocabulary.

Table 2.4 Explicit approach principles to teach vocabulary

Principle	Activity
Build a large sight vocabulary	In order to understand words or word chunks, learners can form picture using computer technology.
Integrate new words with the old	It was important for teachers to assist learners in making connection between new word(s) and other words they have learned.
Provide a number of encounters with a word	A word can have multiple meanings. The more students were exposed to word(s) in different real contexts, the better they understand its multiple meanings and use.
Promote a deep level of processing	Let learners relate to their real life and see the actual use of the words in daily life.
Facilitate imaging and concreteness	Teachers need to use appropriate materials and methods to introduce new word(s) or word chunk(s).
Use a variety of techniques	Different teaching techniques can be used as learners' abilities change.

Source: Sökmen, 1997

2.3.2.4 Nation' s Four Strands to Teach EFL Vocabulary

As Nation (2007) said, there were four strands which were significant to design the whole instruction to teach another language abilities. The following four strands in this study were used to teach EFL vocabulary for Chinese YLs.

1) Meaning-focused input: Learners can achieve vocabulary through the content that they have heard, read, or seen. The content should be comprehensible and attractive for the learners. They can find out the meaning of the unknown target words following the clues in the content. There were many types of learning activities to use in this strand, such as watching videos or being a listener in a storytelling or a natural communication.

2) Meaning-focused output: There were many opportunities for learners to use the target words they have learned. Different types of activities and tasks can be used as output learning, such as writing sentences or short stories, doing role-plays, or talking with others with target words, etc.

3) Language-focused learning: This was the explicit process to learn vocabulary knowledge, such as word form, spelling or words (word chunks) collocation, etc. There were some typical practices to focus on vocabulary learning, such as word pronunciation practice, learning word meaning and form using flashcards or video clips, answering questions in context, etc.

4) Fluency development: learners can use target words in different linguistic aspects including listening, speaking, reading and writing. There were receptive and productive knowledge development in the same time, and enhance fluency when learners were using the target words during the output procedure. There were types of activities and tasks including speed repeating, reading, writing or listening short stories.

2.3.2.5 The PPP Teaching Steps for EFL Vocabulary Instruction

The PPP acronym stands for three phases including Presentation, Practice and Production, which was a common teaching method in foreign language ability instruction (e.g., grammar and vocabulary). And it was used and promoted into important communicative language teaching model by some researchers (Anderson, 2017; Hestetræet, 2018). These phases in vocabulary instruction with types of activities

were proceeding from the teacher-controlled presentation, through guided practice and then to the free production. The three phases in details were as follows.

1) Presentation step was the step controlled by the teacher. The teacher can use visual-auditory aids to create a context, and then drive learners' attention to focus on the target words and elicit the meaning in the context. The teacher's questions during the process should be useful and proper to guide learners.

2) Practice step was the step guided by the teacher, and learners do practice tasks to learn vocabulary knowledge better. Uncritical practice tasks should be simple and effective in bridging learners from Practice to Production. Practice tasks can be matching games or memory call games with the video content, in the meanwhile they were allowed to interact with their teacher.

3) Production step was the step where vocabulary learning achievement was mastered by learners. Learners were encouraged to use target words in context. Therefore, productive tasks allow learners to use the target words they have learned without limited structure. It was needed to provide sufficient time for them to finish tasks and receive feedback.

It should be noted that in this study, all participants were young Chinese EFL learners, they were non-native English speakers, therefore, they needed to be explicit taught. Some implicit approaches were also used during the input procedure. Thus, the form-focused instruction was used to help the researcher to teach the YLs and make them know target vocabulary knowledge. The vocabulary instruction under the four strands through the PPP teaching steps was discussed in the next section in details.

2.4 Online Vocabulary Instruction Using Nano Authentic Videos

There were many components that make up vocabulary knowledge, including meaning, form, spelling, use. In China, most of the traditional English instructions emphasize language structure, gramma, and use L1 to comprehend English vocabulary. For EFL learners, this kind of foreign language instruction was boring and unable to think in English. Furthermore, it was extremely difficult to develop a new language without the language background and cultures in the real language environment.

Vocabulary was significant in developing other language abilities. Thus, it was essential for language education teachers to build up appropriate vocabulary instruction to help new language learners to comprehend and use vocabulary (Bromley, 2004). Currently, with the rapid development of network and computer technology, EFL vocabulary learning and teaching materials and methods can no longer be limited to textbooks or auditory materials, but can be corporate with visual-auditory materials and interactive technology. Computer technology can create real context and interactive activities for language learning and teaching. Learners can comprehend vocabulary meaning and use vocabulary in multiple elements, such as form, stress, vocabulary collocation, etc. It will be easier for learners' vocabulary learning under the connection with their previous knowledge or daily experience, and it was also important to stimulate learner' intrinsic motivation during the learning process. Learners can learn EFL vocabulary during the interactive process based on real context (Bromley, 2004). Fun settings, good native pronunciation and interactive activities can be significant for YLs, engaging their attention and supporting them to develop EFL vocabulary knowledge in the comfortable and interesting linguistic environment.

In this study, the researcher adapted the PPP teaching steps using nano authentic videos. It was much more likely a video-based game instruction to help the young Chinese learners learn the target words. Each lesson had 2 target words, and all participants worked on the instructional steps. The following shown the vocabulary instruction procedures based on Nation's four strands (2007) through the PPP teaching steps (Anderson, 2017; Hestetræet, 2018). The vocabulary instruction for this model included three teaching steps:

Presentation of the vocabulary using the Meaning-focused Input: Nano authentic videos were designed to provide input for EFL vocabulary learning and teaching, and learners received vocabulary information by visual-auditory dual channel. The nano authentic videos could show the language cultural background, characters' features, performance, pronunciation and accents. The teacher guided all students to watch videos to guess and discuss the word meaning and word form in real context.

Practice provision through the Language-focused Learning: Videos were separated by themes and there were the following interactive tasks while watching nano videos.

1) The teachers provided main notes and practices of target words using online platform Edpuzzle. These notes included target words explanation and cultural background under the video context.

2) During watching nano authentic videos on the platform, all students were required to check all keynotes and answer the pop-up questions used to measure if they can recall the word knowledge (e.g., meaning, form and pronunciation) in the context.

3) All students enabled to provide personal opinions when they had any confusions, or how they felt during the process.

4) The teacher trailed on the learning progress and gave feedback in time.

Production exposures were assigned to the students based on the concepts of the Meaning-focused output and Fluency Development: It was supposed to be the freely production phase. There were different types of word tasks for learners including word and sentence rewriting and small talk using the target words. It was important to develop written and spoken word fluency.

2.5 YLs' Vocabulary Knowledge Assessment

There can be different tests to measure different vocabulary knowledge. The following table 2.5 can answer how to assess vocabulary knowledge and design pre-test and post-test according to specific studies.

Table 2.5 Aspects of word knowledge for testing

Assessment of word knowledge			
Form	spoken	Receptive	Can the learner recognize the spoken form of the word?
		productive	Can the learner pronounce the word correctly?
	written	Receptive	Can the learner recognize the written form of the word?
		productive	Can the learner spell and write the word?
	word parts	Receptive	Can the learner recognize known parts in the word?
		productive	Can the learner produce appropriate inflected and derived forms of the word?
Meaning	form and meaning	Receptive	Can the learner recall the appropriate meaning for this word form?
		productive	Can the learner produce the appropriate word form to express this meaning?
	concept and referents	Receptive	Can the learner understand a range of uses of the word and its central concept?
		productive	Can the learner use the word to refer to a range of items?
	associations	Receptive	Can the learner produce common associations for this word?
		productive	Can the learner recall this word when presented with related ideas?

Table 2.5 Aspects of word knowledge for testing (cont.)

			Assessment of word knowledge
Use	grammatical functions	Receptive	Can the learner recognize correct uses of the word in context?
		productive	Can the learner use this word in the correct grammatical patterns?
	collocations	Receptive	Can the learner recognize appropriate collocations?
		productive	Can the learner produce the word with appropriate collocations?
	constraints on use (register, frequency ...)	Receptive	Can the learner tell if the word was a common, formal or infrequent word etc.?
		productive	Can the learner use the word at appropriate times?

Source: Nation, 2013

As seen in the table 2.5, there were different types of vocabulary tasks to assess knowledge in terms of vocabulary meaning, form and use. For instance, the types of tests in written form could be used to measure if the learners can recognize appropriate word form and rewrite the appropriate form of the word. For instance, the types of tests in form and meaning could be used to measure if the learners can recall the meaning of the word in appropriate form. For instance, the types of tests in word use could be used to measure if the learners can recognize the correct use of the word in context. In this study, it aimed to determine if the participants were successful at receptive vocabulary knowledge they have learned after watching nano authentic videos and vocabulary learning. Therefore, objectives of the test tasks in this study examined the meaning, form and use of the target words (Table 2.6). And such a short-term achievement test should be easy to produce and appropriate to all participants (Nation, 2013). The vocabulary list for the test in this study will be selected from the "English Curriculum Standards for Compulsory Education (2022 Edition)" ((MOE, 2022), and different tasks were used to evaluate different aspects of receptive vocabulary knowledge. There were several task samples shown from the table 2.7 to table 2.9.

Table 2.6 Objectives of types of test tasks

No.	Task objective	Receptive vocabulary knowledge
1	Recall the appropriate meaning for a given word	Meaning
2	Recognize the written form of a given word	Form
3	Recognize the correct use of a given word in context	Use

Source: Bubchaiya & Sukying, 2022

Table 2.7 An example for the test of the word meaning

No.	Target word	Meaning choice		Scoring
E.g.,	vegetables	☑	☐	1
E.g.,	vegetables	☐	☑	0

Source: Bubchaiya & Sukying, 2022

Table 2.8 An example for the test of the word form

No.	Sentence	Form choice			Scoring
		Ture	False	Correct it	
E.g.,	She was <u>run</u> fast to school with her best friend.		✓	running	2
E.g.,	She was <u>run</u> fast to school with her best friend.		✓	runing	1
E.g.,	She was <u>run</u> fast to school with her best friend.	✓			0

Source: Bubchaiya & Sukying, 2022

Table 2.9 An example for the test of the word use

No.	Sentence	Part of speech				Original word	Scoring
		n.	v.	adv.	adj.		
E.g.,	She was swimming in the pool.		✓			swim	2
E.g.,	She was swimming in the pool.		✓			-	1
E.g.,	She was swimming in the pool.	✓					0

Source: Bubchaiya & Sukying, 2022

2.6 Related Studies

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. The instruction combined with different computer media will provide learners for language input and types of interaction (Chapelle, 2003).

In the study of Khlaif and Salha (2021), it stated that nano-learning refers to the condensing of microcontent into small units that are controlled and delivered by learners to achieve a single learning objective. The nano content is delivered in the form of short video clips and posted on social platforms that allow for user interaction, such as TikTok. The comment function on the platform allows users to leave feedback, express opinions, provide and gain information from others, etc. These short video resources and platform were a new inspiration for language education.

In the study of Thompson and others (2021), it conducted an online experimental study to investigate whether video length affects college students' attitudes toward learning and perceptions of interaction patterns. 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-minutes segments than in a single long video with the same content. Whether or not there is more than a load for the perception and retention of new information is relevant to the cognitive theory proposed by Sweller (1994, as cited in Thompson et al., 2021). Videos are undeniably a rich learning resource that includes sound, pictures, and movement. Multimedia resources can aid learning in the right context, but it also has the potential to overload a learner's working memory capacity by providing too many stimuli and thus requiring too much basic processing.

