

Effect of Online Learning Modules on Sound Segmentation in Preprofessional Instruction

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INTRODUCTION

This quasi-randomized study examined the effects of an online learning module on pre-professional students' sound segmentation skills. Spencer et al. (2008) found speech-language pathologists had a greater performance in sound segmentation than other educators ($d=1.54$). We hypothesized that our learning module would increase performance for all participants in the language acquisition class.

RESEARCH QUESTIONS

Do learning modules lead to increased sound segmentation skills in pre-professional undergraduate students over pretest performance?

Is there a difference in gains between Communication Disorders and Sciences (CDS) majors and non-CDS majors after instruction?

METHODS

Participants

- Participants ($n=29$) were recruited from the Eastern Illinois University CDS 2200 *Language Acquisition*.
- Participants were undergraduate students majoring in Communication Disorders and Sciences (CDS), Early Childhood Education, Elementary Education, Special Education, and Psychology.
- Previous education of phonetics and linguistics varied among participants
- Participants were randomly divided into two groups, accounting for field of study: treatment group ($n=13$) and delayed treatment group ($n=14$).
- Treatment group consisted of CDS majors ($n=6$) and non-CDS majors ($n=7$).
- Delayed treatment group consisted of CDS majors ($n=6$) and non-CDS majors ($n=8$).
- Two participants who completed the pretest did not complete the post-test.

Pretest

- All participants ($n=29$) completed the 31-question pretest.
- Pretest assessed sound segmentation ability through 21 probe words.

Instruction

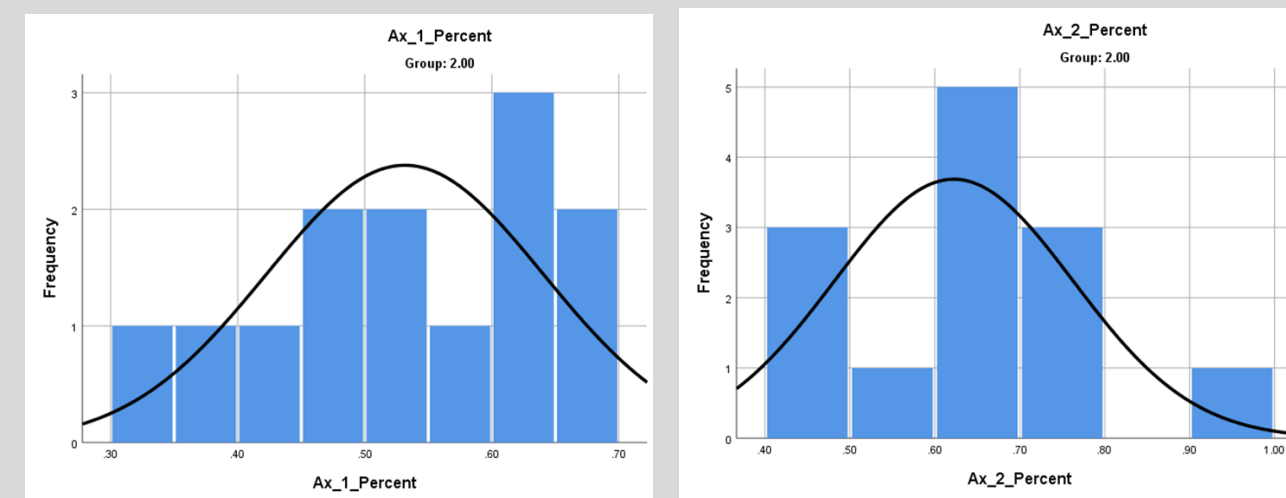
- Treatment group ($n=13$) completed instruction.
- Module was created via PowerPoint, then transferred to Kaltura, a secure video platform.
- Module instruction consisted of pretest-related concepts and 11 probe words.

Post-test

- Participants ($n=27$) completed the post-test consisting of identical 21 probe words to pretest.

RESULTS

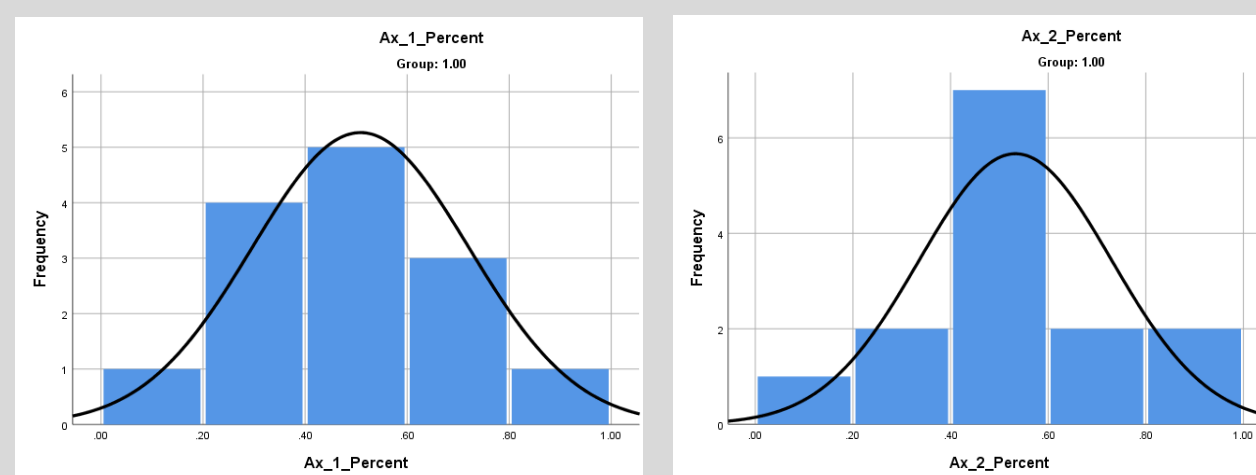
Treatment Group Performance Pre- and Post- Instruction



