Single self-practice session enhances clinical procedural skills for speech-pathology graduate students

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Introduction

In speech-language pathology graduate programs, academic courses and clinical practicums provide students with knowledge and clinical skills. In other health-related fields, procedural skills have been trained using principles of motor learning (Gaida et al., 2016; Moulton et al., 2006). **Observational learning** and **self-practice** are two motor learning principles that enhance procedural skill learning within the time and curriculum constraints of most graduate programs (Table 1).

Observational Learning	Self-Practice
Classroom demonstrations and modeling by the instructor (Weeks & Anderson, 2000)	Additional physical practice completed outside the classroom (e.g., homework assignment; Laguna, 2008; Weeks & Anderson, 2000)

Table 1

Objectives

Investigate whether self-practice on voice assessment software enhanced skill performance in using the software compared to observational learning alone.

Predictions in using the voice assessment software

- Self-practice = more efficient (faster, fewer steps and cues)

Methods & Procedures

Participants

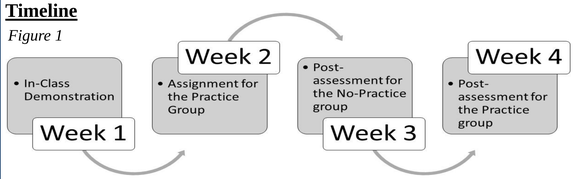
- 27 WVU students (all female)
- Enrolled in graduate-level voice disorders course
- No prior experience with software, *Multi-Dimensional Voice Program (MDVP)* software
- Randomly assigned to two groups: self-practice (N = 14) , no-practice

Tasks

- In-class demonstration
- Self-practice assignment
- Post-assessment

Timeline

Figure 1



Methods & Procedures (continued)

Equipment and Software

- Voice Recorder
- Laptop
- Screen-cast-o-matic software
- *MDVP* software (Fig. 2)

Dependent Measures

- SOAP Note (control)
  - accuracy
  - duration (ms)
- Computer Program:
  - duration (ms)
  - number of steps taken
  - number of examiner cues

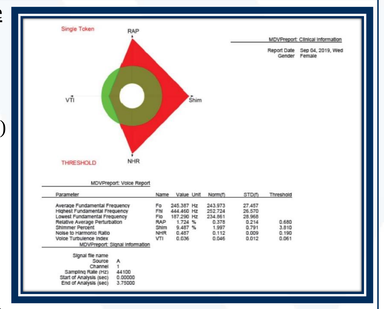


Figure 2

Results: SOAP Note Accuracy and Duration

No significant difference between groups regarding SOAP note duration or SOAP note accuracy, $F(2,23) = 2.46$, $p = .108$, Wilks' $\Lambda = .824$, partial $\eta 2 = .176$ (Table 2)

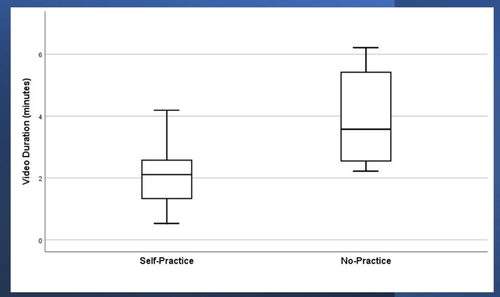
Descriptive Statistics

Group		Mean	Std.	N
SOAP_Accuracy	Self-Practice	20.5769	6.06852	13
	No-Practice	23.3846	5.60191	13
	Total	21.9808	5.89827	26
SOAP_Duration	Self-Practice	5.7165	1.83496	13
	No-Practice	7.2604	1.67757	13
	Total	6.4885	1.89387	26

Table 2

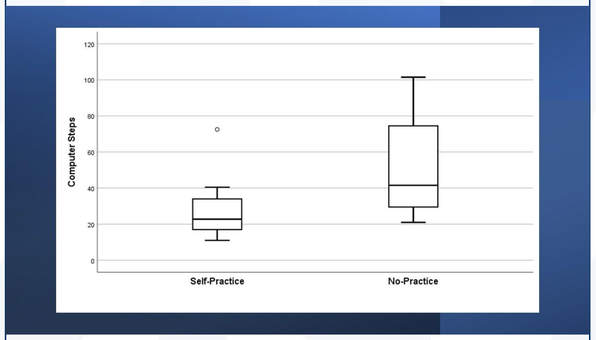
Results: Computer Duration (ms)

Figure 3



Results: Number of Computer Steps

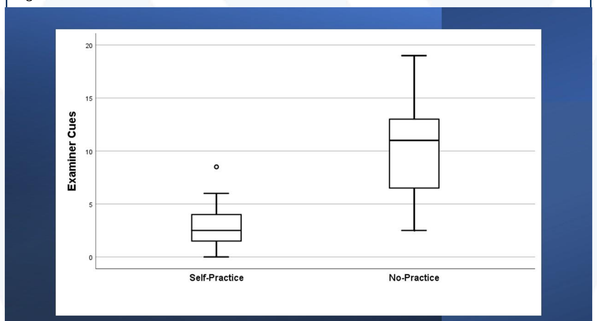
Figure 4



Students who did not have practice were significantly slower to complete the assessment compared to the self-practice group, $M = -1.941$, 95% CI [-2.98, -.916], $t(20.13) = -3.91$, $p = .001$ (Figure 3). No-practice students also required significantly more computer steps to finish using the assessment software, $M = -23.149$, 95% CI [-40.79, -5.6], $t(19.572) = -2.756$, $p = .0124$ (Figure 4).

Results: Number of Examiner Cues

Figure 5



Students who did not have practice required significantly more examiner cues to complete the software assessment compared to the self-practice group, $M = -6.81$, 95% CI [-9.97, -3.65], $t(17.722) = -4.533$, $p < .0001$(Figure 5).

Conclusion

This study investigated whether self-practice enhanced student's procedural learning of voice assessment software (*MDVP*) compared to observational learning (i.e., no-practice).

We evaluated **two types of clinical skills**: procedural skills in accessing and manipulating *MDVP* software and clinical writing a SOAP note.

Students provided with **self-practice** were **more efficient and accurate** in their use of **the *MDVP* software** than students who only received observational learning.

Students were ***not*** any more efficient or accurate in their SOAP note writing when they received self-practice than those students who did not receive no-practice.

Results may be due to the alignment of instruction and learning (e.g., Lowenthal, 2007; Mackay et al., 2002; Moulton et al., 2006; Table 3).

Observational Learning	Self-Practice
Massed practice conditions Generalized concepts	Short practice sessions Specific, sequential steps

Table 3

Further research is needed to determine the learning variables required to enhance critical thinking skills, e.g., clinical writing.

References & Acknowledgments

Selected References

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Speech Motor Control Lab