In the study of Ariffin and Ismail (2019), it was discussed 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.

In the study of Gramming and others (2019), it stated that nano learning content delivered in bite-size chunks in the form of videos, assessments and interactive materials, etc. It was better to break long-term information up and make it into several

short parts, because limited input in a short time reduced cognitive load. In addition, this nano learning was flexible and suitable to be applied to different mobile devices.

In the study of Yu and Gao (2022), it discussed the effectiveness of short videos for foreign language learning. This study determined the effect of video length on English proficiency, student engagement, and satisfaction in a flipped English classroom in China. The results showed that short videos (less than 5 minutes) assisted English flipped classroom showed significant improvement in English proficiency, student engagement and satisfaction. Interactive activities based on short videos can assist learners in comprehending content and expressing personal opinions. Videos carry various linguistic information, such as cultural background, vocabulary use, collocation and accents, etc., all of these can be important factors affecting foreign language leaning and teaching. Furthermore, short videos can be used to engage foreign language learners in interactive activities instead of watching videos passively. Therefore, they concluded that more consideration should be given to video length and mobile platforms when using video in the future of foreign language instruction.

However, according to Slemmons and others (2018), the result of their study questions the effect of short videos on short-term memory. But it has to be emphasized that they believe that short videos have more positive effects on long-term memory and for students who lack of learning abilities than long videos. And some of the students believe that it was related to their greater engagement and attention while they were watching the short videos. There were insights to be received from these researches when exploring EFL vocabulary learning materials and teaching instructions. However, from the results of these studies, it was known that research on EFL vocabulary learning and teaching based on nano authentic videos and interactive videos was still limited.

2.7 Chapter Summary

In the chapter 2, the researcher reviews the relevant literature to support this study and develop online vocabulary instruction using nano authentic videos for young Chinese learners. Video-based vocabulary learning and teaching has been shown to be

effective in some studies. It was due to the high quality of the visual content and natural sounds that can attract learners' attention and increase their vocabulary knowledge. Some searches mention the interactive technology into short videos, which can transfer traditional liner short videos into interactive short videos. However, it was known from some relevant literature that the vocabulary instruction using short videos or interactive short videos were debatable for short-term memory and knowledge retention. This study aims to conduct research on EFL vocabulary instruction in a Chinese educational setting. The research methodology will be discussed in the next chapter.

Chapter 3

Research Methodology

This chapter exhibits the research method of the study. This study is a single-group pre-test and post-test research design. Several components of the research procedures are presented in this chapter which include population and research participants, research design, research instruments, validity and reliability of research instruments, data collection, and data analysis research ethics.

3.1 Research Design

Quantitative data is significant in different variables of English language education (Elmiana, 2017). Bryman (1998, as cited in Elmiana, 2017) states that quantitative data emphasizes on quantification during data collection and during the period of analysis, and uses a deductive approach to test the theories, while holding the view that the social reality is an objective reality. The main methods of quantitative research are through surveys, experiments and questionnaires.

In this study, the researcher designed a relevant investigation process in order to answer specific research questions. It was a single group pre-test and post-test research design (Cohen, Manion, & Morrison, 2007) including pre-test, treatment, and post-test in the following table 3.1. The researcher used scores of the pre-test and post-test and a Likert-scale questionnaire to collect quantitative data. The pre-test and post-test of vocabulary knowledge were used to find out the change in students' vocabulary scores before and after the instruction treatment and the questionnaire was used to find out the students' opinions of online instruction using nano authentic videos.

Table 3.1 One-group pretest-posttest design

Pre-test	Treatment	Post-test
O1	X	O2

Note*:*

O1 means pretest of the study

X means the treatment of the study, Online Vocabulary Instruction Using Nano Authentic Videos

O2 means the posttest of the study

The pre-test was designed to evaluate the participants' vocabulary knowledge before the treatment stage. During the process of the treatment stage, the researcher used Edpuzzle (http://www.edpuzzle.com) to build up the online vocabulary instruction using nano authentic videos. The vocabulary instruction was presented online to show target words for all participants. There were three online lessons with 6 themes during the treatment process. After the treatment stage, 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.

3.2 Population and Sample

The target population was the group of Chinese primary school students in 4th grade in a Primary School. These were young Chinese students aged from ten to twelve years old. In addition, English was a compulsory foreign language course for them with clear curriculum objectives and standards. These Chinese YLs learn English with textbook materials, and they have no English language community. In this case, they always have difficulties in English learning.

The participants in this study were a small number of young Chinese students in a primary school. There are two main reasons to explain how to choose these students to participate in the study. The first main reason is that these two 4th grade students and their parents as well as the teacher were important persons who voluntarily helped to

contact other students to participate in. After the names of the potential students were referred to, the researcher contacted them and provided all the detailed information about the study and kept them informed that their participation was voluntary. Committing with the help of these two volunteers and the school teacher, the number of samples was expected at 15 students in 4th grade being the research participants in this study. Another reason is that the number of students participating in online teaching is low due to the platform's policy of limiting the number of free participants. After the researcher gained the appropriate number of students, it was important to contact the school administrator and asked permission to conduct the study with the students.

3.3 Research Instruments

3.3.1 Pre-test and Post-test

To measure vocabulary knowledge of all participants before and after the treatment, the researcher designed the pre-test and post-test with same items (Appendix B). The information about the participants' EFL learning situation was considerable before selecting the target vocabulary and designing pre-test and post-test. All the explanation parts of the pre-test and post-test were presented in Chinese-English to ensure that all participants can know about the test requirements and objectives. The pre-test and post-test with different types of items aimed to assess all participants' results with the aspects of word knowledge from Nation (2013). The pre-test and post-test were used before and after the treatment. In this study, all target words were selected according to the "English Curriculum Standards for Compulsory Education (2022 Edition)" in 4th grade. The pre-test and post-test consisted of different types of tasks to measure different aspects of receptive vocabulary knowledge. Both of the pre-test and post-test had thirty items. Each task has twelve items. Each target word was presented in each nano authentic video. The vocabulary task 1 was to choose the appropriate picture to match the given word. The purpose of the task 1 was to examine if the participants can recall the word meaning. The vocabulary task 2 was to choose and correct word form. The purpose of the task 2 was to examine if the participants can identify the written form of the word. The vocabulary task 3 was to choose and correct

word use. The purpose of the task 3 was to examine if the participants can recognize the correct use of a given word in context. The details of types of test tasks and scoring were shown in the table 3.2 below.

Table 3.2 The items and scoring of the pre-test and post-test

No.	Task objective	Test task	Items	Scoring	Aspect of receptive 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	

3.3.2 Questionnaire

To elicit the participants' attitudes after the online vocabulary instruction using nano authentic videos, the researcher designed a questionnaire (Appendix C). The close-ended questionnaire structure was referred from Dörnyei and Taguchi (2010, pp.158-163). This reference source provided types of Likert-scale questionnaire samples with 5-degree items. Twelve question items were adapted from Yu and Gao (2022) to measure all participants' attitudes, such as learning engagement and anxiety during the online instruction, or personal attitudes towards nano video materials and feedback

provisions based on the interactive platform with nano video materials. In addition, the questionnaire was presented to all participants in Chinese, which can ensure that all participants were able to understand the questionnaire. The close-ended questionnaire included 12 Likert scale items. All participants were asked to mark an option to indicate their agreements or disagreements on each item. There were 5 options from "strongly disagree" to "strongly agree" to indicate degree. The data from the questionnaire were collected after course treatment, and analyzed as quantitative data to explore all participants' attitudes towards the online vocabulary instruction using nano authentic videos.

3.3.3 Instructional instrument

3.3.3.1 Instructional materials

During the treatment, students were taught English vocabulary via online EFL vocabulary instruction using nano authentic videos with the design of three lessons and six themes consisting of twelve words in total. The treatment lasted three weeks. All videos for the treatment were selected from www.youtubekids.com. These videos content was not for language education. Each video content showed the daily lives of some children and their family or friends. The dialogues in each video were simple, natural and fluent for YLs. The researcher selected and arranged these authentic videos into interactive nano authentic videos less than 5 minutes, and all these videos were presented with Edpuzzle platform. Lesson videos selected can be presented with this platform and used to build explicit vocabulary instruction, which helped offer suitable practices and gained immediate responses and feedback, and the teacher monitored student performance during the instruction (Cesare et al., 2021). The instruction was set up with nano authentic videos and interactive platform to teach EFL vocabulary. The selected target vocabulary was in line with the "English Curriculum Standards for Compulsory Education (2022 Edition)" (MOE, 2022), mainly nouns and verbs. In addition, these words were also commonly needed in their school context or daily communication. Thus, these words were proper for the Chinese YLs who participated in this study.

3.3.3.2 Lesson plan

The vocabulary instruction had 6 themes, and the content of each theme covered two target words (Lesson sample seen in Appendix A). In this vocabulary instruction, all participants worked on the learning tasks using interactive nano authentic videos on the platform that the teacher set up the online course. All participants learned different aspects knowledge of the target words based on the vocabulary instruction. To select vocabulary for the English vocabulary test, the following requirements were applied: 1) the vocabulary test program was suitable for YLs. 2) the vocabulary range was based on the "English Curriculum Standards for Compulsory Education (2022 Edition)" (MOE, 2022). This new edition English curriculum standards is clear that the content of English course includes theme, discourse, language knowledge, cultural knowledge and language skills. The standard states that students in grades 3-4 need to be at level 1 (Jiang, 2023). The content of the first-level curriculum should consist of the three main themes of "Man and Self", "Man and Society" and "Man and Nature", which as shown in the table 3.3 below. 3) the vocabulary was expressed and repeated in random. Some of the lesson records were presented and discussed in Chapter 5 to analyze students' performance in the instruction.

Table 3.3 Lesson theme of the first-level curriculum

Scope	Theme Group	Sub-Theme
Man and Self	Life and learning, behavior and action	Personal Preferences and Emotional Expressions, family life, school life, etc.
Man and Society	Society, Literature and History and Culture	Common Occupations, Common Holidays, Laws, Common Sense, etc.
Man and Nature	Nature and environmental protection	Natural environment, seasonal changes, common natural phenomena, common animals, etc.

All 12 target English words were taught from week 2 to week 4 as shown in the table 3.4 below.

Table 3.4 Twelve English target words in the vocabulary instruction

Week	Theme	Target words and its part of speech	
		n.	v.
2	Birthday party	party, cake	
	Farm trip	chicken,	fly
3	Reading books	library, book	
	It was snowing	coat	snow
4	Doing grocery	cart, supermarket	
	Summer activity	sunscreen	swim

Edpuzzle platform is a free online tool that can help teachers to edit content of types of videos (Graham, 2016), for instance, nano authentic videos online chosen for students. There are different types of editing functions to help teachers and students during this online instruction. After adding appropriate videos in private Edpuzzle class created for students, teachers can begin the editing process and help to achieve 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, combining the PPP teaching steps and Nation's four strands based on online instruction using nano authentic videos. The lesson plan consisted of two themes including "birthday party" and "farm trip", and there were four target words in total in this lesson plan. All students were needed to take this lesson online, and the teacher's roles were to guide, organize, and encourage all students to watch videos and interact with content during the learning process. All students were required to answer the questions asking them to respond while watching videos. The lesson steps of vocabulary instruction using nano authentic videos were as shown in the figure 3.1 below.

