SELF-EFFICACY AND ANXIETY IN MUSIC AND NON-MUSIC PRESERVICE TEACHERS USING MIXED REALITY SIMULATIONS: A MIXED METHODS STUDY

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Rationale

- The teaching profession is not well; teacher resignations are on the rise (Loewus, 2021, p. 3) and many teachers are feeling undervalued and overworked (Berkshire, 2022) and beginning teachers who are poorly prepared and/or lack mentorship are more likely to leave the classroom (Podolsky, Kini, Bishop & Darling-Hammond, 2016).
- Mixed reality simulations (MRS) offer a low-risk opportunity for pre-service teachers to gain teaching experience (Murphy, Cash & Jackson-Kellinger, 2018; Walker, Ness, Reed, & Strang, 2021).
- Previous research indicates that music education majors may have more confidence and display behaviors that are trending toward professional teaching behaviors in MRS than their non-music peers (Piro & O'Callaghan, 2019).
- This study may glean information about the effect MRS has on anxiety and self-efficacy as it pertains to music and non-music majors
- It may acknowledge the types of experiences that best prepare preservice teachers for classroom teaching, bolstering teacher education programs despite content area specialization.

Statement of the Problem

- Mixed reality simulations give pre-service teachers the opportunity to experience the stress and anxiety of the classroom without negatively impacting real student learning (Murphy, Cash & Jackson-Kellinger, 2018; Walker, Ness, Reed, & Strang, 2021).
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- However, some pre-service teachers have higher self-efficacy than others (Gundel, et al, 2020).
- This study seeks to explore the types of anxiety and self-efficacy that non-music and music majors experience within mixed-reality simulations.
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- This researcher seeks to explore the types of anxiety and self-efficacy that non-music and music majors experience within mixed-reality simulations.

Significance

Explore	preservice teachers' **perceptions** of self-efficacy and anxiety within the context of mixed reality simulations
Explore	whether music education majors, have **experiences** that lead them to feeling more prepared and less anxious for teaching
Explore	the kinds of experiences that are necessary to **improve** self-efficacy and anxiety in MRS
Facilitate	the **transition** of preservice teachers into the classroom

Key Terms

Anxiety- stress caused by an individual's doubt to cope with a certain situation (Arieti, Berger, & Brodie, 1981)

Mixed Reality Simulations- a learning experience that takes place with avatars in lieu of real students/parent interactions (Ferguson & Sutphin, 2021; Murphy & Cook, 2019)

Preservice Teachers- students enrolled in a program culminating in a teaching certificate at Valley University

Self-efficacy- individuals' "…beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura, 1994)

Related Literature

Mixed Reality Simulations	▪MRS experiences blend virtual and real-world content through digital avatars (Ferguson & Sutphin, 2021; Murphy & Cook, 2019). ▪Short bursts of teaching enhance teacher self-efficacy (Gundel, et al, 2019), leading preservice teachers to feel confident in their own abilities upon entering the work force.
Self Efficacy	▪ Instructor modeling, peer observations, social persuasion and mastery experiences can improve self efficacy (Bautista & Boone, 2015; Gundel & Piro, 2021; Scarparolo & Mayne, 2022). ▪ The more time a preservice teacher spends practicing teaching, the more confident in their own abilities they become (Gundel, et al, 2019).
Anxiety	▪ Some majors may be more inclined to feel anxious about teaching than others. ▪ There is a negative relationship between self-efficacy and anxiety (Arıkan, 2020; Clark & Williamon, 2011; Durdukoca & Atalay, 2019; Gorospe, 2022). ▪ Biofeedback techniques, a strategy for mastering control over bodily functions, may help manage anxiety in teachers (Walton, 1981).
Musicians	▪ Musicians' sense of self-worth is closely linked to their identity as a musician (Kenney, 2011). ▪ Mental skills training enabled musicians to interpret their anxiety symptoms in a way that it did not negatively impact their self-efficacy (Clark & Williamon, 2011). ▪ Successful musicians develop strategies to overcome performance anxiety.

