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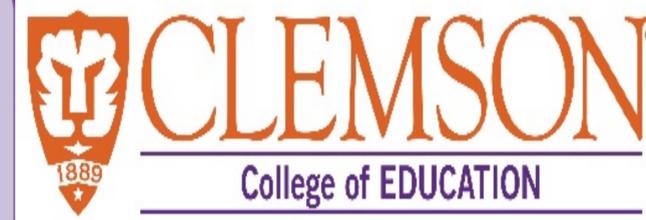
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# Preservice Educators' Perceptions About Two Types of Vocabulary Progress Monitoring Measures



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## Background

- Educators at all levels require reliable and valid assessments to measure student learning. One method of assessing content knowledge is vocabulary-matching curriculum-based measurement (CBM), which has demonstrated evidence of reliability and validity in secondary-level content-area classes (e.g., Espin et al., 2013). CBM can be applied to the university setting with preservice teachers to teach the principles of progress monitoring and to model the procedures to influence future educators' implementation of CBM in their future classrooms.
- One descriptive study investigated the use of vocabulary-matching in a college course (Larson & Ward, 2006) but did not determine the technical adequacy of the measures. Technically adequate measures at the university level may be important for instructors to gauge student performance accurately and to enable students to examine their own learning appropriately.
- These procedures may provide an opportunity for instructing students in teacher preparation about progress monitoring methods through a hands-on experience in which they graphed their own progress across the term.

**Purpose:** Researchers, including doctoral students in an assessment course, developed vocabulary-matching and selection measures for use in a section of an introductory special education course to judge preservice teachers' satisfaction with the measures and practices in supporting their own learning about progress monitoring. A brief follow-up study (5 weeks) was conducted to see whether students taking an intensive course online would think differently about the progress monitoring tools than students taking the course face-to-face across a traditional 15-week semester.

## Research Questions

- How do preservice teachers in the face-to-face and online class rate their satisfaction with using vocabulary-matching CBM and vocabulary-selection CBM across a semester?
- Did preservice teachers in the face-to-face course improve in their progress monitoring knowledge across the semester, and did both the face-to-face and online groups improve in vocabulary knowledge as evidenced by vocabulary pre-posttests and beginning/ending vocabulary-matching and vocabulary-selection probes?

## Method

### Participants and Setting

- $n = 29$  undergraduates in a face-to-face (traditional 15 weeks) and  $n = 9$  graduates in an online (5 weeks) *Introduction to Special Education* course at a southeastern university
- Sex: 21 females, 7 males in face-to-face section (1 did not complete form)
- Year: 6 juniors, 22 sophomores, in face-to-face section
- Major: 1 special education, 27 general education or other (elementary, early childhood, secondary subjects, agriculture) in face-to-face section
- Online section: 10 females, 1 male in online MAT program for teaching students with learning disabilities (but  $n = 9$  for survey)

### Measures: CBM probes

- 150 terms drawn from text glossary (Hallahan, Kauffman, & Pullen, 2015) based on a previous study and checked against more recent edition
- Random assignment of terms with replacement across 8 probes (including one form that was repeated) for face-to-face. Four of the probes were selected for use in the online class
- 20 items, 22 definitions (including 2 distractors) on each probe (Espin et al., 2013) for vocabulary matching
- 20 definitions and three terms for each definition (including one correct choice and two distractors) on each probe for vocabulary selection

## Criterion measures

75-item multiple-choice pre- and posttest on textbook vocabulary  
20-item multiple-choice pre- and posttest on progress monitoring knowledge

## Student survey

15-item survey about the vocabulary measures; 1-11 items: 5-point Likert-type scale (1 = Strongly Agree, 5 = Strongly Disagree); 12-13 items (1=very easy, 5=very difficult); 14 select measure and 15 free response (explain why).

## Procedures

- Doctoral students in assessment course used previously identified pool of words
- CBM group-administered by researchers (including course faculty) during class for 4 minutes for vocabulary-matching and 90 seconds for vocabulary-selection probes every other week.
- Students saw their scored probes and graphed their progress during off-probe weeks.
- Vocabulary multiple-choice measure and progress monitoring knowledge measure given as pre- and posttests during first and last week of semester
- Student satisfaction questionnaire given at posttest

