

## Article

# Applying Multimodality Theory In Video Mediated Teaching In Synchronous Online Programs

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**Abstract:** The COVID-19 pandemic has considerably changed learning conditions and made educational institutions shift from face-to-face teaching to synchronous online teaching. Nevertheless, teaching methods used during the pandemic showed several disadvantages because teaching languages with online technology was not accustomed to teachers and students. Thus, we analyzed students' perceptions of multimodal elements, videos, subtitles, and teaching methods in language learning. Accordingly, students' attitudes toward the use of videos as multimodal resources were explored in an intensive online program, and factors influencing their engagement in online learning were identified. The participants comprised 33 students who joined a free online summer program offered by a college during the pandemic. The program was aimed at helping unemployed graduates aged 15–29 years take a series of career training courses. To address the issue of receiving simplistic and surface-level answers from the questionnaires, interviews were carried out to gather more compelling information. The results revealed that the students had positive attitudes toward incorporating video subtitles in online classes. In particular, they thought video captions facilitated learning vocabularies and structures online. Therefore, video materials were feasible for teaching English as a second language. Pedagogical implications regarding the use of videos as an educational tool were presented in this study.

**Keywords:** multimodality; online videos; subtitles; synchronous online learning

## 1. Introduction

The COVID-19 pandemic has engendered considerable changes in learning conditions, compelling educational institutions to change face-to-face teaching with a synchronous online educational approach. To ensure that the conditions of online learning were similar to those of classroom learning, teachers used video conferencing tools to give direct instructions and explain new concepts (Caviglia-Harris, 2016). Synchronous online learning promoted student-teacher interaction. Nevertheless, concerns were raised regarding students' engagement during synchronous online learning (Serafini, 2015). Enhancing the quality of teaching materials was an essential strategy for improving student engagement. The new technologies incorporated diverse modalities including pictures, hues, spoken language, audio effects, motion, gestures, and visual focus. The concept of multimodality arises from the application of sensory modalities through which humans apprehend information. These modalities can encompass the sense of touch, vision, or hearing. The involvement of multiple modalities holds equal importance in shaping a message. Thus, challenging the prevailing notion that written text alone serves as the exclusive medium for communicating and representing information or knowledge (Kress & van Leeuwen, 2021). According to this theory, teachers must incorporate various online multimodal resources, such as videos, animation, images, presentations, quizzes, and interactive discussions, in their lessons to improve student engagement (Kim & Li, 2020). The incorporation of such resources can improve students' understanding and memory, knowledge acquisition, and exam performance.

The objective of the present study was to investigate how the fundamental components of online educational videos impacted students' level of engagement in online courses. The subsequent sections of this paper are structured as follows: a comprehensive literature review examines the theoretical aspects of videos within the framework of multimodality theory with particular attention given to their utilization as educational resources in remote learning environments during the pandemic. Subsequently, the study methodology and outcomes are presented. Lastly, the study is concluded with a summary of findings and recommendations for incorporating video resources effectively in online courses.

## 2. Literature Review

### 2.1. Multimodality Theory

According to multimodality theory, various modes are used in the creation of create meaning. In social semiotics, modality is extensively defined as a structured and coherent assemblage of resources that are intricately interconnected and employed to construct and convey meaning (Jewitt, 2006). Collectively, these modalities function as a comprehensive framework with which individuals create, interpret, and exchange meaning within social and cultural contexts. By leveraging this organized set of resources, individuals engage in a semiotic process where they actively construct and negotiate meaning, thereby shaping their understanding and interaction with the world around them (Jewitt, Bezemer & O'Halloran, 2016). According to the New London Group, each mode with distinct characteristics, can produce unique meanings or diverse activities for people who receive and send information during communication (Kress, 2010). Multiple modes interact with one another to provide unique and boundless possibilities for the transmission of information. Overall, multimodality theory explains how individuals understand the representation of information (Jewitt, 2013). In summary, the concept of multimodality refers to how individuals express themselves through various modes (Domingo, Jewitt & Kress, 2014). Currently, the concept of multimodality has attracted considerable attention in online education. Multimodal resources can be used to develop a teaching method that reflects learners' real-world knowledge and experience (Olivier, 2019).