Figure 3.1 The steps of vocabulary instruction using nano authentic videos

3.4 Validity and Reliability of Research Instruments

3.4.1 Validity

Validity referred to the extent to which a concept is accurately measured (Heale & Twycross, 2015). Content validity was used to measure test validity. The validation process was performed by inviting three experts in this study to evaluate and provide comments in the Item Objective Congruence forms. The criteria of selecting three experts were based on their qualifications: 1) the first expert is an expert in the

area of English language teaching and elementary education in Thailand 2) the other two experts are English teachers have been teaching EFL in China for more than 5 years, and they were teaching primary school students with the age range from eight to thirteen. One of these three experts who is Chinese native speaker evaluated and corrected all Chinese items of all research instruments to make sure that the students did not have any language barrier.

3.4.1.1 Validity of pre-test and post-test

Content validity of pre-test and post-test was assessed by the experts in English, and the experts were asked to tick scores of the Index of Item Objective Congruence (hereinafter IOC) form for the pre-test and post-test constructed (see Appendix D). This was the way to check the test content validity (Jusoh, Zubairi, & Badrasawi, 2018). All the test items were validated by the experts ticking scores to three choices as follows:

+1		Congruent: The item can assess the objective clearly
0	means	Uncertain: Questionable
-1		Incongruent: The item cannot assess the objective

The formula to calculate the IOC index of each test item was as follows:

$$IOC = R/N \tag{3-1}$$

R: Total rating scores from the experts for each item
N: Numbers of the experts

Note:
1) If IOC rating range was from 0.67 to 1.00, it means that the test item was congruent and could be retained.
2) If IOC rating range was less 0.67, it means that the test item was not incongruent and needs to be removed or adjusted.

The experts' rating scores were collected and calculated. The results showed that the IOC index of test items were all in the valuable rating range. Therefore, each

test item was congruent and used to measure the related aspect of the vocabulary knowledge. However, according to some comments from the experts, the researcher had revised the related instrument items. According to the first expert who is an expert of English language teaching and elementary education in Thailand, the researcher had checked and revised the answers of some test items. The followings were in details:

1) "chicken", the answer in item 2 of task 1, was changed to be "chickens (chicken)".

2) "book", the answer in item 3 of task 1, was changed to be "books (book)".

3) "coat", the answer in item 12 of task1, was changed to be "coats (coat)".

3.4.1.2 Validity of questionnaire

The questionnaire was presented to the experts in Chinese-English, and the experts were asked to ticking scores of the Index of Item Objective Congruence form for the questionnaire (Appendix E). The IOC index was in the range as follows:

+1		Congruent: The item can assess the objective clearly
0	means	Uncertain: Questionable
-1		Incongruent: The item cannot assess the objective

The formula to calculate the IOC index of each question item was as follows:

$$IOC = R/N \qquad (3\text{-}2)$$

R: Total rating scores from the experts for each item

N: Numbers of the experts

Note:

1) If IOC rating range was from 0.67 to 1.00, it meant that the question item was congruent and could be retained.

2) If IOC rating range was less 0.67, it meant that the question item was not incongruent and needs to be removed or adjusted.

The experts' rating scores were collected and calculated. The results showed that the IOC index of question items were in the valuable rating range. Therefore, question items were congruent and used to measure all participants' attitudes towards vocabulary instruction using interactive nano authentic videos. However, according to the third expert who is an English language teacher in China, the researcher had checked the questionnaire items in Chinese translation and some of those were required to adjust. Therefore, the questionnaire items in Chinese translation were revised in Chinese translation. And according to the first expert who is an expert in English language teaching and elementary education in Thailand, the researcher was required to confirm that each video clip was in the similar length, and suitable for students' current learning level, the item 4 of questionnaire was valuable for all participants to consider their attitudes of it.

3.4.1.3 Validity of lesson plan

Content validity of lesson plan was assessed by the experts in English, and the experts were asked to ticking scores of the Index of Item Objective Congruence form for the lesson plan (Appendix F). The IOC index was in the range as follows:

+1		Congruent: The item can assess the objective clearly
0	means	Uncertain: Questionable
-1		Incongruent: The item cannot assess the objective

The formula to calculate the IOC index of each question item was as follows:

$$IOC = R/N \qquad (3\text{-}3)$$

R: Total rating scores from the experts for each item

N: Numbers of the experts

Note:

1) If IOC rating range was from 0.67 to 1.00, it means that the question item was congruent and could be retained.

2) If IOC rating range was less 0.67, it means that the question item was not incongruent and needs to be removed or adjusted.

The experts' rating scores were collected and calculated. The results showed that the IOC index of each lesson step and lesson objective were in the valuable rating range. Therefore, each lesson step was congruent and used to learn EFL vocabulary using interactive nano authentic videos for all participants.

3.4.2 Reliability

Reliability is a central concept in classical test theory and refers to a certain level of reliability before a test was considered sufficient for practical use (Adams, 2005). It is an important part of the study to determine rigor by assessing the reliability of the tools or instruments used in the study (Heale & Twycross, 2015).

In this study, the researcher conducted reliability test with the pilot group, who were 6 students of the same grade and same age from another school. These pilot group students shared similar characteristics and EFL learning situation with the participants students to ensure the reliability of the pre-test and post-test, questionnaire and lesson plan.

3.4.2.1 Reliability of pre-test and post-test

The test-retest method is one method to estimate the reliability of test items interval (Davidshofer & Murphy, 2005, p.123). In this study, the researcher calculated the reliability of pre-test and post-test in a manner adopted by intraclass correlation consistency reliability, and it was conducted to the pilot group within a week twice. Accordingly, the results were collected and recorded and based on the statistical result as shown in the table 3.5 below.

Table 3.5 Intraclass correlation consistency for pre-test and post-test

Instrument	No. of Cases Numbers	No. of Test Items	Value of Pearson
pre-test and post-test	6	36	0.91

As seen in the above table 3.5, the result indicated that the reliability index for the pre-test and post-test obtained through this method was (*r* value=0.91), which shown a good reliability of the whole test.

3.4.2.2 Reliability of questionnaire

Cronbach's Coefficient Alpha is commonly used to measure the reliability of questionnaire items. The researcher calculated research instruments' reliability in a manner adopted by internal consistency reliability Cronbach's alpha formula and its coefficient value range was shown in the table 3.6 below.

Table 3.6 Cronbach's alpha coefficient value scoring range

Alpha Value (α)	Internal Consistency
$\alpha \geq 0.9$	Excellent
$\alpha \geq 0.8$	Good
$\alpha \geq 0.7$	Acceptable
$\alpha \geq 0.6$	Questionable
$\alpha \geq 0.5$	Poor
$\alpha \leq 0.5$	Unacceptable

The researcher calculated the reliability of questionnaire in a manner adopted by internal consistency reliability Cronbach's alpha formula as shown in the table 3.7 below.

Table 3.7 Cronbach's alpha for questionnaire

Field	No. of Cases Numbers	No. of Paragraphs	Alpha Value
Total degree	6	12	0.86

As seen in the above table 3.8, the result indicated that the Cronbach's Alpha for the entire questionnaire was 0.86, which indicated a good reliability of the questionnaire.

3.4.2.3 Reliability of lesson plans

The reliability of lesson plans was determined in the pilot study with the pilot group students. Table 3.8 showed the content of the lessons (Sample lesson plan was revealed in Appendix A). During the instruction process, the students clearly knew the objectives of this study, and how to take part in the vocabulary instruction online. Furthermore, they were engaged in the learning proceedings with the guidance of the researcher.

Table 3.8 The content of the lessons

Lesson	Specific Content	New Words	Time (minutes)
Lesson 1	Theme: birthday party	party, cake	45
	Theme: farm trip	chicken, fly	
Lesson 2	Theme: reading books	library, book	45
	Theme: doing grocery	cart, supermarket	
Lesson 3	Theme: it was snowing	snow, coat	45
	Theme: summer activity	swim, sunscreen	

3.5 Research Data Collection

3.5.1 Data collection of the pre-test and post-test

The pre-test was conducted in the first week. There were three types of test tasks to measure all participants vocabulary knowledge before the instruction treatment. The post-test was conducted in the last week after the whole treatment. The pre-test and post-test had same test items. The scores of the pre-test and post-test were measured to identify if all participants' vocabulary knowledge had improved after the instruction treatment.

3.5.2 Data collection of questionnaires

The questionnaire was collected in the last week. In this study, all participants were asked to finish a Likert scale with twelve items as close-ended questions. The data from this questionnaire helped the researcher find out these young Chinese EFL learners' attitudes towards vocabulary instruction using interactive nano authentic videos.

Table 3.9 Data collection plan in details

Week	Procedure	Specific content	Minutes
1	Introduction	Present research projects in details	30
		Pre-test	30
2	Lesson 1	Theme: birthday party	45
		Targe words: party, cake	
		Theme: farm trip	
		Targe words: chicken, fly	
3	Lesson 2	Theme: reading books	45
		Targe words: library, book	
		Theme: doing grocery	
		Targe words: cart, supermarket	
4	Lesson 3	Theme: it was snowing	45
		Targe words: snow, coat	
		Theme: summer activity	
		Targe words: swim, sunscreen	
5	Final procedure	Post-test	30
		Questionnaire	10

3.6 Research Data Analysis

3.6.1 Data analysis of pre-test and post-test

Vocabulary tests including pre-test and post-test were used to collect quantitative data. And the scores data were analyzed with the SPSS software version 26 to be calculated with the mean ($\overline{x}$) and the standard deviation (*SD*). And 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 to find out if there was a statistically significant difference between the pre-test and post-test, which can answer the research question 1.

3.6.2 Data from the online vocabulary instructional platform

The researcher analyzed the data from the online vocabulary instructional platform to collect the evidence which can be observed from the features of the platform for students' engagement and interaction in learning and while learning the lesson online. The evidence sought were 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 the research question 2.

3.6.3 Data analysis of questionnaire

The questionnaire aimed to elicit quantitative data based on close-ended questions regarding their attitudes towards the instruction. For the close-ended questionnaire, the quantitative data was collected online and analyzed descriptive statistics. The results of question items were analyzed in the mean ($\overline{x}$), which provided answers to the research question 3. The criteria were that a mean score of 3 in Likert-scale represents neutral attitude, mean score of less than 3 represents negative attitude and greater than 3 represents positive attitude. The range of interpreting the Likert-scale mean score was given as follows: 1.0-2.4 (Negative attitude), 2.5-3.4 (Neutral attitude), and 3.5-5.0 (Positive attitude). The research data analysis information in details was shown in the following table 3.10.

Table 3.10 The research data analysis information

No.	Research Question	Instrument	Data Type	Data Analysis
1	To what extent does online vocabulary instruction using nano authentic videos affect young Chinese EFL learners' vocabulary ability?	Pre-test and Post-test	Quantitative	Paired-sample t-test
2	What evidence can be observed from the online vocabulary instructional platform to demonstrate the students' engagement in learning from nano authentic videos?	Online instructional platform	Features recorded in the platform	Frequencies of the student use of the platform for self-learning and the answers they provided for the questions asked in the practicing tasks and producing activities.
3	What are young Chinese EFL learners' opinion towards the vocabulary instruction using interactive nano authentic videos?	Questionnaire	Quantitative	Descriptive analysis

3.7 Research Ethic Consideration

As this study was conducted with the students at the ages of 10-12, the researcher was really careful to observe the ethical conduct to collect data with young

students. The consent form was prepared for the parents to sign. All the detailed data collection was informed and the record of the students' performance either in visual or audio were kept minimum, only for the evidence that was needed for the research. The data were kept only 1 year and it will be deleted when the research completed. For the report, the real names as well as their description that could identify the particular students were not used. Before the data collection, the ethical research was approved by the Research Ethics Review Board of Rangsit University (COA. No: RSUERB2023-055).

