

*Investigating Adolescent English Learners' Interactions with Academic Language*  
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## **Rationale**

The premise underlying our previous vocabulary work is that vocabulary is most effectively learned through active processing of target words within contexts. The critical role of multiple contexts in effective vocabulary instruction has been confirmed over decades of research (Baumann, Kame'enui, & Ash, 2003; Bolger, Balass, Landen & Perfetti, 2008; McKeown, Beck, Omanson, & Pople, 1985; Perfetti & Hart, 2002; Stahl & Fairbanks, 1986). In the particular case of academic vocabulary, expository contexts will best equip students for the way they will encounter the target words. Presenting target words within expository contexts exemplifies the linguistic features characteristic of the texts in which learners will likely encounter the words. Expository contexts also expose learners to syntactic patterns and collocations that characterize word use and to the register in which academic words typically appear. Additionally, expository contexts provide exposure to semantic clusters of words that are related to the target word and its domain. In order for contexts to serve the development of word knowledge, the ideas communicated by the contexts must be accessible to students. Conversely, for learning a word to be useful, students must be able to apply knowledge of the word in understanding contexts in which the word typically appears. However, recent scholarship indicates that language minority students face difficulties processing academic texts because of features of academic registers such as grammatical metaphor, abstractness, and lexical density (for reviews, see Schleppegrell, 2004; Snow & Uccelli, 2009).

## **Purpose**

The purpose of our study was to: 1) gather preliminary evidence of the effectiveness of an academic vocabulary program, Robust Academic Vocabulary Encounters (RAVE) for language minority students from diverse linguistic backgrounds; 2) identify linguistic obstacles to language minority students' word learning and comprehension; 3) identify instructional moves for supporting language minority students to understand the contexts; and 4) gather preliminary evidence of the validity of our experimental assessment of word knowledge for use with students enrolled in English as a Second Language (ESL) instruction.

## **Method**

### **Participants**

Participants were 32 middle school students from culturally and linguistically diverse backgrounds enrolled in three ESL classes in two districts in the Pittsburgh area. In District A, one class of advanced ESL students participated; in District B, two classes—one intermediate and the other advanced—participated. See Tables 1-3 below. All students in each class were invited to participate; 94% of students provided informed consent and all of them were included in the study. Participants represented 11 different home languages. Many had been schooled in another country but only seven reported being able to read in their home language. There was extensive variation in the number of years that students had been enrolled in school in the Pittsburgh region and much variation in the levels of parental education.

Table 1. Demographic information for participants in District A, Advanced ESL Class.

ID	Country of Origin	Home Language(s)	Age when moved to US	Grade of entry into school in Pittsburgh	Parents' highest level of schooling*		Read in L1?
					M	F	
1	Nepal	Nepali	11	5	2	dk	No
2	Uzbekistan	Uzbek	12	6	4	4	Yes
3	Nepal	Nepali, Hindi	11	5	dk	dk	No
4	Nepal	Nepali	12	7	dk	dk	No
5	Jamaica	Jamaican English	13	8	3	3	Yes
6	India	Hindi	7	2	3	3	No
7	Benin	French	12	8	4	5	Yes
8	Sudan	Arabic	7	1	4	4	
9	Nepal	Nepali	9	5	1	1	
10	Uzbekistan	Uzbek	12	6	4	5	Yes
11	Nepal	Nepali	9	4	dk	dk	No
12	Nepal	Nepali	10	5	dk	dk	No

Note for Tables 1-3. Dk= don't know; -- = no response; \* M- Mother, F- Father, 1- primary school, 2- middle school, 3- high school, 4- college, 5- more than college; L1=Home language

Table 2. Demographic information for participants in District B, Advanced ESL Class.