Multimodality has been increasingly integrated into teaching and learning to demonstrate various learning modes. In the era of rapid scientific and technological development, multimodal communication platforms have been gradually integrated into the lives of students, too (Doumanis, Economou, Sim & Porter, 2019). Hence, current students' extracurricular activities differ considerably from those of previous generations, which has exerted a substantial impact on the student's learning styles and preferences. Focusing solely on the method of teaching linguistic meanings is not sufficient for increasing students' active participation in the learning process (Magnusson & Godhe, 2019). The concept of literacy refers to not only the ability to speak and write but also the ability to convey and receive meaning through various modes, such as images, sounds, videos, and gestures (Walsh, Durrant & Simpson, 2015). Therefore, multimodality is crucial in teaching because the concept of teaching must meet the requirements of a multimedia society.

### 2.2. Multimodality Theory in Video-assisted Teaching

The emergence of various advanced visual teaching media and tools has greatly enriched the methods and means of second language teaching, providing teachers and students with innovative and effective ways of learning. As a result, learners' ability to remember, analyze, synthesize, imagine, and innovate has significantly improved (Beatty, Merchant & Albert, 2019). This is because visual learning materials can make complex information more accessible, easier to understand, and more engaging. Moreover, the incorporation of videos into teaching materials contributes to students' understanding of subjects, and students identify specific aspects of the learning process as enjoyable (Maru, Nur & Lengkoan, 2020). Videos provide a rich visual sensory experience that helps learners improve their cognitive and literacy skills (Pantula & Kuppusamy, 2020). Video-based learning fundamentally involves visual attention, visual perceptions, and visual thinking (Yu, 2021). The teacher's presence in videos captures learners' attention through body language and eye contact, guiding them to learn important knowledge points.

### 2.3. Incorporating Online Videos into Online Teaching

During the COVID-19 pandemic, teachers relied heavily on video materials for teaching speaking skills in online teaching (Syafiq, Rahmawati, Anwari & Oktaviana, 2021). Students learned vocabulary, pronunciation, grammar, and content from online videos. Utilizing online videos was effective in enhancing students' speaking skills during online learning in the context of the COVID-19 pandemic. The use of multimedia materials in language teaching provides students with additional opportunities to learn and improve their studies (Belda-Medina, 2021). The effective use of video materials increases learners' satisfaction (Simamora, 2020). Moreover, students majoring in languages prefer the use of videos for learning. Hence, language teachers consider videos as a tool to motivate learners (Pham & Ho, 2020). The benefit of using video materials in the classroom is related to the authenticity of such materials (Lemay, Bazalais & Doleck, 2021). Students who use various learning channels for information acquisition can learn specific words through sounds, pictures, or even 3D animations. Accordingly, learners' attitudes toward the use of videos need to be explored as multimodal resources in an intensive online program.

### 3. Methodology

In this study, it was explored whether incorporating videos in online teaching promoted student engagement in learning a second language, and students' attitudes toward the use of videos for vocabulary learning were assessed to explore their understanding of the contexts presented in the videos. Specifically, it was aimed to answer the following research questions in this study.

- *What are students' perceptions of multimodal elements utilized in videos?*
- *What are students' attitudes toward the content of videos used for language learning?*
- *What are students' opinions of video subtitles for vocabulary acquisition?*
- *What are students' feedbacks to teach vocabulary with online resources?*

Online video-assisted teaching was implemented in this study with a range of expressive elements, including video captions, visual cues, auditory signals, and gestural patterns. Student experience in the exploitation of videos in class was explored for educators to improve the quality of instruction in the online environment.

