

Investigating the Effects of a Small Gas Engine Workshop on SBAE Educators' Perceived Ability to Teach Small Gas Engines

Introduction

- Lack of offerings in agricultural mechanics at the post-secondary create ill-prepared teachers (Trickett et al., 2023)
- SBAE teachers have a higher level of confidence in their knowledge and skills when given opportunities prior entering classroom (Burris et al., 2010; Stripling & Roberts, 2012).

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Framework

- Robert and Ball's (2009) content-based model for teaching agriculture was used to frame this study.
- Once these needs are determined, educators gain competence in technical knowledge and skills within the curriculum created from industry needs to provide improved instruction.

Results

Small Gas Engine Construct	Pre-Workshop		Post-Workshop		MD	t	p	df	Cohen's D
	M	SD	M	SD					
Inspection/Testing	1.67	0.75	3.5	0.73	1.86	20.39	*<.001	70	0.78
Repair	1.73	0.83	3.8	0.7	2.08	18.46	*<.001	56	0.83
Theory/Safety	1.86	0.86	3.91	0.81	2.04	18.75	*<.001	73	0.92



Methods

- Completed in 3 days during a 10 day training.
- Industry partners provided materials and instructors.
- Paper based survey used to collect data through a pre- and post-test.
- 5 industry experts and 5 educational experts validated material
- 81 total participants

Objectives

- Purpose: Determine if the industry-based small gas engine workshop had an impact on SBAE teachers' perceived ability to teach small gas engines.
- Align: Increasing Prosperity Through Innovation in AFNR Systems (AAAE, 2023)
- Objectives: 1) Inspection/Testing, 2) Repair, 3) Theory/Safety



Conclusions

- Concluded SBAE teachers found the industry-led workshop to be effective in improving their ability to teach small gas engines.
- All variables deemed statistically significant.
- Recommend creating practicum portions to similar training to measure skill acquisition.
- Recommend programs re-evaluating their requirements to keep up with standards.