ID	Country of Origin	Home Languages(s)	Age when moved to US	Schooled in another country	Grade of entry into school in Pittsburgh	Parents' highest level of schooling*		Read in L1?
						M	F	
13	US	Bosnian	0	No	1	3	4	yes
14	Nepal	Nepali	8	Nepal	6	0	2	no
15	Nepal	Nepali	9	Nepal	4	1	1	no
16	Uzbek	Uzbek & Russian	6-7	Uzbekistan & Russia	2	dk	dk	no
17	Nepal	Nepali	7	Nepal	2	dk	dk	no
18	US	Albanian	0	No	dk	4	4	no
19	Thailand	Karen & Burmese	8	Thailand	3	0	0	no
20	Nepal	Nepali	7	Nepal	2	0	1	no

Table 3. Demographic information for participants in District B, Intermediate ESL Class.

ID	Country of Origin	Home Language(s)	Age when moved to US	Schooled in another country	Grade of entry into school in Pittsburgh	Parents' highest level of schooling*		Read in L1?
						M	F	
21	Nepal	Nepali	9	Nepal	6	dk	dk	no
22	Thailand	Karen	9	No	4	dk	dk	yes
23	Nepal	Nepali	7	Nepal	4	2	5	no
24	Nepal	Nepali		Nepal	3	dk	dk	no
25	Nepal	Nepali	10	Nepal	6	dk	dk	no
26	Nepal	Nepali	9	Nepal	5	dk	dk	no
27	Albania	Albanian	7	Albania	3	4	4	yes
28	Nepal	Nepali	9	Nepal	6	1	2	no
29	Nepal	Nepali		Nepal	6	dk	dk	no
30	US	Bosnian	0	No	K	3	4	no
31	Nepal	Nepali	8	Nepal	3	1	dk	no
32	Nepal	Nepali	6	Nepal	K	dk	dk	no

## Instructional Materials

The RAVE materials, which had been developed for native English speaking middle school students as part of an IES Goal 2 study in 2010-2013, served as the platform for the investigation. RAVE introduces words by presenting them in authentic contexts drawn from various online and print resources to represent prototypical uses and multiple senses of the words (e.g., *suspend* an object versus *suspend* judgment). RAVE was designed around cycles of instruction that comprises eight lessons targeting eight general academic words from the Academic Word List (Coxhead, 2000). We used six RAVE cycles for the present study.

## Measures and Procedures

We administered two paper and pencil whole group assessments as pretest and posttests for all target words for each cycle. We also observed classroom lessons and interviewed students individually about the contexts they had encountered in the instruction.

**Synonyms Task.** Students' word knowledge was assessed using a matching task, which presented all eight words in a cycle in one column, and eight synonyms or brief definitions in random order in another column. Students were asked to match each word to its meaning.

**Cloze Evaluation (Cloe) Depth of Knowledge Test.** We administered the Cloe (Crosson, McKeown, Beck & Ward 2012a/2012b), developed for RAVE, to measure facets of word knowledge gained from the instruction beyond a simple association captured by a synonym or definition task. Each Cloe item presents four cloze sentences for each word, and students must decide whether the word fits each sentence. One or two of the choices may represent correct uses of the word depending on whether the word typically has several senses. For example, items were created for *capacity* for both the physical sense as in "The new stadium will have a *capacity* of 60,000 people," and the mental sense, as in "The chimpanzee had the *capacity* to learn how to count from 1-20."

Foils are based on patterns of syntactic construction and semantic association intended to test different aspects of word knowledge. Developed and tested with monolinguals, the foils are designed as follows:

- *Syntax foils* are contexts in which any word that could plausibly fit in the cloze sentence is a different part of speech from the target word. For example, "I hurried to \_\_\_\_\_ the contest." for the target word *integral*. Syntax foils are designed to distinguish shallow levels of word knowledge, based on the idea that learners who have had few supportive encounters with a word may have little knowledge about the word's semantic properties but have established sufficient memory traces of the word's syntactic function to reject the foil. In contrast, learners who have had no memory traces of a word's use or meaning will not know to reject the syntax foil.
- *Semantic foils* are contexts that contain a strong semantic association to the target word and construction similarity. For example, a semantic foil for *criteria* is: "When Chris had to choose a college, he met many \_\_\_\_\_ to help him make a decision" based on *criteria* as something that one uses in the process of making a decision, and the phrase "met criteria" as a common construction in which the word is found. Semantic associations represent having sufficient familiarity with a word to recognize the kinds of situations in which the word is used, but not sufficient depth of knowledge to enable

rejecting the association. Sample sentences and synsets from WordNet were consulted to generate prototypical associations with the words.