Chapter 4

Results and Data Analysis

This study was a one group pre-test and post-test research design. And a questionnaire was also designed with 12 Likert-scale items for quantitative data collection. The data of vocabulary test and questionnaire were gathered with a small group of 15 participants to answer the research questions. The research results were presented in details as followings:

1) Data analysis of pre-test and post-test by paired samples t-test to investigate if there was a statistically significant difference before and after vocabulary instruction using interactive nano authentic videos.

2) Data recorded in the online vocabulary instructional platform as evidence to identify the student' engagement in the instruction.

3) Data analysis of questionnaire via descriptive analysis to explore students' attitudes towards online vocabulary instruction using nano authentic videos.

4.1 Analysis of Pre-Test and Post-Test

This section was to answer research question 1: To what extent does vocabulary instruction using nano authentic videos affect young Chinese EFL learners' vocabulary knowledge? For the research question 1, the researcher conducted vocabulary tests including pre-test and post-test, and then the data of test scores was analyzed by paired samples t-test to determine if there was significant difference between participants' pre-test and post-test performance. After all participants completed vocabulary tests online, the researcher summarized the scores of the pre-test and post-test as shown in table 4.1 below.

Table 4.1 The scores of the pre-test and post-test

No.	Pre-test				Post-test			
	Task1	Task2	Task3	Total score (S_1)	Task1	Task2	Task3	Total score (S_2)
1	10	19	17	46	12	22	20	54
2	9	15	14	38	12	21	18	51
3	8	12	12	32	12	21	18	51
4	10	19	17	46	12	22	22	56
5	8	10	12	30	12	19	20	51
6	7	10	10	27	11	20	17	48
7	10	17	16	43	12	23	20	55
8	11	21	18	50	12	22	22	56
9	10	19	18	47	12	22	20	54
10	11	19	17	47	12	22	22	56
11	8	15	18	41	11	18	20	49
12	8	14	12	34	11	20	18	49
13	8	13	12	33	12	18	17	47
14	10	18	19	47	12	22	22	56
15	10	19	21	50	12	22	22	56
N=15				Σ (15) =611				Σ (15) =789

After collecting scores, a comparison between the pre-test and post-test was calculated to measure the significance of the effect of online vocabulary instruction using nano authentic videos. The results of the table 4.2 as below showed that there was an increase in the pre-test and post-test results, where the minimum score of the post-test was 47.00 and maximum score was 56.00, while the minimum score of the pre-test was 27.00 and maximum score was 50.00. 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 post-test of 11.87, and the *t* value was 8.873. It showed that there was a

significant difference between the students' scores in pre-test and post-test at 0.05 level (*p* value < 0.05). Since the *p* value (0.000) was less than 0.05, it indicated that there was a significant effect of online vocabulary instruction using nano authentic videos on young Chinese learners' vocabulary knowledge.

Table 4.2 Paired samples t-test of pre-test and post-test

		N	Min	Max	Mean	SD	Mean Difference	t	Sig. (2-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			

In addition, the researcher examined further whether the students improved their vocabulary learning in all aspects of form, meaning and use. Table 4.3 has elaborated on these issues. The results of the table 4.3 below showed that there were several improvements in different types of vocabulary tests including receptive word meaning, form and use. For the receptive word meaning (Task1), it was known that the mean difference between the pre-test and post-test of task1 was 2.60, and the *t* value was 9.539. Since the *p* value (0.000) was less than 0.05, it showed that there was a significant difference between the scores in task1 at 0.5 level (*p* value < 0.05). For the receptive word form (Task 2), it was known that the mean difference between the pre-test and post-test of task2 was 4.93, and the *t* value was 7.116. Since the *p* value (0.000) was less than 0.05, it showed that there was a significant difference between the scores in task2 at 0.5 level (*p* value < 0.05). For the receptive word use (Task3), it was known that the mean difference between the pre-test and post-test of task3 was 4.33, and the *t* value was 8.599. Since the *p* value (0.000) was less than 0.05, it showed that there was a significant difference between the scores in task3 at 0.5 level (*p* value < 0.05).

Table 4.3 Paired samples t-test of different types of test tasks

		Min	Max	Mean	SD	Mean Difference	t	Sig. (2-tailed)
Task 1	Pre-test	7	11	9.20	1.26	2.60	9.539	.000
	Post-test	11	12	11.80	0.41			
Task 2	Pre-test	10	21	16.00	1.58	4.93	7.116	.000
	Post-test	18	23	20.93	3.57			
Task 3	Pre-test	10	21	15.53	1.88	4.33	8.599	.000
	Post-test	17	22	19.87	3.27			

4.2 Evidence of Students' Engagement in The Instruction

This section was to answer research question 2: What evidence can be observed from the online vocabulary instructional platform to demonstrate the students' engagement in learning from nano authentic videos?

In this study, the researcher conducted the vocabulary instruction using nano authentic videos combining the online Edpuzzle platform. Edpuzzle platform is a free online tool that can help teachers to edit content of types of videos (Graham, 2016), for instance, nano authentic videos online chosen for students. There are different types of editing functions to help teachers and students during this online instruction. After adding appropriate videos in private Edpuzzle class created for students, teachers can begin the editing process and help to achieve online instruction. In this study, Edpuzzle platform using nano authentic videos allowed the researcher to add notes and quiz questions pop up in the videos, meanwhile, the researcher received students' comments and gave back feedback which helped the students achieve user-teacher interaction and user-content interaction. In addition, the researcher could monitor students' performance during the process. The results of it were presented from figure 4.1 to figure 4.3.
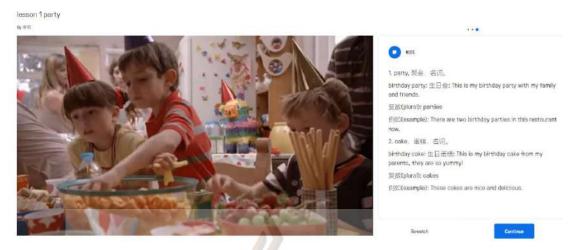
Figure 4.1 Note 1 marked by the researcher in the lesson 1
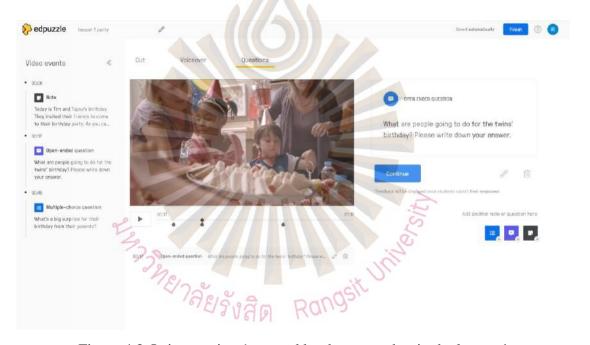
Figure 4.2 Quiz question 1 created by the researcher in the lesson 1
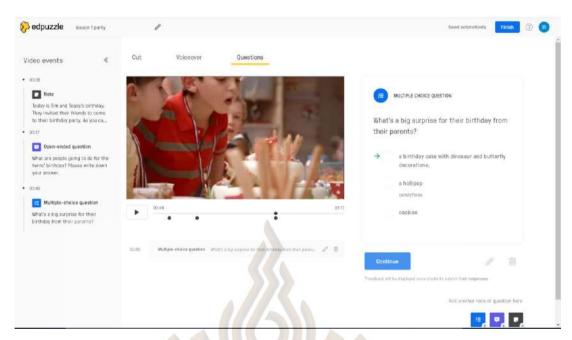
Figure 4.3 Quiz question 2 created by the researcher in the lesson 1

Figure 4.4 Student Ben's performance record presented on teacher's arranging

platform
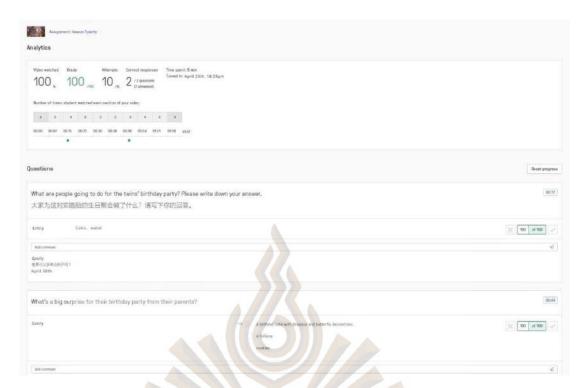
Figure 4.5 Student Emily's performance record presented on teacher's
arranging platform

After the treatment, the researcher checked all students' performance records.
All students had checked all keynoted and finished quiz questions made by the
researcher well during the learning process. And some of these records provided the
researcher significant information to comprehend their performance, attitudes towards
this online instruction using those nano authentic videos. For instance, the results of
figure 4.4 and figure 4.5 showed that these two students rewatched the nano video four
times in general. However, from the result of figure 4.4, the researcher found out that
the student Ben (Note: "Ben" is not student' real name with ethic consideration) have
indeed rewatched the video in lesson 1 four times, but he just spent two minutes to check
it and finished all quiz questions quickly and well, which meant that he already
comprehend the part well, and with his comments after all treatment, the researcher
known that he was interested in all lesson video, especially the lesson one, the reason
was that he was able to related to his coming birthday, and he was engaged into other
videos during the instruction with these nano videos because he could have suitable
input with good pronunciation, natural communication and culture background in a
short time. From the result of figure 4.5, the researcher found out that the student Emily

(Note: "Emily" is not student' real name with ethic consideration) have rewatched the video in lesson 1 four times, and she spent about 5 minutes to finished all quiz questions, and with her comments of the lesson one, she wanted to gain more support from the teacher to help her to understand more of the target words. But indeed, she added more comments to express her positive attitudes to the online instruction using those nano authentic videos, the reason was that she was glad to watch those interesting videos, and tried to understand and practice words whenever and wherever after the online meeting. And she was also engaged into self-learning and felt comfortable to express her own opinions and confusions to the teacher without face to face. In addition, most of the students asked their teacher to provide more information of key 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 whenever and wherever they liked to, and they liked these short videos made by native speakers because they were able to learn how they said and how to pronounce correctly, they were also interested in these videos content suitable for them, not making them tired of long and boring content.

4.3 Analysis of Questionnaire

This section was to answer the research question 3: What are young Chinese EFL learners' attitudes towards the vocabulary instruction using interactive nano authentic videos? For the research question 3, the researcher conducted a questionnaire to explain students' attitudes during the vocabulary instruction. All participants completed the questionnaire online, and the data of questionnaire items were analyzed and presented in the mean ($\bar{x}$) using descriptive analysis (Table 4.4). The range of interpreting the Likert-scale mean score was given as follows: 1.0-2.4 (Negative attitude), 2.5-3.4 (Neutral attitude), and 3.5-5.0 (Positive attitude).

