

Introduction

- Teaching self-efficacy (TSE) defines teachers' perceived ability to plan and carry out teaching tasks successfully.
- TSE results from four information sources- mastery and vicarious experiences, verbal persuasion, and physiological body arousals.
- Mastery experience is the most impactful source while the arousals negatively affect TSE.

Examining the Relationship between Self-Efficacy and Information Sources among Agriscience Teachers in Texas

Authors

Millicent A. Oyugi, Ph.D
 Alexa J. Lamm, Ph.D
 Sanders C. Elizabeth, Ph.D Candidate



Objectives

- **RO1:** Examine any significant differences in the distributions of TSE scores.
- **RO2:** Describe the strength and magnitude of the relationships between TSE and information sources.
- **RO3:** Determine amount of variance in agriscience TSE explained by the information sources.

Methodology

- Cross-sectional non-experimental survey design with a survey via Qualtrics.
- A convenience sample of 122 agriscience teachers in Texas high schools.
- DV- Short form of TSE Scale (1 = cannot do at all - 9 = certainly can do).
- IDV- Information sources of SE- Pfitzner-Eden's scale (1 = exactly false - 9 = exactly true).

Analysis

- SPSS was utilized to conduct:
- Friedman ANOVA to measure teachers' mean scores across student engagement, classroom management, and classroom instruction SE.
 - Pearson's product-moment correlated between the TSE (DV) & SE information sources (IDVs).
 - Multiple linear regression (MLR) determined amount of variance in the DV explained by IDVs.

Results

Table 1

Friedman Rank Sum Test of Teaching Self-efficacy Variables (N = 122)

Self-Efficacy Constructs	Mean Ranks	χ^2	df	p
Classroom management SE	2.34	35.72	2	<.001
Student Engagement SE	1.63			
Classroom Instruction SE	2.03			

- Boxplots reveal the least score for student engagement self-efficacy.
- Pairwise comparisons reveal the largest difference between classroom management and student engagement SE.

Table 2

Pearson Correlations for Teaching Self-Efficacy and Information Sources (N=122)

Information Sources	Teaching Self-Efficacy	Mastery	Vicarious	Verbal Persuasion
Mastery	.51**			
Vicarious	.48**	.45**		
Verbal Persuasion	.30**	.30**	.63**	
Physiological Arousal	-.23*	-.29**	-.21*	-.06

Note. ** = Correlation Statistically significant at $p < .01$ level, * = Correlation Statistically significant at $p < 0.05$ level.

- Pearson correlation analysis showed that TSE had a:
- strong positive correlation with mastery experience
 - moderate positive correlation with vicarious experience and verbal persuasion, and
 - a weak negative correlation physiological arousal.

Table 3

Multiple Linear Regression of Teaching Self-Efficacy and Information Sources (N = 122)

Teaching Self-Efficacy	B	SE B	95% CI for B		β	t	p
			LL	UL			
Model Constant	3.61	0.58	2.47	4.75	0.00	6.28	<.001
Mastery experience	0.31	0.07	0.16	0.45	0.36	4.16	<.001
Vicarious experience	0.18	0.06	0.06	0.31	0.30	2.85	.005
Verbal persuasion	0.00	0.05	-0.11	0.11	0.00	0.00	.997
Psychological arousal	-0.03	0.04	-0.12	0.05	-0.06	-0.81	.422

Note. N = 122. $R^2 = 0.34$; Adjusted, $R^2 = 0.32$; Model = "Enter" method in SPSS. Statistic B = Unstandardized regression coefficient; CI = confidence interval; LL = Lower limit; UL = upper limit; SE B = standard error of the coefficient; β = standardized coefficient.

- MLR showed that:
- Mastery experience was the most impactful, followed by vicarious experience while verbal persuasions and psychological arousal did not have a significant impact.



Conclusions

- Agriscience teachers reported the lowest SE for student engagement.
- A significant positive relationship between TSE, & the three SE information sources, & negative with body arousals.
- MLR - mastery experience was most impactful ff by vicarious, & a non-significant impact of verbal persuasions & physiological arousals on TSE.



Implication

- The results back up Bandura's social cognitive theory of SE, which says mastery experience is the most impactful SE source. Therefore, hands-on teaching is key to developing TSE.

Recommendations

- Put in place strategies to enhance teachers' student engagement SE.
- Expose teachers to all the three sources of TSE & limit negative arousals during teaching.
- Employ more verbal persuasions to build agriscience TSE.

References

- Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman & Co.
- Field, A. (2018). Discovering statistics using IBM SPSS Statistics: North American Edition (5th ed.). Thousand Oaks, CA: SAGE.
- Tschannen-Moran, M., A. Woolfolk Hoy, and W. K. Hoy. (1998). "Teacher efficacy: Its meaning and measure." Review of Educational Research, 68, 202-248. <https://doi:10.3102/00346543068002202>