#### 3.1. Research Participants

33 students aged 15–29 years old who took a free online summer program offered by a private university in North Taipei participated in this study. Most of the participants were senior high school or university graduates. Although most of the senior high school graduates continue to university for further studies in Taiwan, they still need to develop their presentation skills or gain career-related training experience. Most of the university graduates sought employment at the time of the program. Several participants were unemployed for some time. They joined a 5-day program per week for 8 h per day. The program was offered to help unemployed youth take a series of career training. The participants were recruited from various schools. Seven courses were offered in the course: Brand Marketing, Presentation, Marketing Plan, Business Etiquette, Interview Management, English Proficiency, and Introduction to Different Industries by supervisors from different companies. Each course was taught by one or two teachers. The teachers used online resources or textbooks and materials along with PowerPoint slides. After completing this course, the students were expected to improve their English conversation and writing skills in commerce, obtain an English certificate, and increase their employment opportunities by practicing resume writing, interview techniques, and job matching. To bridge the gap to employment in the industry, participants shared their achievements with potential employers in projects.

#### 3.2. Research Tools

Quantitative and qualitative methods were used to analyze the data gathered from a questionnaire survey and interviews. In order to address potential issues with participants, simple answers were asked for the questionnaire. Interviews were performed to gather detailed information for a comprehensive investigation. A questionnaire survey was carried out to assess students' perceptions before and after joining the program. The details of the questionnaire are listed in Table 1. The questionnaire comprised 4 dimensions and 21 questions: attitudes toward multimodal elements used in the videos for language usage learning (Q1-Q5), attitudes toward the content of the videos for language usage learning (Q6-Q10), attitudes toward using subtitles for language usage learning (Q11-15), and attitudes toward the new vocabulary teaching method (Q16-Q21). The questionnaire was distributed to the respondents at the beginning and at the end of the experiment to investigate the changes in students' engagement or interest in vocabulary learning.

**Table 1.** Questionnaire information.

| Dimensions  | Questions | Number |
|---|-----------|--------|
| Students' attitudes toward multimodal elements used in the videos for language usage learning | 1–5       | 5      |
| Students' attitudes toward the content of the videos for language usage learning              | 6–10      | 5      |
| Students' attitudes toward using subtitles for learning language structures                   | 11–15     | 5      |
| Students' attitudes toward the language teaching method                                       | 16–21     | 6      |
| Total number  | 21        | 21     |

At the end of the experiment, the students were interviewed to understand their preferences regarding English vocabulary learning with videos. According to interview responses, the students suggested methods that helped them study more effectively. The video subtitles enhanced the students' memory of language and their interest in learning. In summary, students expressed a preference for the current method of vocabulary learning.

#### 4. Data Analysis and Discussion

In this study, the students' perceptions of multimodal elements used in the videos were analyzed, and the result was discussed in the subsequent sections.

##### 4.1. Students' Attitudes toward Multimodal Elements in Videos

Table 2 describes the results of student attitudes toward multimodal elements in videos after the course. Before taking the program, the score was 3.60. The students had a moderately positive attitude toward the use of the elements in videos before classes. This increased the score, showing that the use of multimodal elements in videos was effective in engaging students and improving their overall perception of the learning experience.

**Table 2.** Students' attitudes toward the multimodal elements used in videos.

| Questions     |  | Before Program | After Program |
|---------------|--|----------------|---------------|
| 1             | Video subtitles help me understand the content.                      | 3.30           | 3.72          |
| 2             | The characters' actions help me understand the story.                | 3.22           | 3.63          |
| 3             | I understand what the speakers are saying.                           | 3.13           | 3.52          |
| 4             | I am willing to finish my homework on time and on my own initiative. | 3.28           | 3.54          |
| 5             | I am willing to consciously and actively study English after class.  | 3.11           | 3.59          |
| Average score |  | 3.21           | 3.60          |

Table 3 presents the mean score before the program as 3.21 (standard deviation (SD) = 0.09), while that after the program was 3.60 (SD = 0.08). The t-value of  $-10.81$  indicated that the difference was statistically significant at a significance level  $p < 0.001$ . The mean difference was  $-0.39$ , which suggested that students had more positive attitudes towards video-based content.

