

Learning and Practicing Idiomatic Expressions Using Multimodal Video Materials

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This study investigated how multimodal video materials, designed to facilitate the learning of idiomatic expressions through the repetition of sentences containing target items, impact the pronunciation accuracy and speech rate of Japanese EFL learners while they are reproducing the expressions orally. We found that learners improved at both aspects, but that pronunciation accuracy improved more. Responses to an open-ended survey question indicated that participants generally had positive attitudes toward the materials. Participants with positive feelings often left comments about idiom learning and retention, while those with negative attitudes often commented on fluency, which might be related to why speech rate improved less.

本研究では、慣用表現を含む文を繰り返し発話することで慣用表現の学習を促すよう設計されたマルチモーダル動画教材が、日本人英語学習者の慣用表現を口頭で再現する際の発音の正確さ及び発話速度にどのような影響を及ぼすかを調査した。その結果、両面で改善が見られたものの、発話速度に比べて発音の正確さがより大きく向上したことが分かった。自由記述式のアンケート結果からは、参加者の多くが教材に対して肯定的な態度を示したことが明らかになった。肯定的な態度を示した参加者は慣用表現の学習や記憶保持に関するコメントを多く寄せていたのに対し、否定的な意見を持つ参加者の大半は流ちょうさに関するコメントをしており、これは発話速度の改善が相対的に小さかったという量的分析の結果と関連する可能性がある。

In recent years, the importance of formulaic sequences such as idiomatic phrases, collocations, and phrasal verbs, has received increasing attention in ESL and EFL research (e.g., Boers & Lindstromberg, 2012; Cobb, 2018; Nakata, 2006; Schmitt, 2004; Spring & Takeda, 2024; Wood, 2010; Yamagata et al., 2024). Although learning to create novel sentences using grammatical and syntactic knowledge is important, learning chunks of language holistically through formulaic expressions is now increasingly recognized as equally important (e.g., Erman & Warren, 2000; Schmitt, 2004; Wood, 2010; Wray, 2002). Studies have suggested that a significant portion of language in daily use consists of formulaic sequences (Altenberg, 1998; Erman & Warren, 2000), indicating that learning some of these patterns is highly beneficial to language acquisition. In fact, research has suggested that knowledge of such sequences boosts spoken fluency and accuracy (e.g., Boers et al., 2006; Boers & Lindstromberg, 2012; Stengers et al., 2010; Wood, 2006; Wood, 2010) as well as listening comprehension (Crowley et al., 2023). However, despite their importance, there is still not enough research that points to effective ways to study formulaic sequences. Therefore, we conducted this study to check the practicality of using multimodal video materials as a way to learn idiomatic phrases, one important subset of formulaic language.

Previous Studies

Learning Multiword Vocabulary

Many studies suggest several advantages to knowing multiword vocabulary units, often termed formulaic sequences (e.g., Boers & Lindstromberg, 2012; Conklin & Schmitt, 2012; Schmitt, 2004; Spring & Takeda, 2024; Wood, 2010). These ready-made chunks can be stored in long-term memory and retrieved as single units, facilitating faster processing and more fluent communication. Learners who use them appropriately also tend to be perceived as more proficient in the language (e.g., Schmitt, 2004; Wray, 2002). Many studies have also noted that while the learning process for single-word and multiword vocabulary units is similar, there are also marked differences (e.g., Boers,

2021; Spring & Takeda, 2024). Idiomatic expressions in particular typically defy literal interpretation and must therefore be learned as holistic units, including their individual components, overall meaning, and appropriate usage.

Research shows that explicit instruction in collocations can improve spoken fluency (Hsu & Cheng, 2023). This kind of instruction not only raises learners' awareness of word combinations but also supports the development of more natural language use. Repetition has been shown to play a particularly important role in reinforcing memory traces and facilitating retrieval (Ferguson et al., 2024). Repetition allows learners to develop fluency through increased familiarity and ease of use. Therefore, to acquire formulaic language effectively, learners need to be exposed to meaningful input and engage in frequent and repeated practice.

