

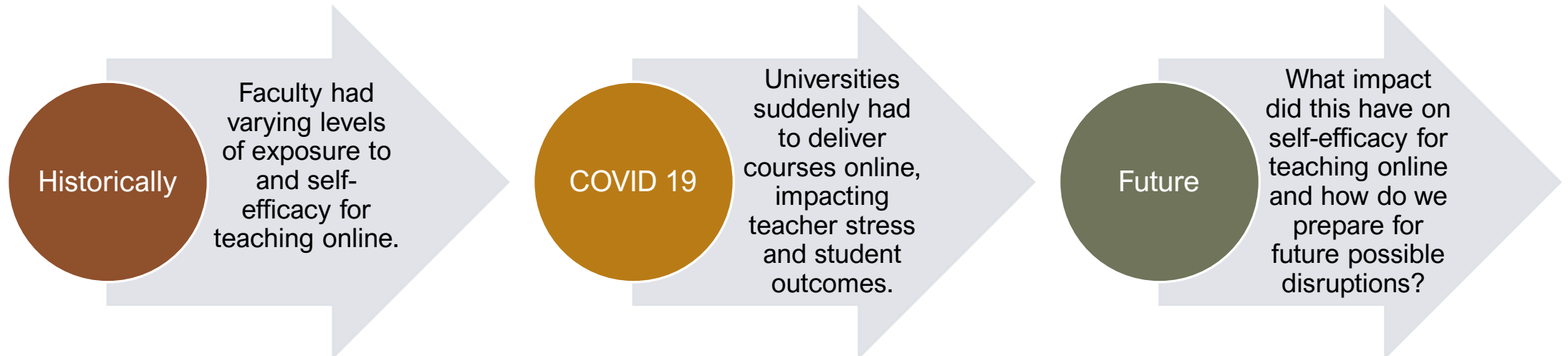


Did the Emergency Transition to Online Instruction Due to COVID-19 Impact Faculty Self-Efficacy for Online Teaching?

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What is the issue?



The purpose of this study was to examine the effect of the emergency transition to online instruction due to COVID-19 on self-efficacy for online teaching for faculty at a private, STEM-focused university in central Pennsylvania. The goal was to inform policy as it relates to preparing universities to be successful in the face of possible future disruptions to educational delivery.

Previous Research

Self-Efficacy Theory: A person's expectations about how effectively they will perform at a given task determine how much effort that person will commit to the task and how long they will persist in the face of obstacles^[2].

- Increased ability to be flexible in a constantly changing environment^[6]
- Lower levels of faculty stress^[8]
- Improved student performance^[3]

Teaching Self-Efficacy

- Instructor preparation before teaching online and length of experience teaching online correlate with higher self-efficacy scores^[9]

Online Teaching Self-Efficacy

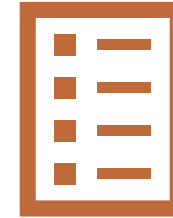
Gaps & Research Questions



Unique opportunity following a major disruption.



Context specificity for higher education and online teaching.



Retrospective pre-test design attempted to address questions of self-efficacy "plasticity."

Research Question

What is the effect of the emergency transition to online instruction due to the COVID-19 pandemic on university faculty's perception of online teaching self-efficacy scores after the pandemic as compared to before the pandemic?

Setting, Population, & Sample

SETTING

Private, not-for-profit, STEM-focused university in Central PA offering undergraduate, graduate, and doctoral degrees to approximately 6500 students.

POPULATION

Faculty, full-time and part-time, who taught at the University between March 2020 and December 2021.