**Table 3.** Differences of scores in student attitudes toward the multimodal elements used in the videos before and after taking the program.

| Score | Before Program ( $n = 5$ ) |      | After Program ( $n = 5$ ) |      | MD    | t (4)  |
|-------|----------------------------|------|---------------------------|------|-------|--------|
|       | M                          | SD   | M                         | SD   |       |        |
|       | 3.21                       | 0.09 | 3.60                      | 0.08 | -0.39 | -10.81 |

The mean paired difference between the scores before and after the program was  $-0.39200$  (Table 4). There was an increase in the attitudes towards the multimodal components in the videos after taking the program. The standard deviation of the paired differences was  $0.08106$ , and the standard error mean was  $0.03625$ . The t-value of  $-10.814$  showed that the difference between the scores before and after the program was statistically significant at  $p < 0.05$ . The degree of freedom (df) was 4 in the study. The result demonstrated a significant increase in attitudes towards the multimodal components in videos after taking the program.

**Table 4.** Paired samples t-test of scores of attitudes towards multimodal components before and after taking program.

|                       | Paired Differences |                |                 |   |          | t       | df | Sig.(2-tailed) |
|-----------------------|--------------------|----------------|-----------------|---|----------|---------|----|----------------|
|                       | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |          |         |    |                |
|                       |                    |                |                 | Lower                                     | Upper    |         |    |                |
| Before taking program | -0.39200           | 0.08106        | 0.03625         | -0.49264                                  | -0.29136 | -10.814 | 4  | 0.000          |
| After taking program  |                    |                |                 |   |          |         |    |                |

##### 4.2. Students' Attitudes toward Content of Videos

Table 5 presents the results regarding the students' attitudes toward the content of the videos for learning language. The mean score of the students' attitudes toward learning structures using videos was 3.11 before taking the program, and after taking the program was 3.55.

**Table 5.** Students' attitudes toward the content of the videos for language learning.

| Questions   |   | Before Program | After Program |
|-------------|---|----------------|---------------|
| 6           | I am motivated to study when I use videos as an educational tool.                     | 2.96           | 3.46          |
| 7           | When I watch a video with subtitles, I can better understand the content.             | 3.02           | 3.52          |
| 8           | Using video resources can help cultivate my self-learning ability.                    | 3.30           | 3.72          |
| 9           | After watching videos for learning language structures, I changed my learning habits. | 3.35           | 3.59          |
| 10          | I know how to use the language when I watch videos to learn language structures.      | 2.93           | 3.46          |
| Total means |   | 3.11           | 3.55          |

Table 6 presents the mean score before taking the program as 3.11 (SD = 0.20), while that after the program was 3.55 (SD = 0.11). The mean difference was -0.44, indicating that students had more positive attitudes toward the content of the videos for learning a language. The t-score was -8.30, so the difference in scores before and after the program was statistically significant at a significance level  $p < 0.001$ .

**Table 6.** Differences in score of student attitudes toward content of videos scores before and after taking the program.

| Score | Before Program (n = 5) |      | After Program (n = 5) |      | MD    | t (4) |
|-------|------------------------|------|-----------------------|------|-------|-------|
|       | M                      | SD   | M                     | SD   |       |       |
|       | 3.11                   | 0.20 | 3.55                  | 0.11 | -0.44 | -8.30 |

The mean paired difference was -0.43800 and the t-score was -8.301, indicating that the difference between the scores before and after the program was statistically significant at  $p < 0.001$ . The results suggested that the use of videos for language learning was effective in improving students' attitudes toward the content of the videos.