Phonological Loop

It has been suggested that there is a close relationship between the capacity of phonological memory and vocabulary acquisition (Baddeley, 1993; Baddeley et al., 2017; Mao, 2021; Papagno et al, 1991; Papagno & Vallar, 1995). The *phonological loop*, one component of working memory, serves as a temporary storage system and device to process auditory and verbal information (Baddeley, 2003; Baddeley & Hitch, 1974; Gathercole & Baddeley, 1994). The phonological loop consists of two subsystems: the phonological store and articulatory rehearsal. The phonological store briefly holds auditory information, acting as temporary storage for incoming verbal input. Articulatory rehearsal allows phonological information to be encoded and updated by means of repeating the stimulus out loud or silently (Baddeley, 2003; Gathercole & Baddeley, 1994), which prevents learned lexical items from quickly fading from memory. Based on this, language teaching researchers have suggested that verbal memory retention is enhanced by forcing learners to go back and forth between the phonological store and articulatory rehearsal. For example, Papagno et al. (1991) demonstrated that repeated articulation tasks foster the internalization of novel words in a foreign language. However, though this research has been applied to the learning of single-word vocabulary in context, there are no studies that we are aware of that use this process to assist with the learning of multiword units, such as formulaic sequences, so it is not yet known if the same results can be achieved for multiword vocabulary such as idiomatic phrases.

Multimodal Learning

Nation (2001) argues that knowing a word is a complex phenomenon, and learners need to acquire multiple aspects of vocabulary, including forms, meanings, and use. To help address these needs, multimodality, which refers to the use of multiple modes of input such as text, audio, and visual stimuli, can be very useful when learning vocabulary, as it allows learners to acquire several aspects of the vocabulary at once. In fact, Laufer (2017) proposes that learners are more likely to retain a particular word when engaging with various elements, which implies that multimodality might be key to effective vocabulary acquisition. Furthermore, Spring and Takeda (2024) have suggested that multimodal learning is key to more efficient learning of multiword vocabulary, specifically. Therefore, a multimodal vocabulary methodology that also takes advantage of the benefits of retention training might be useful for multiword vocabulary learning. However, there is no particular prescribed method for including all of these aspects.

Research Questions

According to the studies discussed above, multimodal retention training materials might be very effective for multiword vocabulary learning. However, there are no specific studies that have been conducted to examine this claim, so we investigated the efficiency and practicality of this type of learning method by posing the following questions:

- RQ1. Did students who used multimodal retention training materials tend to improve any aspects of their oral idiomatic expression ability (speech rate, target word pronunciation, overall pronunciation accuracy)?
- RQ2. Did multimodal retention training make any discernible contribution to the improvement of students' ability to use idiomatic expressions in L2 oral English?

Methods

Participants

The study was conducted with 118 1st-year students from various departments at a university in Japan. Based on TOEFL ITP® scores, the proficiency level of most students was at B1 of the Common European Framework of Reference (CEFR), with the range from A2 to C1. They took two mandatory English classes per week that focused on English for general academic purposes: academic reading and vocabulary in one class and academic listening and speaking in the other. This study was implemented in the latter

class. The purpose of the study was explained to participants, and only the data of the students who provided informed consent was utilized for analysis, as stipulated by the ethics board of our institution.

Materials

Video Creation

Videos were created to assist learners in acquiring target idiomatic expressions by having them listen to sentences containing the expressions, retain them in working memory temporarily, and repeat them. To support English comprehension, the students were able to read the sentences in English (with a Japanese translation) on the screen while they listened to them in the early stages, but in the final stage, the text was not visible, and the students had to produce the sentences from memory. The Japanese translations were included to allow students to check their understanding and to prevent them from merely mimicking the sounds of English. The specific process was as follows:

1. Learners began by listening to and reading a sentence containing the target idiomatic expression, then repeating it out loud. This process was repeated twice.
2. Next, they listened to and read the same sentence in smaller chunks, repeating each chunk out loud.
3. In the subsequent step, the textual information was removed, leaving only the instruction “Repeat” displayed on the screen. Learners listened to the sentence chunk by chunk and repeated it out loud without the support of text.
4. Finally, learners listened to the entire sentence again and repeated it out loud without textual support. This process was repeated twice.

Learning idiomatic language is one of the core skills that 1st-year students are required to study in the university’s English curriculum. In this class, students studied 57 idiomatic expressions (e.g., *beats me*, *slip one’s mind*, *cut someone some slack*) that were commonly used both in everyday conversations and academic settings. The expressions were divided across eight videos. One of these videos can be found at the following link: <https://youtu.be/Ry5HNxUxhiA?si=qHC-G743DU78PQ8x>.

