The Effects of Multimodal Teaching for Primary Students in L2 Primary School Classrooms

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Abstract. Multimodality theory has been applied in a second language learning environment where various language transformation approaches such as oral and written language, videos, gestures, and movements, are vital to improving L2 students' understanding. Moreover, the realization of multimodal teaching through technology instruments is increasingly common in L2 classrooms. However, given that most studies focused on the upper-grade students and teachers' concern about being pushed to margin roles by technology, it is crucial to study further the effects of multimodal teaching on primary students' language learning in the digital era. This mixed-method study combines the communication analysis of three authentic L2 scenarios from Mr. Val's classrooms, an online interview with Mr. Val, and a questionnaire designed for Shangiu Shiyan primary school students (n = 79, M = 8.5 ± 1.5). The findings are that multimodal teaching can improve students' learning by enhancing their participation, concentration, interaction with teachers, and comprehension. Teachers and students hold positive attitudes toward integrating it in L2 English classrooms.

Keywords: Primary school students · L2 English Classrooms · multimodal teaching

1 Introduction

Multimodality appeared in the late 1990s and has been widely used in multiple fields such as foreign language teaching, computer network discourse, and film and television works. Scholars holding this theory believed that other semiotic modes, including images and sounds, could make meaning in addition to the language. Kress and Leeuwen [1] claimed that language and images could be used as communication tools in social interaction, though they served independently. The research in recent years has shifted the view of analyzing its pedagogical implications and the application of multimodal teaching in classrooms. According to the investigation of the New London Group [2], Jewitt & Kress [3], and Kress et al. [4], learners can receive information from teachers through various communication modes: visual or oral descriptions, images, gestures, sounds, and movements. In the published book Multimodal Teaching and Learning, Kress et al. [5] examined multimodal communication in K12 science classrooms and found that image, gesture, and action are illustrative supports for delivering information. Multimodal teaching is also applied in learners' second language acquisition. For L2 learners,

the different modes of transforming information can enhance their understanding by engaging most of their sensory organs.

A variety of studies have focused on the benefits of multimodal teaching in improving students' second language learning. Hardison [6] conducted several experiments on Japanese and Korean English as a second language learners finding out significant effects of visual cues in auditory-visual speech processing. It turned out that facial expression, visible articulatory, and bodily gestures can aid comprehension when a listener fails to interpret information through audio channels.

Besides, with the assistance of technology, the utilization of multimedia resources in classrooms is becoming the primary approach to realizing multimodal education for teachers. For example, speech-to-text tools enable students expose to digital literacy besides the traditional written words; video or audio clips serve learners with multiple ways of decoding information. Jewitt's book Technology, Literacy, and Learning: A Multimodal Approach explored the relationship between new technologies and pedagogical practice and concluded that new technologies support students' new engagement potential [7].

Combining technology and multimodality is also applied to improve students' reading, writing, and vocabulary learning skills. For instance, Su [8] compared the two groups of vocabulary learning with single modal and multimodal interventions. Compared with single-mode vocabulary teaching, students memorize more words and forget more slowly, indicating the positive effects of multimodal vocabulary teaching. Also, the findings of Sakulprasertsri's [9] research on college students in Thailand revealed that teachers' integration of multiple semiotic modes with the approach of technology could enhance students' English skills. And enable them to make applications in life, proving that digital and multimodal practices are essential for teachers and students. However, most of these studies are limited to studying the multimodal teaching effects on adult learners or high school students. Children, being sensitive to exploring new things and gaining knowledge, are the predominant group that deserves people's attention. Under these circumstances, it is vital to analyze further the effects of multimodal teaching on young learners and how to initiate and maximize its potential in L2 classrooms.

Moreover, 21st-century learning arouses people's attention in ensuring children achieve success. With the integration of technology, instead of targeting children's traditional learning skills such as reading and writing, educators now aim to cultivate their 21st-century silks that fall into three classifications: life and career skills, learning and innovation skills, and information, media, and technology skills. These skills empower students to survive in an increasingly complex society. Multimodal teaching provides students opportunities to be exposed to digital literacies with the support of multimedia tools, which is one of the beneficial effects of multimodal learning. Some researchers have pointed out the significant meaning of multiliteracies in students' learning. Miller [10] discussed that the simple technical tools had been a part of the culture of the youth, and teachers need to prepare for the shift to accommodate the new times. Yelland [11] illustrated that the multimodal learning ecologies worked to support emergent literacy, which was viewed as rich grounds for facilitating children's 21st-century skills.