**Table 7.** Paired samples t-test of scores of student attitudes toward content of videos before and after taking program.

|                       | Paired Differences |                |                 |   |          | t      | df | Sig.(2-tailed) |
|-----------------------|--------------------|----------------|-----------------|---|----------|--------|----|----------------|
|                       | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |          |        |    |                |
|                       |                    |                |                 | Lower                                     | Upper    |        |    |                |
| Before taking program | -0.43800           | 0.11798        | 0.05276         | -0.58450                                  | -0.29150 | -8.301 | 4  | 0.001          |
| After taking program  |                    |                |                 |   |          |        |    |                |

#### 4.3. Students' Attitudes toward Using Video Subtitles

Table 8 presents the results regarding the students' attitudes toward using video subtitles for vocabulary learning. The mean score of the students' attitudes toward using video subtitles for vocabulary learning before taking the program was 3.04, while that after the program was 3.57 with an SD of 0.05. The students' attitudes toward using video subtitles changed after taking the program, and their learning engagement increased.

**Table 8.** Students' attitudes toward using video subtitles for vocabulary learning.

| Questions   |   | Before Program | After Program |
|-------------|---|----------------|---------------|
| 11          | I find that watching videos with subtitles helps me learn new words.  | 3.02           | 3.48          |
| 12          | I learn more words by watching videos with subtitles.                 | 2.89           | 3.59          |
| 13          | The format of the subtitles on the screen attracts my attention.      | 3.04           | 3.61          |
| 14          | I agree that subtitles help me better understand the content.         | 3.04           | 3.59          |
| 15          | I don't have much trouble reading subtitles while watching the video. | 3.20           | 3.57          |
| Total means |   | 3.04           | 3.57          |

The mean difference between the scores before and after the program was  $-0.53$ . The  $t$ -score was  $-9.57$  which indicated that the scores increased after taking the program (Table 9). The  $t$ -score of  $-9.565$  demonstrated that the mean difference was significant at  $p < 0.001$ . Thus, the use of video subtitles for vocabulary learning affected students' attitudes.

**Table 9.** Differences in scores in student attitudes toward using video subtitles for vocabulary learning before and after taking program.

| Score | Before Program ( $n = 5$ ) |      | After Program ( $n = 5$ ) |      | MD    | $t$ (4) |
|-------|----------------------------|------|---------------------------|------|-------|---------|
|       | M                          | SD   | M                         | SD   |       |         |
| Score | 3.04                       | 0.11 | 3.57                      | 0.05 | -0.53 | -9.57   |

**Table 10.** Paired samples  $t$ -test of scores of student attitudes toward using video subtitles for vocabulary learning before and after taking program.

|                       | Paired Differences |                |                 |   | $t$      | df     | Sig.(2-tailed) |       |
|-----------------------|--------------------|----------------|-----------------|---|----------|--------|----------------|-------|
|                       | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |          |        |                |       |
|                       |                    |                |                 | Lower                                     |          |        |                | Upper |
| Before taking program | -0.53000           | 0.12390        | 0.05541         | -0.68384                                  | -0.37616 | -9.565 | 4              | 0.001 |
| After taking program  |                    |                |                 |   |          |        |                |       |

#### 4.4. Students' Attitudes toward New Vocabulary Teaching

Table 11 indicates that the students' attitudes toward the new vocabulary teaching (the use of videos for vocabulary learning) improved with the program. The mean score of students' attitudes toward the new teaching method was 2.93 before taking the program, while that was 3.57 after taking the program. This demonstrated that students had positive attitudes toward new vocabulary teaching.