## Results

### Student Satisfaction Survey Data

Items	Survey Items: 1-11(1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree); 12-13 (1=very easy, 5=very difficult); 14-15 (choose measure)	Face to Face (n = 29, for 1-11; n= 28 for 12-15)					Online (n = 9 for all items)				
		1	2	3	4	5	1	2	3	4	5
1	The vocabulary project helped me to understand how progress monitoring can be used to assess vocabulary knowledge in a content area.	21	6	2	0	0	3	6	0	0	0
2	It is important that my future students know the meaning of vocabulary words for the content they are studying.	20	6	3	0	0	8	1	0	0	0
3	Based on my knowledge and experience, I think it will be feasible to use vocabulary-matching measures for progress monitoring with my own students.	6	20	3	0	0	5	4	0	0	0
4	I think using data from vocabulary measures may improve my own students' academic performance.	7	19	3	0	0	3	6	0	0	0
5	I tried to give as many correct responses as possible on the vocabulary measures that I took during class.	24	5	0	0	0	7	2	0	0	0
6	Participation in the vocabulary project caused me to alter my study habits for the course.	1	6	12	9	1	2	1	3	3	0
7	Taking vocabulary-matching measures was a good use of my class time.	5	15	9	0	0	2	6	1	0	0
8	My scores on the <b>selection</b> vocabulary measures (i.e., multiple-choice format) were good indicators of my knowledge in the <i>Introduction to Special Education</i> course content.	2	13	6	7	1	2	5	1	1	0
9	The graph displaying my scores on the <b>selection</b> vocabulary measures (i.e., multiple-choice format) was useful for seeing my progress in vocabulary knowledge in the <i>Introduction to Special Education</i> course content.	2	20	4	3	0	4	3	1	1	0
10	My scores on the <b>matching</b> vocabulary measures were good indicators of my knowledge in the <i>Introduction to Special Education</i> course content.	4	22	2	1	0	0	1	4	4	0
11	The graph displaying my scores on the <b>matching</b> vocabulary measures was useful for seeing my progress in vocabulary knowledge in the <i>Introduction to Special Education</i> course content.	6	21	1	1	0	2	2	3	2	0
12	Indicate the level of difficulty of vocabulary matching	4	10	10	4	0	0	0	4	5	0
13	Indicate the level of difficulty of vocabulary selection	0	11	9	6	2	1	4	3	1	0
14	What measure would you choose: Vocabulary Matching = VM; Vocabulary Selection = VS	VM = 21; VS = 7					VM = 0; VS = 9				
15	Please explain why you made this choice.										

## Change in performance from beginning to end of semester:

**Face-to-Face Section:** Significant growth from Vocabulary Pretest to Posttest [ $t(28) = -8.66, p < .001$ ], from Progress Monitoring Pre- to Posttest [ $t(28) = -6.80, p < .001$ ], from beginning matching probes (avg of first two identical probes) with last matching probe, [ $t(28) = -4.66, p < .01$ ], and from beginning selection probes (avg of first two identical) with last probe, [ $t(28) = -3.07, p < .01$ ].

### Means and standard deviations for first two probes (identical) and last probe, Vocabulary Test, and Progress Monitoring Knowledge Test

VM 1A:  $M = 9.66$  (3.63) VS 1A:  $M = 8.24$  (3.12)  
VM 1B:  $M = 12.21$  (3.55) VS 1B:  $M = 8.45$  (3.36)  
Last VM 7:  $M = 15.59$  (3.11) Last VS 7:  $M = 11.41$  (3.03)  
Vocabulary Pretest:  $M = 42.48$  (13.29), Vocab Posttest:  $M = 64.31$  (8.50)  
Progress Monitoring Pretest:  $M = 7.07$  (3.13), Posttest:  $M = 12.24$  (2.55)

**Online Section:** ( $n = 11$ ): Significant change from beginning matching probe—VM1A  $M = 7.27$  (4.86) to last probe VM4  $M = 9.73$  (4.32),  $t(10) = -2.94, p < .05$ ; From beginning selection probe—VS1A  $M = 9.82$  (3.74) to last probe VS4  $M = 13.73$  (6.48),  $t(10) = -2.24, p < .05$ ; From Vocabulary Pretest  $M = 50.27$  (15.05) to Vocabulary Posttest  $M = 65.36$  (8.44),  $t(10) = -4.72, p < .01$ .

### Student Free Response for Why One Measure Was Preferred Over the Other Face-to-face ( $n = 28$ for answering items about preferences)

- "Being able to identify definitions by scanning down a list instead of stopping to read the question (selection) is much easier for me. I can work faster on matching and I am allowed more time." *Special Education Major*
  - "Matching allows more time to think and eliminate answers so I think selection is a good way to show that a students either knows the information or doesn't." *Elementary Education Major*
  - "It was confusing how matching had more definitions than answers, especially because many of the definitions are similar." *Secondary Education Major*
- Online (only  $n = 9$  answered questionnaire items)**
- "I could read through the question and answer more quickly with the selection. With the matching, it was harder to align the correct answer with the question."
  - "I favored the vocabulary selection because it was easier to select the right answer. In the matching, it was harder because I had to look for the right definition and I had to scroll up and down the bar which made it difficult to answer each question within the time limit."

## Discussion

- Students grew significantly in their knowledge of course vocabulary across the term in both sections and in progress monitoring concepts face to face.
- Students in the face-to-face section preferred the matching probes to the selection probes and reported that graphing activities were useful but that taking probes and seeing progress largely did not alter their study habits.
- In contrast, all the students in the online class preferred the selection probes to the matching probes, and 78% of them agreed that selection probes were good indicators of their knowledge and that seeing their graphs was useful. However, the majority indicated neutrality or disagreed that matching probes indicated their level of knowledge and that matching graphs were useful.
- Across both sections, 95% thought the activities helped them to better understand how vocabulary knowledge in a content area could be assessed.

### Limitations and Future Research

- Need to address reliability and validity for both types of probes and examine slope of improvement. Which type of format appears to model student growth better? Are there other ways technology can be used to make these procedures or matching probe easier online? Repeat with larger  $n$ s.