

Data analysis

Quantitative analysis

Class 1's average score for the pretest was a 2.14, meaning that out of the 28 words on the pretest, the average number of correct answers was 2.14. Class 2 had a mean of 3.64. Class 1 scored relatively lower, but the *p*-value shows the difference was 0.011, indicating there was not a large difference between the two classes.

Class 1 received interactive word wall instruction only and not the Frayer model. Class 2 used both strategies. Using the data collected from post-tests, we compared how well the classes scored. This analysis indicates that the interactive word wall instruction was effective, but when combined with the modified Frayer model instruction, it was even more effective.

Class 1's average of 2.14 for its pretest and increased to 12.59 on its posttest. On average, students in class 1 improved their score by 10.455 points, which is an increase, but not as high as class 2. Class 2's average of 3.64 for its pretest increased to 18.040 on its posttest, meaning that this class's score, on average, increased 14.400 points. Table 1 displays the pre- and posttest scores of class 1, whereas Table 2 contains the pre- and posttest scores of class 2. If the results for both classes are combined, the average score for the pretest was a 2.936 and the posttest was 15.489, which means that both classes combined increased to 12.553 points.

Table 1

Class 1 paired t-test: Pretest correct and post-test correct

	<u><i>N</i></u>	<u>Mean</u>	<u>Standard deviation</u>
Pretest correct	22	2.14	1.70
Posttest correct	22	12.59	4.78
Difference	22	-10.455	4.372

Table 2

Class 2 paired t-test: Pretest correct and post-test correct

	<u><i>N</i></u>	<u>Mean</u>	<u>Standard deviation</u>
Pretest correct	25	3.64	2.139
Posttest correct	25	18.040	4.036
Difference	25	-14.400	3.403

Qualitative analysis

To make sense of students' self-reported thoughts on vocabulary instruction, we used selective coding to highlight the most common categories and explain themes (Creswell 2014).

Additionally, a research assistant entered the same data and used the computer software QSR NVivo9 to create categories and codes. Finally, we met to discuss the results.

The qualitative data analysis allowed us to find that both classes self-reported that it is helpful to see a picture or image of the vocabulary term and that discussing words with peers helps with comprehension and understanding. Additionally, students who worked with the modified Frayer model believe discussing the synonyms and the antonyms is helpful for understanding the words' meanings.