**Table 11.** Students' attitudes toward the new vocabulary teaching.

|    | Items  | Before Program | After Program |
|----|--|----------------|---------------|
| 16 | I believe that video-assisted teaching methods are very helpful for learning vocabulary. | 3.22           | 3.65          |
| 17 | The subtitles in the video help me understand the plot.                                  | 3.02           | 3.46          |
| 18 | I think watching videos is helpful for learning vocabulary.                              | 3.26           | 3.54          |
| 19 | I learn vocabulary more easily when I watch videos.                                      | 2.15           | 3.48          |
| 20 | I believe that video materials are helpful in the teaching of English vocabulary.        | 3.39           | 3.76          |
| 21 | When videos with subtitles are shown in class, I become more engaged.                    | 2.26           | 3.54          |
|    | Score  | 2.88           | 3.57          |

The mean difference between the scores before and after taking the program was  $-0.69$ . The  $t$ -score of  $-3.50$  suggested that the difference in the attitude before and after the program was significant at  $p < 0.05$ , and the students' attitudes toward language learning changed substantially after the program (Table 12).

**Table 12.** Differences in scores in student attitudes toward new vocabulary teaching before and after taking program.

| Score | Before Program ( $n = 5$ ) |      | After Program ( $n = 5$ ) |      | MD    | $t$ (5) |
|-------|----------------------------|------|---------------------------|------|-------|---------|
|       | M                          | SD   | M                         | SD   |       |         |
| Score | 2.88                       | 0.54 | 3.57                      | 0.11 | -0.69 | -3.50   |

The  $t$ -score for the difference of the scores in the attitude toward the new vocabulary teaching before and after taking the program was 0.017 at  $p = 0.017$ . This reflected a change in the students' attitudes toward the new vocabulary teaching, and the new teaching method had a significant effect on the students' attitudes.

**Table 13.** Paired samples t-test of scores of student attitudes toward new vocabulary teaching before and after taking program.

|                       | Paired Differences |                |                 |   |          | <i>t</i> | <i>df</i> | Sig.(2-tailed) |
|-----------------------|--------------------|----------------|-----------------|---|----------|----------|-----------|----------------|
|                       | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |          |          |           |                |
|                       |                    |                |                 | Lower                                     | Upper    |          |           |                |
| Before taking program | -0.68833           | 0.48131        | 0.19649         | -1.19343                                  | -0.18323 | -3.503   | 5         | 0.017          |
| After taking program  |                    |                |                 |   |          |          |           |                |

#### 4.5. Discussion

The students stated that various videos were appealing for learning vocabulary. When watching the videos, the students could use various resources to memorize the vocabulary by connecting the words to the theme. In addition, they believed that using video materials in online classes was crucial for the learning process because it changed their attitudes toward learning a language. Such testimonies suggested that incorporating videos in the course enhanced students' interest in learning. The result was consistent with those of previous studies for English learning (Robinson, Reeves, Caines & De Grandi, 2020).

#### 5. Conclusions

It was investigated if the essential elements of online educational videos impacted students' engagement in learning during online courses in this study. As a result, the following dimensions were explored with a questionnaire survey and interviews.

- Students' ideas toward the multimodal elements utilized in videos
- Students' opinions toward the content of videos used for language learning
- Students' attitudes toward the use of video subtitles for vocabulary acquisition
- Students' feedback toward a new method for teaching vocabulary

The use of video materials in online learning significantly increased students' interest in learning. After taking the program, most students thought that video materials were the most effective in learning vocabulary. After teachers visualized the knowledge in textbooks with videos, students' curiosity was raised. Students tended to understand new vocabulary when they used or learned it in context and improved their learning efficiency. The students' attitudes toward vocabulary learning became more positive after the program and used more active learning strategies to increase their vocabulary. In addition, the changes in their attitudes encouraged them to develop more effective study habits (Norte Fernández-Pacheco, 2016). The result of this study revealed that multimodal materials stimulated students' multiple senses to participate in learning. This finding was consistent with that of a previous study (Park, 2017). The result is expected to contribute to further research and provides a strong background for teachers to use various teaching methods using pictures, role-playing, and network resources and cultivate students' multiple literacy abilities.

**Funding:** This research received no external funding.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The author declares no conflict of interest.

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