Training Integrated Website

Two JavaScript/HTML applications were created to capture data for this study. The first was used to capture measures of pronunciation ability and fluency for pre- and posttests. The second was used to capture the amount of time students spent doing

retention training. The former utilized the automatic speech recognition (ASR) built into the web browser, prioritizing in-device technology and then using the Web Speech API (application programming interface; `webspeechkit`) call when in-device technology was not available (i.e., Spring & Tabuchi, 2021). This recorded time and then processed the text using `dumbNLP_v1_0.js` (Spring et al., 2025) to measure speech rate in syllables per second as a metric of generally fluency (deJong & Wempe, 2009), the percentage of target words (i.e., the words included in the idiomatic expressions) pronounced intelligibly, and the percentage of all words pronounced intelligibly (i.e., correctly guessed by the ASR; Spring, 2020). The latter application simply captured the amount of time spent actively using the browser with the retention training video in seconds.

Procedure

The students participated in the retention training as homework. They studied 57 idiomatic expressions using the aforementioned website, which incorporated video materials, practicing with two videos per week. Students were encouraged to watch each video at least three times and to practice speaking along with it. Additionally, after each assignment, students were required to repeat the training session together in class so that the teacher could confirm that they had engaged in the assigned practice. Computer-based tests were administered before and after the training period to assess speech rate, target-word accuracy, and overall accuracy. These tests were conducted as take-home assignments, as they required a quiet environment for accurate speech recognition. The same test was used for both the pre- and posttest to allow for direct comparisons of performance over time. Students were given an effort grade for completing pre- and posttests but were informed the actual scores would not impact their grade. Therefore, there was pressure to complete the assignments, but no impetus to cheat on them. The tests required participants to first listen to one sentence, which included the target idiom but differed from the sentences used during training, and immediately repeat it without any visual support. This listen-and-repeat cycle was performed for a total of 10 sentences. Participants’ spoken responses were analyzed via the procedure explained in the previous section, which produced speech rate, target word pronunciation accuracy percentages, and overall pronunciation accuracy percentages. After the final training period, participants responded to an open-ended question presented in Japanese: “リテンション・トレーニングに関するコメントを自由にご書いてください” (*Feel free to comment regarding the retention training*).

Data Analysis

To investigate whether or not participants improved, and if so, which aspects improved, we used dependent *t*-tests with Cohen's *d* for effect size to compare differences in the three measures captured by the pre-/posttest application (i.e., speech rate, percent of target words, and percent of total words). This test was chosen based on the normally distributed nature of the data, as checked by Kolmogorov-Smirnov tests. To check whether retention training contributed to improvement, we first checked raw correlations between delta scores (i.e., posttest minus pretest) of the three measures and the total amount of time spent on retention training. To correct for extraneous factors, we followed this up with a multiple regression analysis and relative importance analysis (Mizumoto, 2023) using pretest scores, TOEFL ITP® scores, and time spent on retention training as the predictor variables and the delta scores as dependent variables.

Responses to open-ended questions were analyzed using a conceptually clustered matrix so that we could find common themes and present them in an interpretable format. Students who did not provide comments were not included in this analysis. Finally, the results from the open-ended responses were compared with the statistical analyses to identify overlapping areas and look for possible explanations for and reinforcements of quantitative findings.

Results

Quantitative Analysis

The pre/posttest comparisons, displayed in Table 1, show that students improved in speech rate and pronunciation scores overall, but that the largest effect sizes were in pronunciation ability, with target word pronunciation accuracy being the largest.

Table 1
Pre/Posttest Results

Measure	Pretest <i>M</i> (<i>SD</i>)	Posttest <i>M</i> (<i>SD</i>)	Statistical Comparison
Speech Rate	1.58 (0.65)	1.78 (0.62)	$t = 4.05; p < .001; d = 0.37$
% Target Words	0.405 (0.20)	0.607 (0.20)	$t = 13.13; p < .001; d = 1.21$
% All Words	0.426 (0.17)	0.525 (0.17)	$t = 8.15; p < .001; d = 0.75$

The results of raw correlation analyses and relative weights are presented in Table 2. To sum up, they show that (1) time spent doing retention training impacted pronunciation skills much more clearly than it impacted speech rate, and (2) although pretest scores predictably explained the largest portion of the variance in improvement, time spent doing retention training also clearly impacted improvement after pretest scores and TOEFL scores were corrected.