Though integrating multimodal teaching in classrooms possesses a promising future for promoting students' all-rounded development besides language skills for young

language learners. Moving toward the new times could challenge teachers' perception and application in authentic situations, particularly for pre-service teachers. Some researchers showed concerns about the technological difficulties for teachers. For example, Al-Hazza [12] conducted research on 21 pre-service teachers and found that teachers met problems using tablet devices to prepare literacy-enhancing instruction for students, causing tension in their exploration of technology use. Some others mainly focused on the challenges to teachers' perception of multimodal literacies and technology roles. In 2019, Wimmer and Draper revealed that teachers favor traditional and school-based teaching over new literacies because they assume traditional teaching fits the purpose of education [13]. Ryan, Scott & Walsh presented two challenges teachers face in a multimodal learning environment. One is the challenge of understanding the new texts and resources, such as knowing the metalanguage of how to communicate with young students. The other is the concern that technology can push teachers into the margin roles of the classroom [14]. All these challenges put teachers remained printed-based classrooms.

To conclude, due to the convenience of utilizing technological tools to make multimodal teaching more available in classrooms, the previously studied benefits of multimodal practices for second language learners, the lack of study on young language learners, and the challenges in the actual application; further analysis of how teachers should integrate multimodal teaching in classrooms, what are children's and teachers' perceptions of integrating it, and in what aspects that children could benefit from it should be conducted. Therefore, this study aims to analyze the effects of multimodal teaching for primary school students in L2 classrooms through the lens of the authentic recordings of English courses, the interview with the teacher, and questions from a group of children randomly chosen from a primary school.
The following research questions were identified:

In what aspects that the integration of multimodal teaching influences students?
How do children feel when teachers involve technology and multimedia resources in class?
What are teachers' attitudes and expectations for using multimodal teaching in real scenarios?

2   Method

A triangulation mix-method of design, including qualitative and quantitative data, was adopted in this study to enhance the study's accuracy. The quantitative data were the transcripts of the dialogues between the teacher and students from L2 primary school classroom recordings and a structured interview with the class teacher. The qualitative data would be an online questionnaire for primary students.

The qualitative data collection process started with transcribing teacher Val's dialogues with students in his classrooms. Mr. Val is an English teacher teaching Chinese students in Grade 1–6 in Nanjing, Jiangsu Province. He recorded his classes and put them on the Internet as resources to self-reflect and inspire other teachers. Three video clips were chosen when Mr. Val implemented the multimodal teaching by including

body language, videos, or dramatic tones in his lecturing to the class. The transcriptions could reflect if students could understand more quickly or fully engage in the course when the teacher applies various teaching methods. Besides, to examine the teachers' attitudes when using the multimodal strategy, a short interview containing five specific questions was sent to Mr. Val via email, showing his insights and concerns towards the application in bilingual classrooms.

Moreover, the focus of the research is to figure out how multimodal teaching influences students. Thus a Likert scale was adopted to show students' opinions. Since the pandemic threat, a small-scaled questionnaire designed for primary school students (n = 79, M = 8.5 ± 1.5) was sent online and completed with the assistance of participants' parents using their mobile phones. The participants were chosen randomly from the Shangqiu Shiyan Primary school. Typically, the answers are represented by numbers from one to five to analyze the collected data. However, according to the suggestions provided by Mertler in doing action research by using this type of survey, children may be confused about understanding the meaning of each number and away from the topic leading to an undesired result for data collection [15]. Therefore, the questionnaire in this study consists of eight closed-response questions with graphic representations to accommodate students with all readiness levels to ensure data accuracy. Besides, the questionnaire contains both intention-oriented and result-oriented questions to study the effects of multimodal according to students' interests and learning outcomes.

3   Results and Discussion

As discussed previously, this research aims to examine the effectiveness of multimodal teaching via technological instruments and the variation of the speakers 'expression forms in L2 Chinese young learners. Overall, the results of this study indicate that multimodal teaching is an effective teaching method from the aspects of multimodality's effectiveness on children's learning outcomes, children's learning preference, and teachers' attitudes and anticipation.

3.1   In What Aspects that the Integration of Multimodal Teaching Influences Students?

Viewing the flowing communication analysis transcripts of Mr. Val' and students, it was clear that STU1 quickly understood the meaning of the word "Photobomb" when the teacher asked two students to role-play in an authentic setting and demonstrated the word with gestures. In addition, the student's response to "Photobomb" shows that students have a better understanding of the words with the multimodal explanations.

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11 TEA: So, for example,
12 look(0.1)!
13 You are walking in the
14 p^ark, ((hint STU1 and
15 STU2 to stand together))
16 TEA: and you want to take a
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17 picture, Yes?
18 You want-ə take a picture.
19 ((hold STU1's hand to make
20 gesture of taking a
21 picture))
22 TEA: And then I like ai:::((STU
23 are laughing))
24 Yes? (0.2)
25 TEA: and I ru^in your picture.
26 (0.2) Th^ank you.
27 ((motioned the two '
28 students off the platform))
29 ST1: O^h,(0.3)I know).
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In another transcript from the video where Mr. Val is asking students to repeat the class rules, students responded to the teacher's requirements by shouting aloud the answers while imitating the character's hand gestures in the video shown on the screen.