- *Unrelated foils* are contexts that contain no association with the target word, but any word that could plausibly fit the cloze sentence is the same part of speech as the target word. For example, “I read an \_\_\_\_\_ fairytale” for the word *empirical*. Thus, learners with shallow word knowledge about the target word – enough to recognize the word’s syntactic role—but who are unaware of the word’s semantic properties will not know to reject this type of foil. These foils were included in items for words that were tested on just one sense.

**Observations.** Lesson observations were conducted in District A on 12 occasions and in District B on two occasions in each class. The observations had several focal points:

- students’ efforts to integrate the meaning of target words with the contexts in which they appeared.
- teachers’ language used to scaffold students’ understanding of target words and/or contexts
- students’ language used to describe target word meaning within the contexts

Lessons were audiotaped and transcribed, thus observers were able to draw on transcripts for a more comprehensive representation of language used in the lesson when necessary.

**Interviews about RAVE contexts.** Interviews with individual students were conducted in District A on 37 occasions and in District B (both classrooms) on 14 occasions (6 with one class and 8 with the other) resulting in 102 context analysis episodes. All interviews were audiorecorded and transcribed. All students were interviewed on at least one occasion.

On each occasion, the interviewer shared two contexts from the RAVE materials that had already been used in instruction. For each context, the interviewer asked the student to read the context aloud and then asked 3-4 questions to 1) determine the degree to which students understood broadly what the context was about; 2) identify unfamiliar words and concepts (beyond the target word) that might be interfering with comprehension; and 3) examine how well students understood the use of the target word in the particular context. For example, one context, for the word *detect*, told how scientists were using African sniffer rats to detect tuberculosis in patients. The interviewer asked:

- What do these giant rats do?
- It says that, “giant African sniffer rats can detect tuberculosis in people.” What does it mean that they can *detect* Tuberculosis?
- What is Tuberculosis?
- Why is it important to figure out if people have the disease?

## Results

### Preliminary Evidence of the Effectiveness of RAVE for Language Minority Students

Descriptive results on the word learning measures suggest promise for the effectiveness of the instruction in ESL middle school classes. Table 4 presents the average scores across all participants at pre and posttest on the synonyms task, and the average gain score on the Cloze task across all participants for each cycle. Gains were observed (descriptively) for every cycle on both word knowledge tasks. This was also reflected anecdotally in teacher feedback. That said, as we did not include a comparison group, did not employ random assignment, the study was small-scale study, we do not seek to draw any conclusions about the effect of instruction. Our goal was to look

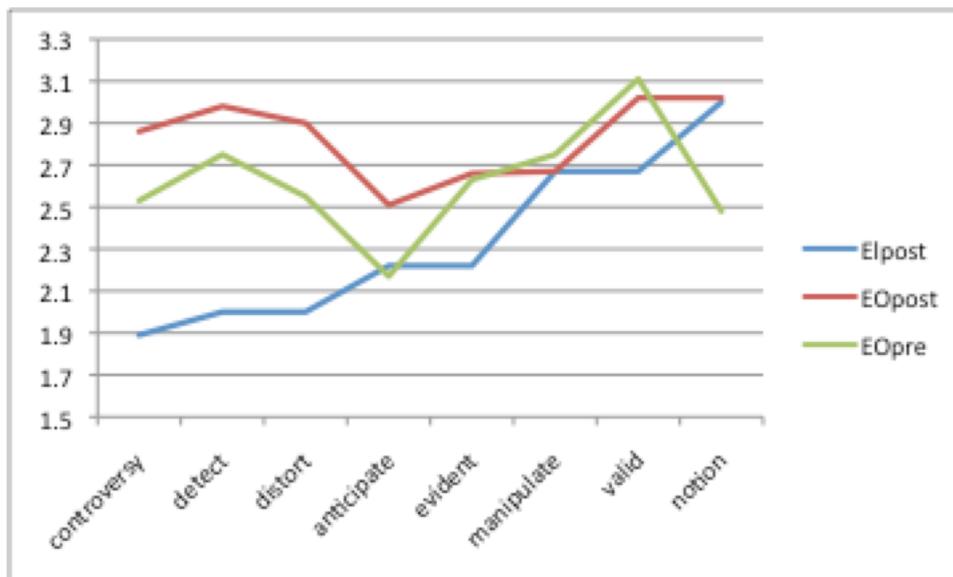
descriptively for trends to indicate whether using RAVE with ESL classes was a pathway worth pursuing.