Table 2
Raw Correlation and Relative Weight Analysis for Delta Scores

	Speech Rate	% Cor. Target Words	% Cor. All Words
Correlation to Time Spent (<i>r</i>)	0.165	0.259*	0.288*
Relative Weight of Multiple Regression Models			
Pretest	89.99*	74.98*	61.96*
TOEFL ITP®	5.04	8.64*	9.03
Time Spent	5.01	16.49*	28.81*

Note. *Indicates $p < .05$ for correlation or confirmation as important in regression models

Qualitative Analysis

Out of 118 participants, 58 responded to the open-ended question. All comments were originally written in Japanese and are presented here in English translation. Table 3 indicates that students tended to provide positive comments about retention training (56.9%). The most common focus of the positive comments concerned idiom learning and retention (representative comments: "I was able to learn idioms most quickly with this method"; "My memory was stabilized by repetition, so I thought it was an effective learning method"). Nineteen percent of the comments were negative, with most of these comments mentioning issues related to fluency, such as difficulties in delivering long sentences, as well as the speed of the audio and the brevity of pauses (representative comments: "The sentences were too long to memorize"; "It was challenging to follow the audio due to the high speed"; "The pauses were too short for me to keep up with the training").

Table 3

Conceptually Clustered Matrix for Open-ended Survey Question (n = 58; percentages in parentheses)

Comment Types	Detailed Comment Types
Positive Comments: 33 (56.9%)	1. Idiom Learning and Retention: 13 (22.4%) 2. Affective Aspects: 10 (17.2%)
Negative Comments: 11 (19.0%)	Difficulty: 9 (15.5%)
Neutral Comments: 10 (17.2%)	Good (or fun) but Difficult: 3 (5.2%)
Functional Issues: 4 (6.9%)	Stability of the Tool: 4 (6.9%)

These results seem supported by the findings from the quantitative analysis. Improvement of pronunciation of target words showed the largest effect size, and students who had positive attitudes towards the training felt the effects on their learning of idioms and memory retention. On the other hand, the change in speech rate had the smallest effect size, and participants who had negative feelings left comments about fluency in using the retention training videos.

Another finding was that 17.2% of the students mentioned affective aspects in their positive comments such as “This tool motivated me a lot, I was able to feel my improvement, I did not get bored and was able to keep my concentration,” and “My sense of discomfort with English has diminished.” Training methods that involve repetition are often perceived as monotonous and overly mechanical, making them less likely to motivate language learners (e.g., Brown, 2007). The results of this study contradict this assumption.

Discussion and Conclusion

To answer the research questions in brief, our findings indicate that (1) students who used multimodal retention training materials improved their speech rates and pronunciation, especially for target items, and (2) retention training was influential in improving students’ oral proficiency. More specifically, the data suggests that target word pronunciation ability improved the most and was most clearly impacted by retention training, whereas speech rate moderately improved and was not as clearly impacted by training. These results match those of studies such as Ferguson et al. (2024), who found that repeated practice enhanced learning of multiword units, and Spring and Takeda

(2024), who found that students tended to improve at formulaic language learning when learning through multimodal practice. However, this study provides evidence that immediate productive ability was impacted, rather than just recall, which is the focus of many previous studies.

The qualitative data helped to reinforce and further illuminate the results of the quantitative analysis. Responses to the open-ended questions revealed that students generally had positive attitudes toward retention training, primarily recognizing its effectiveness as a tool for idiom learning. This is in line with the quantitative data; many students felt that they had improved and did so measurably. However, most of the students who left negative comments mentioned difficulties with repeating long sentences within a limited timeframe. This suggests that the training may have been too demanding for some students to improve their fluency. This may be one of the reasons why speech rate improvement exhibited a smaller effect size than those of the pronunciation accuracy measures and why this type of training seemed to impact pronunciation accuracy more clearly than speech rate improvement.

The results carry pedagogical implications and provide some clues for teachers who wish to utilize retention training themselves. First, we can recommend multimodal retention training for learning formulaic language because both qualitative and quantitative data suggest it helps improve productive ability, and survey data suggests it can be motivating for language learners. Second, when creating these materials, our results suggest the need to adjust the speed, sentence length, and pause duration. If we had matched these to learners’ levels a bit better, we might have been better able to enhance fluency (i.e., speech rate). According to Conklin and Schmitt (2012), formulaic language gets stored as a singular unit in the mental lexicon, at which point we expect to see improvements in fluency, which should be reflected in speech rate. The fact that only some students were able to do this in our study and mentioned their difficulty in the survey indicates that lower level students might need slower speeds in order to properly commit these units to long-term memory.

Finally, it should be noted that this research has certain limitations. Because the participants took two classes a week and this study was conducted in only one of them, we cannot entirely rule out the influence of the other class. Moreover, the pre- and posttests were administered as take-home assignments and students used their own individual devices, making it impossible to provide completely identical conditions for all participants. Nevertheless, we believe that this research remains valuable in showing the results of retention training using multimodal video materials in learning and practicing idiomatic expressions.

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Bio Data

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