Population Size: n=369

SAMPLE

Sample Size: n=83 (22.5%)

Predominately white (69.9%), male (71.1%), had doctoral degrees (61.5%) and were employed as full-time faculty (75.9%). Most respondents taught at both the undergraduate and graduate level (45.8%)

Mean Age: 53.9 years old

Mean Length of Experience: 16.3 years

Mean Length of Employment: 5.2 years

Content Areas

Business and Data Sciences: 33.7%

Computational Sciences: 22.9%

Physical Sciences: 21.7%

Social Sciences and General Education: 21.7%

Instrument

Source	Themes (# of items)	Description
Newly Created	Age (1) Gender (1) Race/Ethnicity (1) Level of Education (1) Teaching Experience (4) Employment (2) Teaching Modality Preferences (2) Pre-COVID Confidence (1)	Demographic questions and questions about teaching experience and teaching preferences. Varying formats.
Online Teaching Self-Efficacy Inventory ^[4]	Selection of Technological Resources (3) Virtual Interaction (6) Online Course Alignment (9) Web-Based Course Structure (3)	Dependent variable. Items updated and adapted. Dual four-point Likert scale to compare pre-COVID vs. post-COVID.
RAND Items ^[1]	RAND Item 1: General Teaching Efficacy (1) RAND Item 2: Personal Teaching Efficacy (1)	Measure of non-specific teaching self-efficacy . Five-point Likert scale format.
Teacher's Sense of Efficacy Scale ^[10]	Student Engagement (4) Instructional Strategies (5) Classroom Management (4)	Measure of non-specific teaching self-efficacy . Items updated and adapted for a higher education audience. Five-point Likert scale format.

Recruitment & Data Analysis

RECRUITMENT

- A web-based survey was distributed via email from the Teaching & Learning Center to all faculty in the University's existing faculty email group.
- Survey took participants approximately 15-20 minutes to complete. Responses collected using Qualtrics survey platform.
- Data collection took place over a two-week period in January 2022.

KEY DATA ANALYSES

- **Bivariate Analyses:** Repeated measures ANOVA to compare pre-COVID and post-COVID online teaching self-efficacy scores for the total population.
- **Multivariate Analyses:** Regression to test whether demographics and scores on measures of non-specific teaching self-efficacy predicted online teaching self-efficacy pre-COVID and/or post-COVID.

Predicting Online Teaching Self-Efficacy

Variable	Pre-COVID		Post-COVID	
	Regression Coefficient B	t	Regression Coefficient B	t
(Constant)	45.372	5.372	51.534	7.479
Gender = Male	-1.171	-.527	-1.817	-1.031
Minority Status = White	-4.115	-1.820	-.514	-.282
Age (in years)	-.337	-3.143**	-.301	-3.508***
Teaching Experience (in years)	.087	.867	.125	1.556
Content Area = Business and Data Sciences	-1.941	-.781	-1.718	-.906
Pre-COVID Confidence Rating	.266	5.110***	.130	3.108**
Pre-COVID Mean Percentage of Online Teaching Load / Change in Mean Percentage of Online Teaching Load	.018	.473	.065	2.035*
Non-Specific Teaching Self-Efficacy Depth Scale Score	.286	2.928**	.372	4.733***

Pre-COVID
R² = 42.3%

Post-COVID
R² = 42.9%

p <.01 level. *p <.001 level.

Dependent Variable: Pre- and Post-COVID Online Teaching Self-Efficacy

Limitations



Convenience Sample

Implications

In general, lack of preparedness during the COVID-19 emergency transition caused^[5] :

- high educator stress
- negative impacts on student outcomes

High teaching self-efficacy helps counteract these challenges, but teaching efficacy is context specific.

Future disruptions to higher education delivery are likely^[7, 11]. To help mitigate future negative impacts administrators should consider the following:

- **Teaching online increases online teaching self-efficacy. Consider policies that diversify the modalities in which faculty teach to support their online teaching self-efficacy.**

Future Research



Longitudinal studies with the goal of examining half-life of online teaching self-efficacy.



Adapting this study to use a standard pre-test/post-test design.



Implementing before and after faculty teach online at institutions of differing size, content focus, location, educator sector, or teaching level.

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