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[TEA is going through the class rules]
01 TEA: What is rule No.2?
02 ((A video on the screen
03 showing a person is
04 making the gesture of
05 zipping his mouth))
06 STU: Ru:le NO:.2 is be qu^iet.
07 ((Students are imitating
08 the man in the video))
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In line with previous studies, the qualitative data obtained from the transcripts indicate that the exploitation of multimodal ways such as videos, images, and gestures can enhance students' participation, concentration, interaction with teachers, and comprehension. There are some reasons to explain these findings. One plausible explanation is that students may be attracted by and pay full attention to the videos or sounds presented in class when they are tired of listening to one teacher's voice continually. Integrating other tools to impart knowledge could arouse students' curiosity to learn. It may be because stimulating authentic situations can help students deploy a mix of communication modes, including linguistic and spatial modes, pointed out by the New London Group [2]. The finding can also be verified by Kress and van Leeuwen's [1] analysis that grammar could be presented and better understood in a visual structure.

3.2 What Are Children's Perceptions of Multimodal Teaching in English Class?

The quantitative data received from the questionnaire were presented in percentages to reflect students' attitudes toward multimodal teaching. The first set of questions of the questionnaire aimed to tack participants 'willingness to immerse in a multimodal

classroom. As seen in Table 1, a great number of students agree that they are more willing to attend the classes where they are available to multiple modes such as oral and written languages, images, gestures, and movements. It turned out that more than 57% of primary students report that they would like to participate in multimodal teaching classrooms with technology compared to the traditional learning atmosphere. Besides, above 71% of students assume that class will be fun if the multimodality is integrated into English class. The statistics also show that students' preferences, about 63%, towards multimodal learning compared to traditional English classrooms.

And the second set of questions is resulted-oriented, aiming to discover the effects of multimodal teaching on students' learning. About over 57% of children believed that applying videos, images, sounds, and movements with the help of technological teaching tools was useful to improve their understanding of the contents and enhance their learning outcomes (Table 2). The results share the same positive feedback from students, revealing that integrating multimodality in English class enhances students' beliefs that they can understand fast and well. The statistics implicate that using visual images and videos in the preview stage of a course could effectively support students with background information and aid students in grasping the key ideas in the following contents. All these findings resonate with the previous research that primary school students hold positive attitudes towards the teachers' practice of multimodal teaching in English classrooms. Participants' willingness to immerse in a multimodal classroom. As seen in Table 1, many students agree that they are more willing to attend the classes where they are available in multiple modes such as oral and written languages, images, gestures, and movements. It turned out that more than 57% of primary students report that they would like to participate in multimodal teaching classrooms with technology compared to the traditional learning atmosphere. Besides, above 71% of students assume that class will be fun if the multimodality is integrated into English class. The statistics also show that students' preferences, about 63%, towards multimodal learning compared to traditional English classrooms.

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Table 1. Students' willingness to integrate multimodal teaching.

Questions	SA	A	N	D	SD
I think the classroom becomes interesting when teachers use technology in teaching.	70.95	20.25	3.80	0	0
I prefer to learn vocabulary when teachers explain words through pictures.	56.96	40.51	2.53	0	0
I am more confident in understanding the text's content when teachers introduce videos or songs.	68.35	26.58	5.06	0	0
I prefer to participate in multimodal learning than the traditional method where teachers use spoken language and written words on blackboards.	63.29	32.91	3.80	0	0

Notes: SA = strongly agree; A = agree; N = no opinion; D = disagree; SD = strongly disagree. All numbers are expressed in percentages. n = 79

Table 2. Students' beliefs of multimodal teaching's effectiveness in class integration.

Questions	SA	A	N	D	SD
I can understand the background of the knowledge of the contents when teachers show a video when introducing the topic.	65.82	27.85	6.33	0	0
I can quickly comprehend the words' meanings when teachers present the images or point out the objects to us.	59.49	32.91	7.60	0	0
I can understand and keep to the class rules better when teachers use body language.	56.96	29.11	13.92	0	0
The mind maps, charts, and tables facilitate me to have a clear understanding of the structures and the detailed information in the whole lesson.	68.36	26.58	5.06	0	0

Notes: SA = strongly agree; A = agree; N = no opinion; D = disagree; SD = strongly disagree. All numbers are expressed in percentages. n = 79

3.3   Results from Teacher's Perceptions on Integrating Multimodal Teaching

In the interview transcript of Mr. Val, the semistructured questions were put into two groups. One set of questions was asked, established on his class observations and teaching experiences. Another group was based on his personal views and attitudes concerning the benefits and concerns of teaching with intriguing students' various modes. According to his responses, it is clear to notice that he is optimistic about teaching with multiple modes