Table 4.4 Means of participants' attitudes towards vocabulary instruction based on interactive 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 that 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

Table 4.4 Means of participants' attitudes towards vocabulary instruction based on
interactive nano authentic videos (cont.)

	Item	Mean	SD	Evaluation
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 feedbacks during vocabulary instruction are helpful for me when I am bewildered by learning issues.	3.87	0.52	Positive
	Total Degree	3.95	0.42	Positive

The overall results of the table 4.4 showed that the value of young Chinese EFL learners' attitudes towards vocabulary instruction using interactive nano authentic videos was positive (M=3.95), which meant that the participants had positive opinions on this type of online vocabulary instruction using nano authentic videos. 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).

Chapter 5

Conclusion, Discussion and Recommendations

This chapter presents the conclusion from the results of the data analysis, discussion of the research findings, and recommendations for Chinese EFL teachers, young Chinese EFL learners and future studies.

5.1 Conclusion of the Research Findings

This study had three research questions to be identified by quantitative data of the scores of pre-test and post-test and students' opinions of questionnaire, and evidence observed from students' engagements during the online instructional platform using nano authentic videos.

5.1.1 The results of pre-test and post-test

The findings of vocabulary tests were concluded and provided according to the research question 1: To what extent does vocabulary instructional model using interactive nano authentic videos affect young Chinese EFL learners' vocabulary knowledge?

This study was a single group research designed with pre-test and post-test providing quantitative data, and the results of data analysis: The mean score (M) of post-test was (52.60) and standard deviation (3.31), which was higher than the mean score (M) of pre-test (40.73) and standard deviation (7.76), and according to the report of paired samples t-test, it was known that Sig. (2-tailed) of p value < 0.05. Consequently, there was a significant difference in vocabulary scores between the pre-test and post-test. Therefore, it was concluded that online vocabulary instruction using interactive

nano authentic videos has positive impact on young Chinese students' English vocabulary knowledge.

5.1.2 Evidence of students' engagement in the instruction from recorded features of the online vocabulary instruction platform

The Edpuzzle platform and nano authentic videos were important to help the researcher to create an online vocabulary instruction for the young Chinese students to learn and teach EFL vocabulary knowledge. For the researcher (also the teacher in this study), it was known that the researcher enabled to trail on all students' performance in the Edpuzzle class. These nano authentic videos presented by the researcher were appropriate for students to connect with their daily lives. Therefore, all students were allowed to watch videos, and tried to comprehend the content diving into the native and natural communication. Furthermore, the researcher had edited related content to the videos, for instance, it allowed to add written keynotes for students to comprehend video content and key words' meanings inside, and also to insert some quiz questions for students to practices when they were watching a video. Meanwhile, the researcher was able to set options to prevent all students from missing or skipping any notes and quiz questions. In this Edpuzzle class, the teacher enabled to monitor all students' performance, for instance, it was allowed to find out when they watched videos, how many times they watched videos, which part of the video confused them, how they performed on all quiz questions, and whether they sent comments and checked feedback. For students, they rewatched the video when they liked to find out more information or when they were confused about words and pronunciation, or provide their opinions to the teacher through comments.

5.1.3 The results of questionnaire

The findings of vocabulary tests were concluded and provided according to the research question 2: What are young Chinese EFL learners' attitudes towards the vocabulary instruction using interactive nano authentic videos?

The questionnaire with 12 Likert-scale items was distributed to all participants to know their attitudes towards online vocabulary instruction using nano authentic videos in learning process. Overall results of it, the value of young Chinese EFL learners' attitudes towards online vocabulary instruction using nano authentic videos was positive (M=3.95). It meant that the participants had positive opinions on the vocabulary instruction and learning materials. In addition, according to the mean scores of item opinions, the statements of the highest agreement were item 3 "The short content in each nano authentic video was helpful to reduce anxiety while learning English vocabulary" (M=4.13) and item 4 "The length of each nano authentic video was suitable, and the limited content allows me to focus on a single learning goal" (M=4.13). And they also thought that the content capacity of each nano authentic video was suitable, as shown in the item 2 statement "The content capacity of each nano authentic video was sufficient. It allows me to focus on content and vocabulary at the same time" (M=4.07). In addition, they enjoyed this kind of online vocabulary instruction and they thought those interactive learning activities with video content provided opportunities to ask question or gain advice, as shown in the item 1 statement "I enjoy the online vocabulary instruction using these nano authentic videos" (M=4.00) and item 11 statement "These online interactive nano authentic videos provide essential opportunities to ask any question or advice" (M=4.00).

5.2 Discussion

This section discusses responses to three research questions.

5.2.1 The main findings for research question 1: To what extent does online vocabulary instruction using nano authentic videos affect young Chinese EFL learners' vocabulary knowledge?

There was a need to explore the effects of different types of video materials (e.g., short videos) on young learners' vocabulary learning and attitudes towards the target language (Karami, 2019). Videos provided a coherent context that can help learners to observe the actions or conversations within it in order to understand the

meaning and form of the words used in that situation. 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. This was an important factor for the researcher of this study to consider when designing this experimental research to explore the effect of vocabulary instruction based on nano video materials. Nano authentic videos were one type of nano materials with appropriate content and allow students to dive into real context in target language, and these nano authentic videos were created with English native speakers, which provide natural and standard pronunciation for students (Bernard, 2021), which helped students to acquire knowledge rapidly and effectively with short-term content of nano videos. In this way, students repeatedly comprehended new words and developed vocabulary knowledge in real context provided by authentic videos (Bernard, 2021). In addition, by combining these video materials and interactive platforms, the researcher designed the appropriate vocabulary instruction according to the objectives and students' backgrounds. In the process, the teacher took on the role of facilitator to motivate students (Kaynar & Sadik, 2021).

In this study, there were five meetings online including two meetings for doing introduction, pre-test, post-test and questionnaire, and other three meetings for doing the treatment to explore the effects of online vocabulary instruction using nano authentic videos on EFL vocabulary knowledge for young Chinese students.

At the first meeting, the researcher explained the research objectives and arrangements of the whole program to all students, and all students were needed to take the vocabulary pre-test. After the first meeting, there were three lessons with related nano authentic videos presented on interactive online platform during the instruction process. All students were required to attend each lesson as scheduled. The researcher guided students to log in and watch related nano authentic videos step by step. These nano authentic videos were short and presented with an interactive platform which can allow students to interact with the material content. The content of videos was

appropriate and attractive with natural communication and native pronunciation to learn the target words in real context, and the content was familiar with young students' daily lives and studying conditions, which could help students to relate to their own situations. In this way, it was much easier and attractive to learners to comprehend and retain meanings and structures of new words in real context (Aburizaizah & Albaiz, 2021). In the meanwhile, the researcher created questions and practices interacted with the content of those videos on the online platform, and all videos and tasks were locked down to ensure that the students would not pass any of those. Therefore, the researcher was able to access the learning situation that whether the students had watched the videos and completed the tasks, in addition, the researcher was able to check any repeated viewings, indicating that the students were more interested in the section or needed additional support (Cesare et al., 2021). Meanwhile, students were able to receive feedback from their teachers in time (Ariffin & Ismail, 2019). The researcher has gained important information from all students' performance during the instruction process. It could be seen from the result of observation that the students were able to focus on attractive videos and gave much more positive responses when the researcher asked them to do the interactive tasks while watching videos. At the last meeting, all students were asked to finish the vocabulary post-test, and the data of test scores were collected as quantitative data, and analyzed comparing the data of the pre-test scores. In addition, they needed to answer the questionnaire with twelve Likert-scale items to explore their attitudes. From the results of the vocabulary tests, it could be seen that the mean score of the pre-test was 40.73 and the mean score of the post-test was 52.60, and according to the result of paired samples t-test, the Sig. (2-tailed) of p value was less than 0.05. As conclusion, the mean score of the post-test (52.60) was greater than pre-test (40,5), which meant that the use of vocabulary instruction based on interactive nano authentic videos effectively increased young Chinese students' vocabulary knowledge in the 4th grade students in a Primary School.

5.2.2 Observable evidence of students' engagement in the instruction from the online vocabulary instructional platform to respond to research question 2: What evidence can be observed from the online vocabulary instructional platform to demonstrate the students' engagement in learning from nano authentic videos?

By combining these video resources and the online interactive platform, to some extent, the time and space in which learning occurs for students has changed, in addition, for the mode of teaching and the role of the teacher has also changed. For students, students are allowed to learn at their own pace (Correa, 2015). In addition, segmented nano videos present content audio-visually that can capture students' attention and alleviate anxiety (Afify, 2020). 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 receive (Castillo Losada, Insuasty, & Jaime Osorio, 2017). Therefore, for young students, it is reasonable to limit the length to 6 minutes (Cesare et al., 2021).

The treatment process lasted three weeks in this study. All students were required to watch those nano authentic videos presented by their teacher through Edpuzzle online. The videos and online discussions through the platform lasted 45 minutes each time. During this process, all students needed to check in all keynotes pop up at the beginning of each video. The content of the videos covered with same topics showed the relevant content and target vocabulary. Pop up quiz questions created by the researcher helped students to practice receptive word meaning, form and use of target words in the videos. In addition, the online process of written word tasks and audio records from students helped students to produce their vocabulary knowledge, as well as providing their opinions or comments through the comment box. Most of these young Chinese students in this study were curious about the vocabulary instruction online with these nano authentic videos. They were interested in video content relevant to their own situations, attracting their attention and enhancing their motivation at the beginning. Furthermore, these videos were suitable in length and level for them that they did not spend too much time. They were allowed to arrange their own learning speed which was helpful for reducing their anxiety. In addition, With the online quiz questions, it was able to add comments and receive feedback. Students are able to check if there is more understanding and progress if they do self-learning after the online treatment, and generate confidence and motivation for further learning. As Yu and Gao (2022) determined that short videos (less than 5 minutes) assisted to show significant

improvement in English proficiency, student engagement and satisfaction in English class in China, because these videos had important factors, such as vocabulary use, collocation, and cultural background, affecting English language learning and teaching. In addition, the observation during the process showed that interactive activities through online platform based on short videos assisted the students in comprehending content and expressing personal opinions. For teachers, it was important to guide students to create learning needs at the beginning of watching videos, for instance, by designing pop up keynotes which were relevant to their existing experiences, in this case, it may facilitate students' understanding of the content. In addition, pop up quiz questions created by teachers were able to help students enhance their comprehension and practice what they have learned, and express their thoughts and advice to their teachers through comments and receive feedback. Therefore, it was a significant process for students to do self-learning, meanwhile, to express themselves. In the same time, teachers could reduce support strategically for students as they become more familiar with what they are learning and can produce with what they have learned.

5.2.3 The main findings for research question 3: What are young Chinese EFL learners' attitudes towards online vocabulary instruction using nano authentic videos?

The questionnaire with twelve Likert-scale items was used to explore all participants' opinions towards online vocabulary instruction using nano authentic videos. After the treatment, all students in this study finished the questionnaire at the last meeting, and their answers of each questionnaire item were collected as quantitative data, and all of the data were analyzed in the mean and percentage using descriptive analysis. From the results of the questionnaire, it was known that the general mean of all items was 3.95.

As the results in the study of Hu and others (2021) showed that when Chinese primary school students aged 9 to 11 years old learned a foreign language, four main problems influenced their learning attitudes and developmental levels including fear of communication, fear of negative evaluations, test anxiety, and negative attitudes in the classroom. As Wang, M., Wang, J., and Wang, Y.(2022) said that 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).