Table 4. Descriptive statistics for the synonym and Cloe tasks on average for each cycle ( $n=32$  students for cycles 1 and 2;  $n= 12$  students for cycles 3-6).

	Synonym task (Possible range 0-8)		Cloe
	Average pretest	Average posttest	Average gain score
Cycle 1	0.94	4.67	3.0
Cycle 2	1.33	4.92	2.92
Cycle 3	2.19	6.49	2.03
Cycle 4	2.58	4.67	5.17
Cycle 5	1.75	4.75	1.92
Cycle 6	2.75	5.08	4.42

To compare the performance of the language minority students in our ESL classes to the monolingual English-only (EO) students in the original RAVE study, we examined outcomes on the Cloe items for the eight target words taught in one RAVE cycle. While there was consistent evidence throughout the study with the ESL classes of gains in word knowledge, Figure 1 shows that language minority students' final posttest scores for this cycle were lower than the pretest scores for EO students for six of the eight words.

Figure 1. Comparing results of language minority ( $n=12$ ) to monolingual ( $n=105$ ) students on the Cloe pre and post test items for the target words in one sample cycle.



These findings are consistent with vocabulary interventions with adolescent language minority students (e.g., August et al., 2009; Carlo et al., 2004; Lesaux et al., 2010; Proctor et al., 2011, Vaughn et al., 2009). In these previous studies, the initial gap in vocabulary knowledge between language minority students and their English proficient peers was significant and large. Each of these interventions showed that vocabulary instruction techniques that have been proven to be effective with “English only” monolingual learners are also effective with language minority students for learning word meanings. However, the interventions did not *accelerate* language minority students’ vocabulary learning. As such, our preliminary results are in keeping with previous interventions that have not redressed the achievement gap (e.g., August et al., 2009; Carlo et al., 2004; Lesaux et al., 2010; Proctor et al., 2011, Vaughn et al., 2009).

Our results suggest that the RAVE intervention may be effective for supporting language minority students’ word learning but that in order to address the widespread and well-documented vocabulary gap between language minority students and their monolingual peers (August & Shanahan, 2006; Nakamoto, Lindsey & Manis, 2008; Verhoeven, 2011), the intervention would need to be modified. In the following section we explain how qualitative findings from this study can inform future modifications. In addition, the outcomes section describes how we have proceeded with these modifications with external funding in subsequent studies.

### **Linguistic Obstacles to Language Minority Students’ Word Learning and Comprehension**

A goal of this study was to identify aspects of academic language that present obstacles for ESL students as they attempt to make sense of expository contexts selected for instruction about academic vocabulary words. Guided by qualitative scholarship on academic language and drawing specifically on concepts from Systemic Functional Linguistics (Eggs, 2004; Halliday, 1985) we identified linguistic features in the RAVE contexts that might present obstacles to both comprehension of contexts and learning the target words. During interviews with individual students, we honed in on language constructions and specific terms to gain insight into whether they contributed comprehension difficulties and to help identify targeted areas for modification of materials and/or enhanced instructional support.

Of 102 total context analysis episodes, 47 were selected for coding. Contexts were selected for coding if: 1) at least four students were interviewed (with the exception of “Animal testing”); and 2) the teacher reported that the context was difficult for students to understand during the RAVE lesson. These episodes are presented in Table 5.

