Behaviorism and Constructivism in Animal Science Laboratory Classes; Evaluated by Skill Performance, Student Confidence, and Heart Rate

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Study Background

- Exploratory mixed method study
- Designed around Camp and Doolittle's definitions of Behaviorism and Constructivism as published in 1999 in the *Journal of Vocational and Technical Education*
- Utilizes a pre-test/post-test design (short term and long term post-test)
- Gaining insight into the learning process during laboratory classes with an equine component

What am I sharing with you today?

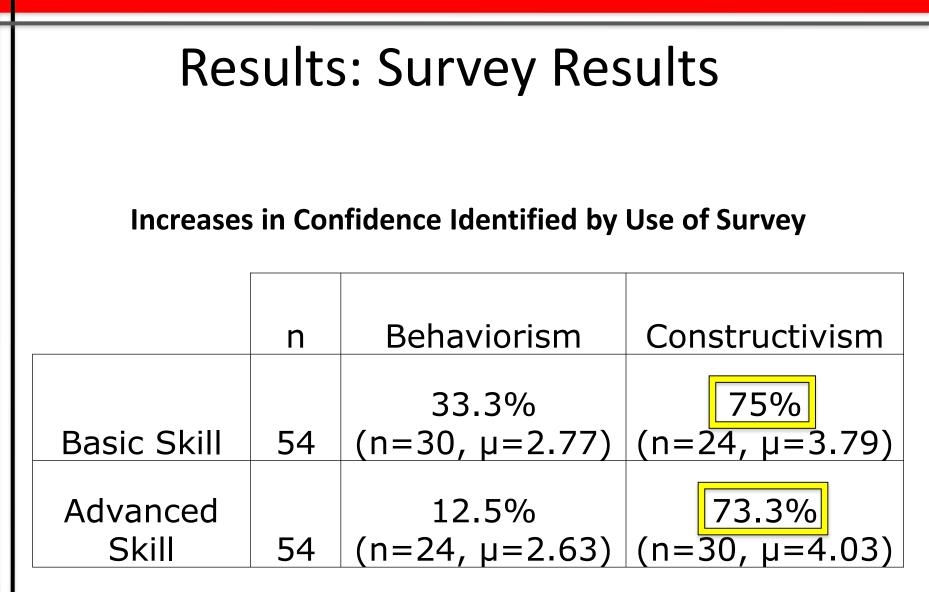
- Data from a subsection of the study
- Comparison of confidence changes, student heart rate data, and skill performance scores
- Comparison of heart rate is established as a noninvasive measure of stress by König von Borstel et al. in the article *Equine behaviour and heart rate in temperament tests with or without rider or handler*



Practice Group	Skill A (Haltering)	Skill B (Pillow Wrap)
Black	Constructivism	Behaviorism
Red	Behaviorism	Constructivism



"Equine experience" = being in sole control of a horse for a minimum of ten events



*Average practice time for the basic skill was 32 minutes and 57 minutes for the advanced skill.

Results: Heart Rate & Skill Scores

	Skills Test 1			
Practice Group	Halter Score	HR Halter	Wrap Score	HR Wrap
Black	6.1	106.7	5.5	115.4
Red	6.4	112.3*	6.1	109.6
	Skills Test 2			
Practice Group	Halter Score	HR Halter	Wrap Score	HR Wrap
Black	7.5	114.5	5.6	122.8
Red	6.6	107.3	7.3	118.5

*Outlier present in this group.

Score calculated out of 8 possible points.

HR calculated by averaging the peak hear rate of students during skills test situations

Results: Skill Scores Continued

Improvement in Skill Score

Basic Skill	Advanced Skill				
80.0%	41.7%				
23.3%	73.3%				
No Change in Skill Score					
Basic Skill	Advanced Skill				
16.0%	12.5%				
56.7%	16.7%				
	80.0% 23.3% II Score Basic Skill 16.0%				

Results of the unannounced skills test (n=14):

Possible		Advanced
Scores	Basic Skill	Skill
N-	1	0
N+	4	0
Y-	4	5
Y+	4	8

Key:

- N- = No attempt
- N+ = Skill not completed
- Y- = Completed, errors
- Y+ = Completed, no errors

Conclusions and Recommendations

- Overall, learning by constructivism created increased skill performance in students.
- Though survey results indicated that learning my constructivism increased student confidence, heart rate data was contradictory.
- Further testing is necessary to understand the results of this study.
- In the classroom, assessing student confidence and the value of laboratory classes can be attained by using multiple different tools

Any Questions?

References:

Doolittle, Peter E., & Camp, William G. (1999). Constructivism: The Career and Technical Education Perspective.

König von Borstel, U., & et al., (2011). Equine behaviour and heart rate in temperament tests with or without rider or handler. *Physiology & Behavior,* 104, 454-463.