Therefore, the researcher took account into the background of EFL instruction in China and young Chinese cognition, emotion and other relevant mantal situation when creating an instruction for a foreign language to young Chinese students. As they tended to use visual cues from real context to understand what was happening. This was important for developing young learners' language learning and cognition (Moon, 2005).

In order to create an enjoyable and attractive foreign language learning environment, it was necessary to put greater effort into choosing the right materials and teaching methods. In the case of authentic videos, the content of those authentic videos was natural and used in daily (Su & Liang, 2014). In addition, learning new words in different real contexts was an important way of comprehending the meanings of new words, and the cultural context of the target language also influenced the use of that words. As Bernard (2021) stated that short content of video materials can achieve better retention of interest and attention for many learners, allowing students to focus on relevant information and engage in learning activities. Natural communication and native pronunciation in nano authentic videos were significant for students to dive into the language environment completely in developing correct vocabulary knowledge (Mean was 3.93 in item 7). In addition, the students were able to comprehend word meaning and form in a real context of those video materials (Mean was 3.87 in item 8). Young learners in L2 learning needed more opportunities to enhance self-learning and different types of interaction activities such as user-content interaction and user-teacher interaction to express their comprehension and own opinions. This meant that teachers needed to take this factor into account when they created teaching tasks using multimedia materials and information technology for young learners (Hestetræet, 2018). And as Ariffin and Ismail (2019) stated that interaction was an essential factor when using video materials to teach and learn a new language.

In this study, combining nano authentic video and interactive platform, the researcher created online vocabulary instruction using nano authentic videos. This type of online instruction enabled the researcher to create sufficient opportunities for students to give responses during watching videos and doing practices, transforming passive information input experience into interaction type (Cesare et al., 2021). When the students watched videos, they were required to deal with knowledge practices and descriptions of new target words for young Chinese students to interact with short content of those videos. These interaction activities were useful for students to easily understand new words inside, and attractive to grab their attention on the learning materials (Rahayu & Bhaskoro, 2022). Meanwhile, students were allowed to raise their questions and receive feedback from their teacher (Mean was 3.87 in item 11). As a result, students took an active role in converting the learning process from a one-way information input to an information exchange process (Afify, 2020). In this way, the students were able to increase vocabulary knowledge comprehension of the target words (Mean was 4.00 in item 10). Meanwhile, the researcher was able to know how students engaged with video content and to observe students' performance of watching videos and doing practices presented. Therefore, the researcher provided feedback in time during each lesson. The students stated that suitable and instant feedbacks during vocabulary instruction were helpful when they encountered learning problems during the teaching of vocabulary (Mean was 3.87 in item 12). In addition, after the process of practice provision through vocabulary knowledge learning and practicing, the researcher found that most of the students were able to recall the target words and do the practices on their own. In this case, teacher assistance was needed gradually to reduce in order to ensure that students were able or willing to use the vocabulary they were learning on their own.

Most of the students in this study shown that they enjoyed this type of vocabulary instruction (Mean was 4.00 in item 1). As Aburizaizah and Albaiz (2021) stated that nano-type new language instruction was attractive for students to learn the meaning and structure of new words in a new language because it was much simple and required limited time. Furthermore, short content in each nano video was suitable to comprehend and not easy tied of content and interaction while gaining new information.

And short content was helpful to reduce anxiety while learning English vocabulary because they did not need to take too much information in a short time (Mean was 4.13 in item 3). Sometimes, as Alastuey and García (2019) stated that students could become overloaded when they were receiving information from long content of multimedia materials, which was a main factor considered in this study. This was because when people watch a video, auditory and visual information was processed by both sensory channels at the same time, and each channel has a limited capacity and processing power (Mayer & Moreno, 2003). Therefore, if there was no consideration to control the content length of the video, then the successive information presented by the video may exceed the carrying capacity of the learner (Afify, 2020). Most students in this study indicated that each nano authentic videos presented in the instruction had sufficient capacity, allowing students to fucus on real content in the video and achieve vocabulary knowledge of new target words at the same time (Mean was 4.07 in item 2).

As conclusion, it was found that there was an important improvement of young Chinese students' EFL vocabulary knowledge by the vocabulary instruction based on interactive nano authentic videos. In addition, based on the results of the questionnaire after the treatment, it was 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.

5.3 Recommendations

There was relatively few research on online EFL vocabulary instruction using nano authentic videos improving vocabulary knowledge, and it was needed to fill the related research gap in the future. Based on the conclusion of this study, the researcher would like to provide some recommendations for EFL Chinese teachers, young Chinese EFL learners, and other researchers related to online EFL vocabulary instruction and nano authentic videos.

5.3.1 Recommendations for EFL Chinese Teachers

1) Teachers should choose suitable nano authentic videos according to students' actual learning level to encourage students to dive into those nano videos in English, and to try to comprehend new words under the content as possible as they can.

2) Teachers should to decrease their anxiety and increase their motivation during vocabulary instruction.

5.3.2 Recommendations for young Chinese EFL learners

1) Young Chinese EFL learners can dive into appropriate video content with simple words to increase new vocabulary knowledge and decrease anxiety while watching suitable appropriate nano authentic videos and to encourage themselves in the process of improving new English vocabulary knowledge.

2) Young Chinese EFL learners can interact with video content online with teachers' guidance and feedback to comprehend new English vocabulary knowledge.

5.3.3 Recommendations for other researchers

1) This study only investigated a small group of young Chinese EFL learners in a primary school with the vocabulary instruction using interactive nano authentic videos. In addition, time and vocabulary limitations were encountered when conducting this experimental treatment. Therefore, future studies can expand research participants or be conducted in other cities in China, and it was needed to expand treatment time to collect more data and clarify the results.

2) This study used a quasi-experimental method with vocabulary pre-test and post-test to investigate the effects of vocabulary instructional model and a questionnaire with Likert-scale items to investigate students' attitudes, which these research instruments provided quantitative data. Future studies could add qualitative data through a student interview to explore whether other variables influence EFL vocabulary instruction for vocabulary knowledge.

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Appendices

Appendix A
Sample Lesson Plan

Appendix A

Sample Lesson Plan

Lesson information				
Lesson	1			
Lesson calendar	2nd week			
Lesson location	Online platform (Edpuzzle)			
Themes	Birthday party & Farm trip			
Target words	Party, cake & Chicken, fly			
Lesson objectives	Students are able to recall the meaning of each target word in context. Students are able to recognize the word form and its meaning in context. Students are able to recognize correct use of the target word in context.			
Instruction procedures				
Instruction phase	Teacher task	Students task(s)	Material(s)	Time (mins)
Warm-up	- Greet. - Show pictures with related theme and ask students questions to activate the lesson background. *Example question*: "There was a day always seeing these things, do you know what it is?" "What do you do on this day?"	- Greet. - Share person opinions.	- Pictures.	2
Presentation	- Present the nano authentic video of "Tim &	- Watch video and answer all	- Nano authentic	5

	Topsy birthday party" on Edpuzzle platform - Replay the video and ask students to share what they see and the meaning of the target word the teacher points out.	pop-up questions in the video. - Think and share answers.	videos (the theme was about birthday party)	
Practice	- Present videos on Edpuzzle - Replay the videos and discuss the form, meaning and use of target words	- Watch videos and answer all pop-up questions in the video. *Note*: All questions are to recall the meaning and form of target words. - Discuss and share answers.	- Other nano authentic videos (the theme was related to birthday party)	5

Procedural Assessment: All following questions are required for all students during the instruction process (No skip):

No.	Question/Task	Handout	Answer	Score
1	What were people going to do for the twins' birthday? Please write down your answer.	Interactive nano authentic video online	Target word: party	1
	What's a big surprise for their birthday from their parents?		Multiple choice: a birthday cake with	1

			dinosaur and butterfly decorations. a lollipop cookies	
2	Students were asked to pick up the correct picture relevant to the target word. (Recall word meaning)	Pictures were presented online	Target words: party, cake	1+1
3	Students were asked to choose the correct word among 3 choices in a sentence or short paragraph. (Recognize word form and use)	What would you like to do in your next birthday ()? a) party b) parties c) part	party	1
		Do you have a birthday () to eat when you were having a birthday party? a) cakes b) cake c) a cake	cake	1
4	Make a sentence with a target word in correct grammatic use. (Recall word meaning, form and use)	/	Target words: party, cake *Note*: it was allowed with limited	1+1

			mistakes of other words	
Production	- Meaning matching task. - Word form and use recognition task.	- Finish all tasks with target words. Note: all tasks aim to recall and recognize word meaning, form and use.	- Recognize word meaning, form and use in this context (receptive knowledge)	10
Presentation	- Present the nano authentic video of "Farm trip" on Edpuzzle platform - Replay the video and ask students to share what they see and the meaning of the target word the teacher points out.	- Watch video and answer all pop-up questions in the video. - Think and share answers.	- Interactive nano authentic video (the theme was related to farm trip)	5
Practice	- Present videos on Edpuzzle - Replay the videos and discuss the form, meaning and use of target words	- Watch videos and answer all pop-up questions in the video. *Note*: All questions were to recall the meaning and form of target words. - Discuss and share answers.	- Interactive nano authentic video (the theme was related to farm trip, and two target words including chicken and fly)	5

		- Finish all tasks with target words. *Note*: all tasks aim to recall and recognize word meaning, form and use.	- Recognize word meaning, form and use in this context (receptive knowledge)	
Production	- Meaning matching task. - Word form and use recognition task.			10

Procedural Assessment: All following questions were required for all students during the instruction process (No skip):

No.	Question/Task	Handout	Answer	Score
1	Where were these children going to with their teacher? Please write down your answer.	Interactive nano authentic video online	Target word: farm	1
	Farmer Ashely said what those two eggs are? Please write down your answer.		Target word: chicken eggs	1
	Farmer Ashely said the chicken in her arms has wings, so what the chicken can do?		Target word: fly	
2	Students were asked to pick up the correct picture relevant to the target word. (Recall word meaning)	Pictures were presented online		1+1
3	Students were asked to choose the correct word among 3 choices in a	These () were eating rice and corn.	chickens	1

	sentence or short paragraph. (Recognize word form and use)	a) chicken b) chickens c) chicker		
		Birds have wings to () into the sky. a) flying b) fly c) flies	fly	1
4	Make a sentence with a target word. (Recall word meaning, form and use)	/	Target word: chicken, fly *Note*: it was allowed with limited mistakes of other words	1+1
Sum-up	- Ask students what they have learned and provides feedback.	- Share answers and advice.		3

Lesson material samples
Website: www.edpuzzle.com

Appendix B

Pre-Test and Post Test

Appendix B

Pre-Test and Post-Test
词汇测试

Test objective: To measure vocabulary knowledge with target words.

测试目标。测量目标词汇的词汇知识。

Time: 30 minutes.