Table 5. Coded context analysis episodes.

Target word	Context	Number of episodes coded
ambiguous	Animal testing	2
ambiguous	Rorschach	6
approach	Galapagos	4
circumstances	Heatstroke	4
controversy	Triclosan	4
deviate	Cruise ship	4
detect	Tuberculosis	9
evident	Heimlich maneuver	4
indicate	Pet Tracker	8

Although many contexts contained terms or constructions that students did not understand, in many cases students were ultimately successful in grasping the gist of the context and integrating the target word with the meaning of the context. For example, in a context, about heatstroke for the word *circumstances*, one student believed that “body temperature” related only to having a fever, and

she did not understand the meaning of “clothing that doesn’t let sweat evaporate.” Yet she did comprehend the gist of the context, i.e., the *circumstances* under which hot weather can be fatal, explaining, “under certain events to do the thing in summer it’s gonna be a problem... like if you do physical activity and you don't drink enough water.”

However, while our results demonstrated that some ambiguity can be tolerated, participants’ difficulty with complex linguistic structures and unfamiliar terms and ideas did impede comprehension on many occasions. This tended to happen, not surprisingly, when an unfamiliar idea was central to the context. Two examples that created comprehension difficulties for many students were tuberculosis and the Heimlich Maneuver.

For other contexts, the sources of linguistic difficulty varied considerably from student to student. For example, one of the contexts was about an electronic pet tracker, and included phrases such as “high tech option” and getting a “microchip implanted.” Although these phrases caused difficulty for a few students, one student had no difficulty with those terms, but did not know the meaning of a “vet.” Another student did not know the meaning of “pet” but had no difficulty interpreting an adversative relation signaled by “instead” in the context.

Another source of difficulty noted in the interviews reflected an issue that had surfaced in our RAVE study with EO students as well. This was a tendency to interpret one word or phrase in the definition as the entire word meaning, an issue previously highlighted in research by Scott and Nagy (1997). An example of the issue arose in discussing the following context about the Heimlich maneuver that presented the word *evident*:

Twelve-year-old Victoria Scalli had just learned in her gym class how to do the Heimlich maneuver when her father choked on a piece of bread and couldn’t breathe. It was *evident* that Victoria had paid attention in gym because she knew just what to do. She grabbed her dad from behind, squeezed hard, and forced out the bread. She saved her father’s life and was awarded the New York Liberty Medal. Now, people think all New York schools should teach this life-saving skill.

*Evident* was described in instruction as “clear and easy to see,” and some students interpreted the word as simply meaning ‘easy’. For example, one student responded, “she pay attention in the gym so it can be easy for her to help. She understand what she is learning.” Another said, “She was paid attention so it’s easy to save her dad’s life.”

Difficulty in interpreting this context may have been exacerbated because of the construction in which *evident* appeared—the cataphoric reference, “*It* was *evident* . . .” The qualitative evidence from our interviews suggests that encountering a target word in a particularly complex construction can disrupt comprehension considerably.

In sum, we noted some trends in the kinds of linguistic challenges of RAVE contexts across students for specific contexts, but these challenges varied considerably, sometimes from context to context and at other times from student to student. This brings us to our findings about instructional moves that supported participants to benefit from the RAVE contexts.

### **Instructional Moves for Supporting Language Minority Students’ Understanding of Contexts**

Our conclusions about instructional modifications to bolster students’ understanding of the contexts and word meaning again draws on student interviews and lesson observations. In student interviews, we noted initial confusion about the gist of the context in 24 of the 47 context analysis episodes. However, in all but two of these, interactions with the student around the context led to successful comprehension of the gist. Interactions were primarily focused on supporting students to

gain access to specific elements of the context, and prompting students to paraphrase ideas in the context.