N=13
Mean= .53
Standard Deviation= .109

N=13
Mean= .62
Standard Deviation= .141

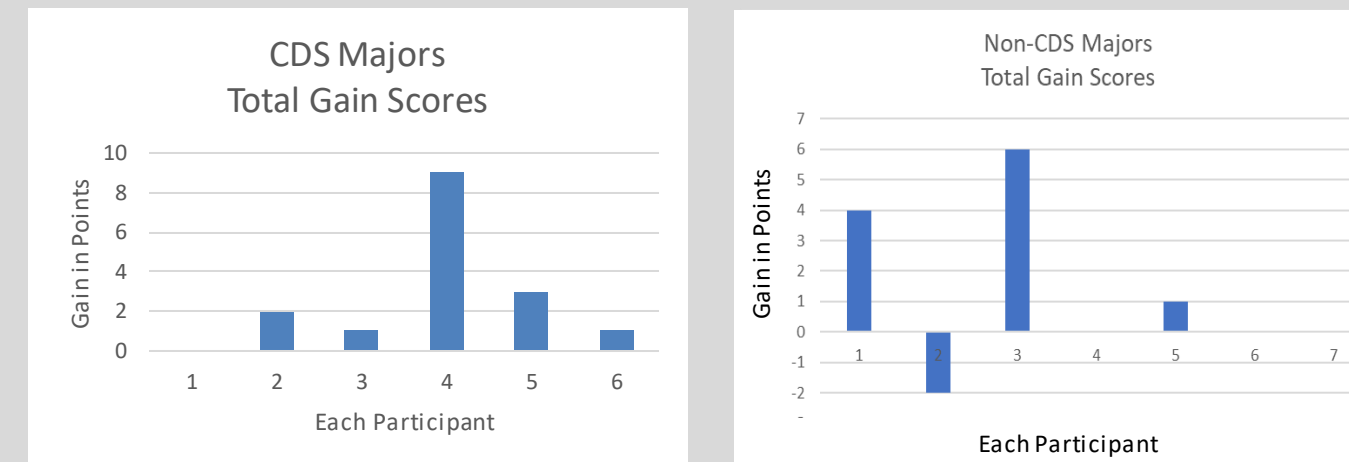
Delayed Treatment Group Performance Pre- and Post- Instruction



N=14
Mean= .51
Standard Deviation= .212

N=14
Mean= .53
Standard Deviation= .197

Total Gain Score for CDS and Non-CDS Majors



Word	% of participants correct	Spencer Easy/hard	Spencer % correct
Chirp	0.86	Easy	0.89
Does	0.79	Easy	0.87
Cat	0.76	Easy	0.96
Ball	0.72	Easy	0.83
Run	0.69	Easy	0.91
Yes	0.69	Easy	0.88
Knuckle	0.69	Hard	0.77
Thin	0.66	Easy	0.82
Teacher	0.62	Easy	0.86
Show	0.62	Easy	0.85
Sigh	0.59	Easy	0.88
Stop	0.55	Easy	0.64
Sing	0.38	Hard	0.52
Think	0.38	Hard	0.05
Poison	0.34	Hard	0.41
Start	0.28	Hard	0.12
Use	0.14	Hard	0.07
Quick	0.14	Hard	0.26
Squirrel	0.07	Hard	0.27
Box	0.07	Hard	0.23
Fuse	0.03	Hard	0.08

No significant differences between treatment and control groups in post-test performance.

No significant total gain scores for CDS and non-CDS. Total points gained between pre- and post-test for CDS majors were equal to or greater than 0. Total points gained between pre- and post-test for non-CDS majors ranged from decreasing 2 points to increasing 3 points.

DISCUSSION / IMPLICATIONS

Major Findings

No significance ($d=0.42$) between control and treatment groups sound segmentation skills in pre- and post-test analysis. No significant difference ($d=0.46$) in CDS and non-CDS majors.

Clinical Impressions

The current learning module may not be the most effective instruction for sound segmentation. The current learning module does not increase performance of students, regardless of major.

Future Research

Research is warranted to investigate pre- and post-test performance of learning module efficiency of various concepts. An investigation comparing learning module instruction to in-person instruction regarding sound segmentation to identify most effective means of instruction.

REFERENCES

Spencer, E. J., Schuele, C. M., Guillot, K. M., & Lee, M. W. (2008). Phonemic awareness skill of speech-language pathologists and other educators. [https://doi.org/10.1044/0161-1461\(2008/07-0080\)](https://doi.org/10.1044/0161-1461(2008/07-0080))