Table 3. The Online Interview with Mr. Val

The researcher: Are students engaging in the class when you use multimodal teaching? **Mr. Val:** Yes, especially if your lesson is student-oriented, visual, and interactive. **The researcher:** Which grade do you think multimodal teaching will best serve? **Mr. Val:** Primary school, grades 1–6
The researcher: What do you think are the advantages or disadvantages of multimodal teaching when interacting with students? **Mr. Val:** Multimodal teaching strategies are helpful because they assault students' senses and help them learn through auditory, visual, and tactile methods. **The researcher:** Do you think using multimodal teaching through technology devices in the class is challenging? And why? **Mr. Val:** No, I don't think so. I am a big supporter of using technology in classes and the whole language approach, meaning that in one class, I teach all four language skills – listening, speaking, reading, and writing – through various learning modes. **The researcher:** Which multimodal teaching methods like using pictures, videos, or gestures influence students to understand new knowledge? **Mr. Val:** All of them. When you teach a heterogeneous group of students, you must appeal to all learning styles. Therefore flashcards, illustrations, videos, and TPR are all very effective.

by seeing students' active participation in class (see Table 3). Also, the findings present that teachers have formed a comprehensive understanding of the specific advantages of using multimodal teaching, which firm their determination to expand their teaching repertoire by applying this method. Though the interview is limited to one teacher, it can add the validity of qualitative data by combining his direct responses to the relevant questions with the original transcripts between him and his students.

Based on the interview data, it is interesting that the teacher is enthusiastic and highly supportive of multimodal teaching, showing no concerns about using technology. This finding contradicts some research that teachers struggle with using technological devices or are pushed into margin roles by the technology. This situation could happen perhaps because the multimedia software is kept updating and becomes easier to navigate by people from various levels, including people who are used to being comfortable with printed-based learning or teaching. Therefore, with teachers' extensive exposure to technology and increasing capability of mastering it, the threat of technology replacing teachers is softened, which may increase our expectations of applying multimodal teaching via technological instruments to a large group of students. Another reason that may explain this phenomenon is the pandemic outbreak marking a massive change in teaching and learning formats. More than 1.5 billion students in 186 countries have been affected, for most in-person classes are changed into online courses to prevent the spread of the virus [16]. Under these circumstances, teachers are trained or learn themselves to accommodate remote teaching by exploring more specialized software or devices.

4   Conclusion

This study aims to investigate the effects of multimodal teaching on primary school students' performance and second language learning to build students' 21st-century

skills and determine students' and teachers' attitudes towards its actual integration into L2 classrooms via technological devices. The research examines multimodal teaching effects based on the quantitative and qualitative data from communication analysis, interviews, and questionnaires, finding that the application of multimodal teaching can improve students' engagement and understanding of new knowledge. Students' confidence in making progress in studying English is also enhanced when teachers integrate multimodal teaching. In addition, teachers are supported to use of multimodal teaching to engage students and activate students' various modals of transforming information.

These findings have significant implications for L2 primary school students and educators. On the one hand, students could benefit from the application of multimodal teaching in meeting the requirements of 21st-century skills and accomodating the multiliteracies learning environment. On the other hand, teachers can put multimodal teaching into practice in bilingual classrooms as an enrichment to expand their teaching repertoire and take advantage of students' learning preferences to arouse their interest in learning new content. In this view, the school could contribute to encouraging multimodal teaching by providing teachers with professional training on technology use and enhancing teachers' perceptions of its application. The insights gained from this study could assist in further discussing the application of multimodality in the field of education. However, there are some limitations to this study. Firstly, the three videos that used to be transcribed are limited to one teacher's classroom and may not represent the scenarios in the general English classrooms. Secondly, the questionnaire participants were chosen from one primary school that cannot describe the large group's opinions. Thirdly, Mr. Val's responses to the interview may be biased in his perspective, for he is proficient and comfortable with using multimedia devices to assist in teaching. These limitations may be solved by enlarging the study scale.

Although the findings in this study have provided the efficiency of multimodal teaching, the confirmation of this study could be strengthened if future research can conduct experiments to compare the effects of multimodal teaching with traditional instruction. For example, researchers can test students' academic test scores on students' English learning skills such as reading and listening comprehension and writing and speaking output. More quantitative data, including the students' learning outcomes through teachers' traditional multimodal stimulation such as body language, speech variations, and spatial imagination, compared to technological interventions, is also essential to find how each way will affect students' learning. In addition, to ensure the accuracy of the data analysis, further study can expand the research participants by including more students and teachers from different schools and settings in the whole country.

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