For example, in discussing the context that described the role of African sniffer rats in *detecting* tuberculosis, we physically demonstrated the meaning of “cough” and “sniff,” verbally explained the meaning of the homonym “treat” as in “treat a disease,” and explained that tuberculosis is a disease. Prompting students about took the form of follow-up questions about specific sentences after student responses indicated confusion. For example, two students initially responded that the rats were making people sick. In each case, the interviewer then reread the sentence “After a person has coughed into a tissue, the rats sniff the tissue and can tell immediately if the person is sick with tuberculosis.” When asked to describe the meaning of the sentence, one student replied, “if person coughed in a tissue, they check it in a tissue and find out if they are sick.” The other student was able to respond that the idea was to “discover that people have TB and are sick.”

Lesson observations suggested that teachers used redundant and expansive language to support comprehension and word learning. To show how this played out in ESL and EO classrooms, we examined transcripts for the lessons that introduced the word *ambiguous* in the three ESL classes in the present study and the transcripts of the three RAVE classes in the original study with monolingual “English only” students.

Table 6 presents all language used by the teacher to elaborate the meaning of *ambiguous* during the lesson in all six classes. Each class read the same two contexts to introduce *ambiguous*, one about how statements about testing products on animals could be ambiguous (e.g. “We don’t test on animals” could mean that the company hires others to do so) and a second on the use of the Rorschach test, which presents shapes that are ambiguous in that they can be seen very differently by different people. Teacher elaborations occurred in the course of discussion and interaction around the contexts, often as the teacher provided uptake and revoicing of students responses.

The table illustrates that teacher language in ESL Classes 1 and 3 was more redundant and expansive than that used in the Regular RAVE classes with monolinguals. Notably, in ESL Class 1, *ambiguous* had the highest average score on the synonym task (11 of 12 students knew its meaning) and it had the greatest gain score on the cloze task. Table 6 also suggests the potential extent and variability in richness of semantic networks generated in RAVE lessons.

Table 6. Teacher language used when interacting with students about the meaning of ambiguous in the original RAVE study with “English only” monolingual students versus ESL classes with language minority students.

Regular RAVE with “English Only” students			ESL with Language Minority Students		
Class 1	Class 2	Class 3	Class 1	Class 2	Class 3
message is unclear	no clear directions	it’s not clear	could be... or could not be	could mean more than one thing	it might have 2 meanings
it’s maybe yes or maybe no	depending on...	different people see it differently	not crystal clear	can look like more than one thing	there are 2 different ways to understand it
more than one way to understand it		it’s not like this is the way it has to be	we’re not so sure		isn’t clear
		it could be yes or no	not telling us exactly	people can decide for themselves	some people might say... others might say...
meaning is unclear		you’re not sure	not being very clear		people can decide for themselves

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<p>it could mean this... could mean that</p> <p>depending on what you see</p> <p>could be taken in many different ways</p> <p>could have many meanings</p> <p>not specific</p> <p>could go either way</p>	<p>not sure—maybe, maybe not</p>
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Findings from both the interviews and lesson observations lead us to conclude that extensive interaction around the contexts, including clarification of basic elements, redundant and expanded language around target word meanings, and prompting students to consider specific wording within the context are likely to be useful for enhancing students’ ability to deal with academic words in context. We posit that with such enriched interactions and support, most students can do the work of connecting ideas and making sense of the context itself for most contexts.

Our findings lead us to a caveat about a design element of RAVE instruction--presenting a wide variety of relatively short (80 words on average) informational contexts about a range of topics. This approach may not be optimal for language minority learners. Indeed, introducing such a variety of topics may exacerbate issues with unfamiliar concepts that impede using context to support word learning. As a result, we are now experimenting with extended contexts that embed 4-8 target words but focus on a single topic. This modification was piloted in two cycles for the present study and will be incorporated into our future program.

**Qualitative Evidence of the Validity of our Experimental Assessment of Word Knowledge (Cloe) with ESL Students**

A final goal of the present study was to pilot test the Cloe assessment for preliminary evidence that it can function as a valid measure for language minority students. As the Cloe items are designed around single-sentence contexts, the concern was that if the context contained an unfamiliar word or concept that it could lead students to falsely reject the item, even if they possessed stable, accurate knowledge of the word.