时间：30 分钟。

Task 1: Mark a correct picture to match the given word. This was a word meaning recall test (1 score for each item, 12 scores in total).
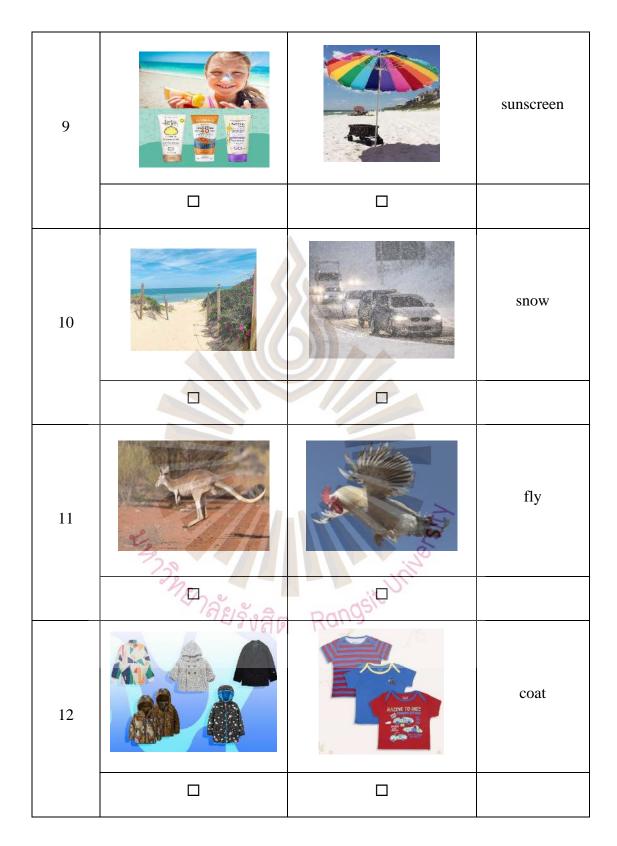
任务 1: 选出一张正确的图片来匹配给定的词汇。这是一个词汇含义的记忆测试（每项 1 分，共 12 分）。

An example

例子

No. 题号	Item 题目		Target word 目标词汇
1			mall
scoring	☐	☑	1

No. 题号	Item 题目		Target word 目标词汇
1			party
	☐	☐	
2			chickens (chicken)
	☐	☐	
3			books (book)
	☐	☐	
4			cart
	☐	☐	

5			cake
	☐	☐	
6			library
	☐	☐	
7			swim
	☐	☐	
8			supermarket
	☐	☐	

9			sunscreen
	☐	☐	
10			snow
	☐	☐	
11			fly
	☐	☐	
12			coat
	☐	☐	

Task 2: Determine if the word form of each underlined word in the sentence was correct, and tick your answer. If you choose the 'False' option, please fill in the blank

with your response. This was a word form recognition test (2 scores for each item, 24 scores in total).

任务 2：判断句子中划线的词是否正确，并在你的答案上打勾。如果你认为用词"错误"，请在空白处填上你的答案。这是一个词汇形式的识别测试（每项满分 2 分，共 24 分）。

An example

例子

No. 题号	Item 题目	Scoring 得分
1	This was a **cats** catching a ball. ☐ True ☑ False　　correct it: _____cat_____	2
1	This was a **cats** catching a ball. ☐ True ☑ False　　correct it: _____	1
1	This was a **cats** catching a ball. ☑ True ☐ False　　correct it: _____	0

No. 题号	Item 题目	Scoring 得分
1	They are having a birthday **parties** with many friends. ☐ True ☐ False　　correct it: _____	
2	This is a beautiful **cakes** for the Tom's birthday party. ☐ True ☐ False　　correct it: _____	
3	There are many **book** in the living room. ☐ True ☐ False　　correct it: _____	
4	It is a nice **sunscreen** for children when they were playing outside. ☐ True ☐ False　　correct it: _____	
5	These **chicken** were eating corn and rice. ☐ True ☐ False　　correct it: _____	

6	Many birds are **fly** around. □ True □ False correct it: _____	
7	They are **swim** with their patents now. □ True □ False correct it: _____	
8	There are two huge **library** in this school. □ True □ False correct it: _____	
9	Be careful when it is **snowing** outside. □ True □ False correct it: _____	
10	There are two **supermarket** in this community. □ True □ False correct it: _____	
11	These **cart** are helpful when you are shopping in the market. □ True □ False correct it: _____	
12	This is a nice **coats** for the chill autumn. □ True □ False correct it: _____	

Task 3: Determine if the part of speech of each underlined word in the sentence was correct, and tick your answer. If you choose the 'False' option, please fill in the blank with your response. This was a word form recognition test (2 scores for each item, 24 scores in total).

任务 3：判断句子中划线的词是否正确，并在你的答案上打勾，并且书写出该词汇词性的原本形式。这是一个词汇使用的识别测试（每项满分 2 分，共 24 分）。

An example

例子

No. 题号	Sentence 句子	Part of speech 词性			Original word 原词	Scoring 得分
		n. 名词	v. 动词	Adv. 副词		
1	She was **playing** her new toy.		✓		play	2

| 1 | She was **playing** her new toy. | | ✓ | | - | 1 |
| 1 | She was **playing** her new toy. | ✓ | | | | 0 |

No. 题号	Sentence 句子	Part of speech 词性			Original word 原词	Scoring 得分
		n. 名词	v. 动词	Adv. 副词		
1	There are many **books** in the bookshelf.					
2	She is **swimming** in the pool.					
3	These **chickens** are eating corns in the farm.					
4	These two **coats** are good for you.					
5	Anna and Emily had several **parties** with their friends these days.					
6	This school has two huge **libraries**.					
7	Look! It is **snowing** outside.					
8	Here are two types of **sunscreens** that you can use.					
9	You can use these shopping **carts** in the market.					
10	There are two big **supermarkets** in this mall.					
11	They are eating these homemade **cakes**.					
12	The bird is **flying** across the river.					

Appendix C

Questionnaire

Appendix C

Questionnaire
问卷

I would like to ask you to participate in this survey which was conducted to understand your individual attitudes about online vocabulary instruction using nano authentic videos. There was a clear clarification, this questionnaire was not a test with no "right" or "wrong" answers. And you do not have to sign your name. All your comments will be kept confidential and used only in this academic research report. Thank you very much for your support of this research.

我诚邀你参加这次调查，调查的目的是了解你个人对使用纳米真实视频进行在线英语词汇教学的态度。有一个明确的澄清，这个学生问卷不是一个没有"正确"或"错误"答案的测试。你不必签上你的名字。你的所有意见将被保密，仅用于本学术研究报告。非常感谢你对这项研究的支持。

This part was a close-ended questionnaire with 12 question items. In this part, I would like to know how much you agree or disagree with the following statements by ticking the box from 1 to 5. Please do not skip any single item and complete this questionnaire in 5 minutes.

这部分是一份有 12 个问题的封闭式问卷。在这一部分，我想知道你对以下陈述的同意或不同意程度，请在 1 到 5 之间打勾。请不要跳过任何一项，并在 5 分钟内完成此问卷。

Instruction
选项

Strongly Disagree 非常不同意	Disagree 不同意	Neutral 中立/无意见	Agree 同意	Strongly Agree 非常同意
1	2	3	4	5

An example

例子

If you **Strongly Agree** with the following statement, tick like this:

如果你非常同意以下陈述，请选择如下:

1	I like learning English vocabulary with songs.	□ 1 □ 2 □ 3 □ 4 ☑ 5

If you **Strongly Disagree** with the following statement, tick like this:

如果你非常不同意以下陈述，请选择如下:

1	I like learning English vocabulary with songs.	☑ 1 □ 2 □ 3 □ 4 □ 5

Research Questionnaire

调查问卷

No. 题号	Question item 问题陈述	Instruction 选项
1	I enjoy the online vocabulary instruction using these nano authentic videos. 我喜欢使用这些互动纳米真实视频的线上词汇教学模式。	□ 1 □ 2 □ 3 □ 4 □ 5
2	The content capacity of each nano authentic video is sufficient. It allows me to focus on content and vocabulary at the same time. 每个纳米真实视频的内容容量是足够的。它让我可以同时关注内容和词汇。	□ 1 □ 2 □ 3 □ 4 □ 5
3	The short content in each nano authentic video is helpful to reduce anxiety while learning English vocabulary. 每个纳米真实视频的简短内容有助于减少学习英语词汇时的焦虑。	□ 1 □ 2 □ 3 □ 4 □ 5

4	The length of each nano authentic video is suitable, and the limited content allows me to focus on a single learning goal. 每个纳米真实视频的长度都是合适的，有限的内容让我可以专注于单一的学习目标。	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
5	The sentences and vocabulary in each nano video are highly natural and interesting that help to increase my motivation to learn English vocabulary. 每个纳米真实视频中的句子和词汇都非常自然和有趣，这有助于增加我学习英语词汇的动力。	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
6	The content in each nano authentic video is suitable for my present learning level. 每个纳米真实视频的内容都是适合我现有的学习水平的。	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
7	The language environment and natural communication in each nano authentic video are helpful in developing correct vocabulary knowledge. 每个纳米真实视频中的语言环境和自然交流都有助于发展词汇知识。	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
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.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

	每个纳米真实视频中的自然动态图像和声音可以使我完全沉浸在语言环境中。这样，我就能在真实的语境中理解词汇的含义和形式。	
9	The scenes in each nano authentic video are helpful to recognize different uses of the same vocabulary. 每个纳米真实视频中的场景都有助于识别同一个词汇的不同用法。	□ 1 □ 2 □ 3 □ 4 □ 5
10	These online interactive nano authentic videos offer interactive activities to help increase vocabulary knowledge comprehension. 这些在线纳米真实视频提供互动活动以帮助提高对词汇知识的理解。	□ 1 □ 2 □ 3 □ 4 □ 5
11	These online interactive nano authentic videos provide essential opportunities to ask any question or advice. 这些在线互动纳米真实视频提供了提出任何问题或建议的重要机会。	□ 1 □ 2 □ 3 □ 4 □ 5
12	Suitable and instant feedbacks during vocabulary instruction are helpful for me when I am bewildered by learning issues. 当我对学习问题感到困惑时，词汇教学过程中适当和及时的反馈对我很有帮助。	□ 1 □ 2 □ 3 □ 4 □ 5

Thank you for your cooperation.

感谢您的合作。

Appendix D

Index of Item Objective Congruence (IOC) Form for Pre-Test and

Post-Test

Appendix D

Index of Item Objective Congruence (IOC) Form for Pre-Test and Post-Test

I would like to ask you to tick ✓ in the rating box for each test items. The final rating scores will be collected and analyzed to identify the validation of the pre-test and post-test. The rating scores are noted as follows:

+1		Congruent	The item can assess the objective clearly
0	means	Uncertain	Questionable
-1		Incongruent	The item cannot assess the objective

Task 1						
Item	The item was congruent to assess vocabulary meaning recognition?			Pictures of each item are clear to show meanings?		Comments
	+1	0	-1	+1	0	-1	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Task 2						
Item	The item was congruent to assess vocabulary written form recognition?			Each item word and sentence are appropriate for students' learning level?		Comments
	+1	0	-1	+1	0	-1	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Task 3						
Item	The item was congruent to assess vocabulary use recognition in a context?			The item word and sentence are clear and correct enough?		Comments
	+1	0	-1	+1	0	-1	

1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Appendix E

Index of Item Objective Congruence (IOC) Form for Questionnaire

Appendix E

Index of Item Objective Congruence (IOC) Form for Questionnaire

    I would like to ask you to tick ✓ in the rating box for each test items. The final rating scores will be collected and analyzed to identify the validation of the questionnaire. The rating scores are noted as follows:

+1		Congruent	The item can assess the objective clearly
0	means	Uncertain	Questionable
-1		Incongruent	The item cannot assess the objective

No.	Item	+1	0	-1
1	I enjoy the online vocabulary instruction using these nano authentic videos. 我喜欢该使用这些互动纳米真实视频的线上词汇教学模式。			
2	The content capacity of each nano authentic video is sufficient. It allows me to focus on content and vocabulary at the same time. 每个纳米真实视频的内容容量都是足够的。它让我可以同时关注内容和词汇。			
3	The short content in each nano authentic video is helpful to reduce anxiety while learning English vocabulary. 每个纳米真实视频的内容是比较简短的，有助于减少学习英语词汇时的焦虑。			
4	The length of each nano authentic video was suitable, and the limited content allows me to focus on a single learning goal.			