As mentioned previously, the Cloe comprises sentences designed to test different aspects of word knowledge, including multiple correct sentences to test knowledge of different senses, and foils that target syntax and semantic associations. Specifically, syntax foils require a part of speech different from the target word; unrelated foils require the same part of speech but are semantically unrelated, and semantic foils contain a strong semantic association to the target word and construction similarity.

In our work with monolingual, “English only” students, we had predicted that the foils would follow a hierarchy of difficulty with syntax the easiest to reject, unrelated foils of medium

difficulty, and semantic foils the most difficult. We have confirmed that the foils performed as expected on average (Crosson, McKeown, Ward, & Beck, 2012a/2012b).

In the present study, semantic and syntax foils behaved as in our EO studies for the great majority of words, based on post-test averages (Figures 4 and 5), with the semantic foils generally proving more difficult than syntax foils for most words. This is notable, because we might have expected the syntax foils to be more challenging for ELLs. The unrelated foils did not behave as expected, rather, they tended to hover around the semantic foils.

Figure 4. Comparing results on Cloze foil types for language minority (n=32) in response to two-sense words for two RAVE cycles.

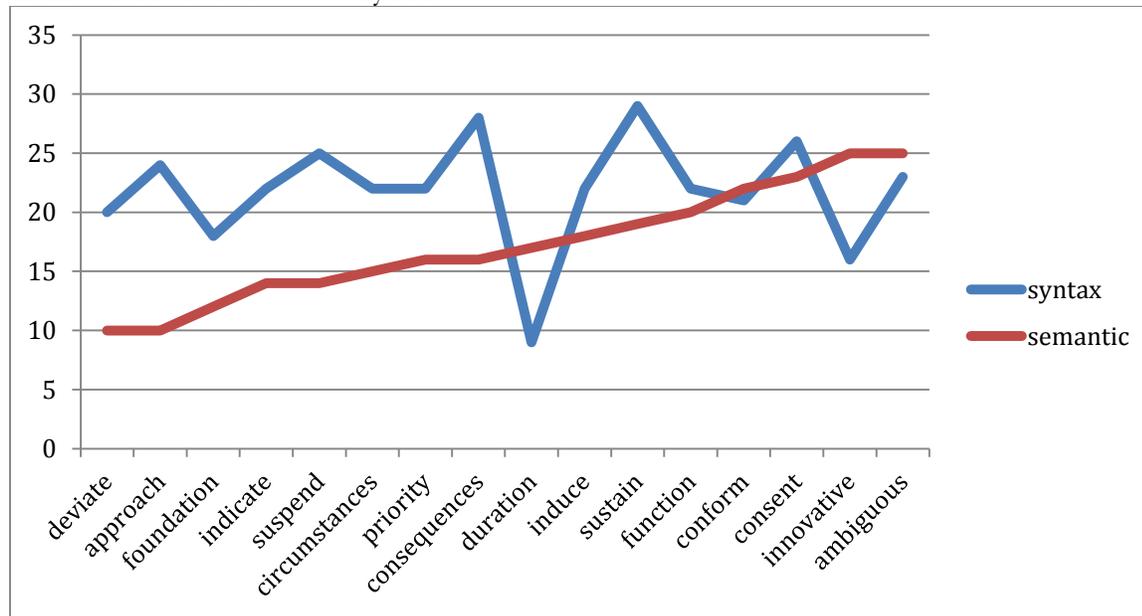
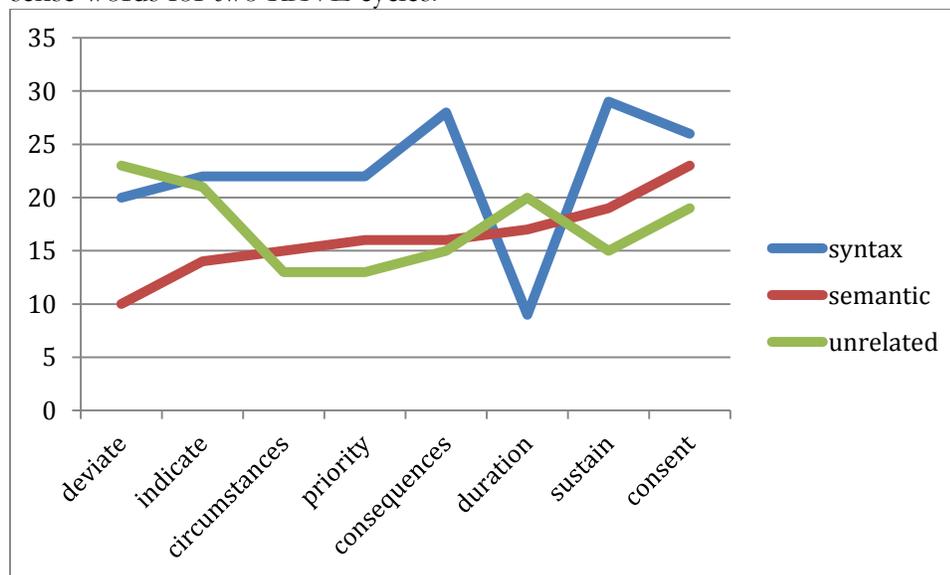


Figure 5. Comparing results on Cloze foil types for language minority (n=32) in response to one-sense words for two RAVE cycles.



Comparing Cloe pre to post tests, we noted some interesting patterns in performance on the various item types to follow up in future work. We highlight the following results, which are reported in the table below:

- For foil types, there were only tiny gains in performance on syntax foils, but 3+ point average gain for semantic and unrelated foils. Syntax started out with higher performance but did not gain much. The gain for semantic foils was notable, yet still nearly half the language minority students are accepting them when they should be rejecting them.
- For correct match sentences, there was notable gain for single sense words but less for two sense words.

	<b>syntax</b>	<b>unrelated</b>	<b>semantic</b>	<b>match</b>	<b>match1</b>	<b>match2</b>
<b>Pretest</b>	20	14.25	14.1875	20.25	22.125	21.125
<b>Posttest</b>	21.8125	17.375	17.25	24.25	23.75	23.75

Table 7. Average performance of language minority students in ESL classes (n=32) on the Cloe foils types and match items.

### Conclusions

In the first part of the results section, we presented tentative, promising evidence that RAVE is effective for supporting language minority adolescents of diverse language backgrounds to acquire knowledge of general academic words. However, we noted that in comparison to the original RAVE study with sixth and seventh grade monolingual “English only” students, word learning outcomes did not approach the rate and depth of word learning necessary to begin to close the vocabulary gap.

In the second section, we demonstrated that there was extensive variation in the linguistic obstacles that students encounter when trying to make sense of the RAVE contexts. We also discussed findings related to instructional moves that support students to deal with the complexity of the RAVE contexts. Our take-away message is that the aspects of context that present obstacles varies, and students’ schooling and language backgrounds vary considerably, so for example, “vet” but not “microchip” is challenging to one student, whereas terms like “microchip” derail comprehension for another.

In the third section we drew on qualitative analyses of the interview transcripts and from lesson observations to identify targeted areas for modification of materials and/or enhanced instructional support. These are being used in our ongoing research program to develop an intervention to bolster students’ understanding of the contexts and word meaning information.

Finally, toward developing an effective way to measure treatment effects on word learning with language minority students, we examined whether our experimental measure, the Cloe, functions as intended with this population. The first glance at evidence from this small-scale study provides initial promise for the validity of the measure.

### Further Outcomes

The LRDC internal grant has led to external funding for the following projects:

- *Contributions of Lexical Morphology to English Learners’ Academic Vocabulary Learning*. Funded by the **Spencer Foundation (\$49,959)**

- *Returning to Our Roots: Development of a Morphology Intervention to Bolster Academic Vocabulary Knowledge for Adolescent English Learners*. Funded by the **Institute for Education Sciences (\$1,493,762)**

We are grateful for the institutional support that served as a launch for a robust, ongoing program of research.

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