	每个纳米真实视频的长度都是合适的，有限的内容让我可以专注于单一的学习目标。			
5	The sentences and vocabulary in each nano video are highly natural and interesting that help to increase my motivation to learn English vocabulary. 每个纳米真实视频中的句子和词汇都非常自然和有趣，这有助于增加我学习英语词汇的动力。			
6	The content in each nano authentic video is suitable for my present learning level. 每个纳米真实视频的内容都是适合我现有的学习水平的。			
7	The language environment and natural communication in each nano authentic video are helpful in developing correct vocabulary knowledge. 每个纳米真实视频中的语言环境和自然交流都有助于发展词汇知识。			
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. 每个纳米真实视频中的自然动态图像和声音可以使我完全沉浸在语言环境中。这样，我就能在真实的语境中理解词汇的含义和形式。			
9	The scenes in each nano authentic video are helpful to recognize different uses of the same vocabulary. 每个纳米真实视频中的场景都有助于识别同一个词汇的不同用法。			

10	These online interactive nano authentic videos offer interactive activities to help increase vocabulary knowledge comprehension. 这些在线纳米真实视频提供互动活动以帮助提高对词汇知识的理解。			
11	These online interactive nano authentic videos provide essential opportunities to ask any question or advice. 这些在线互动纳米真实视频提供了提出任何问题或建议的重要机会。			
12	Suitable and instant feedbacks during vocabulary instruction are helpful for me when I am bewildered by learning issues. 当我对学习问题感到困惑时，词汇教学过程中适当和及时的反馈对我很有帮助。			
Comments:				

Appendix F

Index of Item Objective Congruence (IOC) Form for Lesson Plan

Appendix F

Index of Item Objective Congruence (IOC) Form for Lesson Plan

I would like to ask you to tick ✓ in the rating box for each test items. The final rating scores will be collected and analyzed to identify the validation of lesson plan. The rating scores were noted as follows:

+1		Congruent	The item can assess the objective clearly
0	means	Uncertain	Questionable
-1		Incongruent	The item cannot assess the objective

Part I: Objectives and Assessment

Objectives	+1	0	-1	Comments
Overall Objective: Students will be able to understand knowledge of target words including recognizing word meaning, form and written used in a context.				
Enabling Objectives: Students will be able to	+1	0	-1	Comments
1	Comprehend and recall appropriate meaning of a target word in a context.			
2	Comprehend and recognize written form of a target word.			
3	Comprehend and recognize correct use of a target word in a context.			
Interactive Nano Authentic Videos	+1	0	-1	Comments
Video Materials: These nano authentic videos have appropriate capacity and good quality to be presented on the interactive platform to				

teach all participants aged from 10 to 12 years old.				
Assessments	**+1**	**0**	**-1**	**Comments**
Procedural Assessments: Students will be asked to finish vocabulary practices during the instruction process including recalling word meaning, recognize word form and use in a specific context.				

Part II: Teaching Procedures

Teaching procedures	Teacher's role	Student's role	+1	0	-1	**Comments**
Warm-up	Teacher uses a nano video clip to activate students' prior experience and focus on two themes. (Online meeting room)	Students focus on relevant content with self-experience based on a video clip.				
Presentation I (Meaning-focused input)	Teacher creates real context to present target words based on interactive nano authentic videos.	Students need to watch nano authentic videos and finish pop-up questions during watching the videos. In this				

	(Online interaction platform)	case, students will interact with video content and guess target words' meanings.				
Practice I (Language-focused learning)	Teacher explains target words in a specific context, and asks students to finish practices based on interactive nano authentic videos. (Online meeting room and interaction platform)	Students comprehend target words clearly and do practices to understand types of vocabulary knowledge of target words.				
Production I (Meaning-focused output and fluency development)	Teacher offers meaning matching task and word form and use recognition task. (Online meeting room)	Students can recall word meaning and recognize word form in real context by themselves.				

Procedural assessment I	Teacher offers appropriate notes and questions to assess students	Students can interact with video content and comprehend target words				
Presentation II	Teacher creates real context to present target words based on interactive nano authentic videos. (Online interaction platform)	Students need to watch nano authentic videos and finish pop-up questions during watching the videos. In this case, students will interact with video content and guess target words' meanings.				
Practice II	Teacher explains target words in a specific context, and asks students to finish practices based on interactive	Students comprehend target words clearly and do practices to understand types of vocabulary knowledge of target words.				

	nano authentic videos. (Online meeting room and interaction platform)				
Production II	Teacher offers meaning matching task and word form and use recognition task. (Online meeting room)	Students can recall word meaning and recognize word form in real context by themselves.			
Procedural assessment II	Teacher offers appropriate notes and questions to assess students	Students can interact with video content and comprehend target words			
Sum-up	Teacher asks students what they have learned and provides feedback.	Students share answers and advice, gaining feedback from the teacher.			

Appendix G

IOC Results for Pre-test and Post-test

Appendix G

IOC Results for Pre-test and Post-test by Three Experts

Task	Item	Expert	Expert	Expert	Average	Remark	Comment
1	1	1	1	1	1	Accepted	
1	2	1	1	1	1	Accepted	Chickens/Chicken
1	3	1	1	1	1	Accepted	Books/Book
1	4	1	1	1	1	Accepted	
1	5	1	1	1	1	Accepted	
1	6	1	1	1	1	Accepted	
1	7	1	1	1	1	Accepted	
1	8	1	1	1	1	Accepted	
1	9	1	1	1	1	Accepted	
1	10	1	1	1	1	Accepted	
1	11	1	1	1	1	Accepted	
1	12	1	1	1	1	Accepted	Coats/Coat
2	1	1	1	1	1	Accepted	
2	2	1	1	1	1	Accepted	
2	3	1	1	1	1	Accepted	
2	3	1	1	1	1	Accepted	
2	5	1	1	1	1	Accepted	

IOC Results for Pre-test and Post-test by Three Experts (continued)
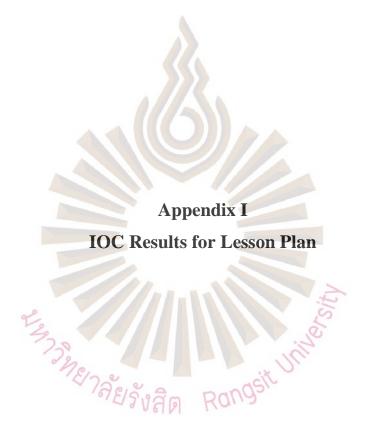
Task	Item	Expert	Expert	Expert	Average	Remark	Comment
2	6	1	1	1	1	Accepted	
2	7	1	1	1	1	Accepted	
2	8	1	1	1	1	Accepted	
2	9	1	1	1	1	Accepted	
2	10	1	1	1	1	Accepted	
2	11	1	1	1	1	Accepted	
2	12	1	1	1	1	Accepted	
3	1	1	1	1	1	Accepted	
3	2	1	1	1	1	Accepted	
3	3	1	1	1	1	Accepted	
3	4	1	1	1	1	Accepted	
3	5	1	1	1	1	Accepted	
3	6	1	1	1	1	Accepted	
3	7	1	1	1	1	Accepted	
3	8	1	1	1	1	Accepted	
3	9	1	1	1	1	Accepted	
3	10	1	1	1	1	Accepted	
3	11	1	1	1	1	Accepted	
3	12	1	1	1	1	Accepted	

Appendix H

IOC Results for Questionnaire

Appendix H

IOC Results for Questionnaire by Three Experts

Item	Expert 1	Expert 2	Expert 3	Average	Remark	Comment
1	1	1	1	1	Accepted	
2	1	1	1	1	Accepted	
3	1	1	1	1	Accepted	
4	0	1	1	0.67	Accepted	Keep same length of videos
5	1	1	1	1	Accepted	
6	1	1	1	1	Accepted	
7	1	1	1	1	Accepted	
8	1	1	1	1	Accepted	
9	1	1	1	1	Accepted	
10	1	1	1	1	Accepted	
11	1	1	1	1	Accepted	
12	1	1	1	1	Accepted	

Appendix I

IOC Results for Lesson Plan

Appendix I

IOC Results for Lesson Plan by Three Experts

Part	Item	Experts			Average	Remark	Comment
		1	2	3			
1	Overall Objectives	1	1	1	1	Accepted	
	Enabling Objective 1	1	1	1	1	Accepted	
	Enabling Objective 2	1	1	1	1	Accepted	
	Enabling Objective 3	1	1	1	1	Accepted	
	Video Materials	0	1	1	0.67	Accepted	Find
	Procedural Assessments	1	1	1	1	Accepted	
2	Warm-up	1	1	1	1	Accepted	
	Meaning Focused Input	1	1	1	1	Accepted	
	Language - Focused	1	1	1	1	Accepted	
	Procedural Assessment	1	1	1	1	Accepted	
	Meaning Focused Input	1	1	1	1	Accepted	
	Language - Focused	1	1	1	1	Accepted	
	Procedural Assessment	1	1	1	1	Accepted	
	Sum-up	1	1	1	1	Accepted	

Appendix J

Detail Percentages of Questionnaire Items

Appendix J

Detail Percentages of Questionnaire Items

	Item	Percentage				
		SD	D	N	A	SA
1	I enjoy the online vocabulary instruction using these nano authentic videos.	0	0	6.67%	86.66%	6.67%
2	The content capacity of each nano authentic video is sufficient. It allows me to focus on content and vocabulary at the same time.	0	0	0	93.33%	6.67%
3	The short content in each nano authentic video is helpful to reduce anxiety while learning English vocabulary.	0	0	6.67%	73.33%	20.00%
4	The length of each nano authentic video is suitable, and the limited content allows me to focus on a single learning goal.	0	0	6.67%	73.33%	20.00%
5	The sentences and vocabulary in each nano video are highly natural and interesting that help to increase my motivation to learn English vocabulary.	0	0	20.00%	80.00%	/
6	The content in each nano authentic video is suitable for my present learning level.	0	0	6.67%	93.33%	/

		SD	D	N	A	SA
7	The language environment and natural communication in each nano authentic video are helpful in developing correct vocabulary knowledge.	0	0	13.33%	80.00%	6.67%
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.	0	0	6.67%	93.33%	/
9	The scenes in each nano authentic video are helpful to recognize different uses of the same vocabulary.	0	0	20.00%	80.00%	/
10	These online interactive nano authentic videos offer interactive activities to help increase vocabulary knowledge comprehension.	0	0	6.67%	86.66%	6.67%
11	These online interactive nano authentic videos provide essential opportunities to ask any question or advice.	0	0	20.00%	73.33%	6.67%
12	Suitable and instant feedbacks during vocabulary instruction are helpful for me when I am bewildered by learning issues.	0	0	20.00%	73.33%	6.67%

(Note: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly

Agree.)

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