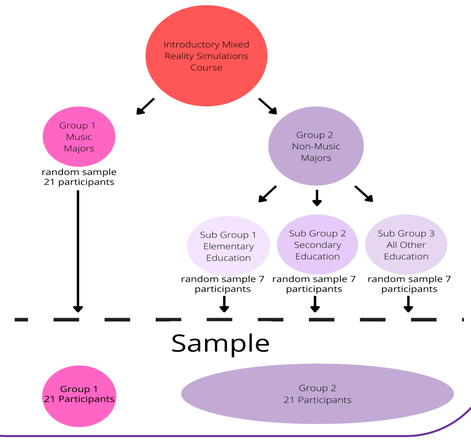
Research Question

- Is there a statistically significant difference between scores of pre-service teachers by group (Group 1-music major, Group 2-non-music major) and time (before, after) on mean scores of the Teachers' Sense of Efficacy Scale (TSES)?
- Is there a statistically significant difference between scores of pre-service teachers by group (Group 1-music major, Group 2- non-music major) and time (before, after) on mean scores of the Zung's Self-Rating Anxiety Scale (SAS) scores?
- What are the perceptions of pre-service music education majors (Case 1) and pre-service non-music education majors (Case 2) on self-efficacy and anxiety regarding teaching in mixed reality simulations?
- Are there any demographic issues related to performance or experience by case?
- How do the quantitative and qualitative data converge or diverge?

Sampling Procedure

Criterion Sampling

Population



Research Design

Explanatory Convergent Mixed Methods Case Study (Creswell & Plank, 2011).

Quantitative
- Two-group pretest-posttest 2 X 2 design (Gall, Gall, & Borg, 2003; Meyers, Gamst, & Guarino, 2006.)
- Collect data using the TSES
- Collect data using the SAS

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Qualitative
- Collect data through interviews
- Collect data using Mixed Reality Simulations Observation Protocol

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Mixed Methods
- Merge data sets
- Analyze merged data
- Interpret results

Instrumentation

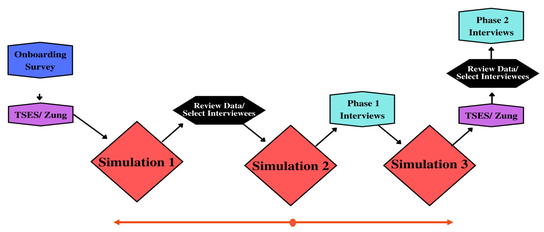
Category	Instrument	Construct Addressed
Qualitative	Onboarding Questionnaire	Anxiety, Self-Efficacy, Major
	MRS Observation Protocol	Anxiety, Self-Efficacy
	Phase 1 Interview	Anxiety, Self-Efficacy, Major
	Phase 2 Interview	Anxiety, Self-Efficacy, Major

Category	Instrument	Construct Addressed
Quantitative	TSES	Self-Efficacy
	SAS	Anxiety

Data Analysis

RQ1	RQ2	RQ3	RQ4	RQ5
Two separate paired samples t-tests (Pallant, 2020)		Hybrid coding for themes (Crosley & Jansen, 2020).	Triangulation	Qualitative and quantitative data strands will be integrated & analyzed

Collection Timeline



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Abstract

The purpose of this study is to explore anxiety and self-efficacy in preservice music teachers compared to preservice teachers in other education degree programs, especially as it pertains to their experience in mixed reality simulations (MRS). An explanatory convergent mixed methods multi-case study will be utilized for this study. The quantitative portion of this study will follow a two-group pretest-posttest 2 X 2 design using a random sample of 40 preservice teachers currently enrolled in an introductory course which utilizes mixed reality simulations as part of an education degree and teacher certification program. All participants will complete two inventories before Simulation 1 and after Simulation 3. The first inventory will measure self-efficacy and the second will measure anxiety. The qualitative portion of the study will follow a multiple case study design to further explore pre-service music education majors' and pre-service non-music education majors' perceptions of self-efficacy and anxiety regarding teaching in mixed reality simulations and if there are any differences in perceptions by case. This study will utilize an observation protocol and a semi-structured interview protocol in two phases made up of criterion sampling. The results of the quantitative and qualitative data will be used to explore if there are unique experiences in music education majors and non-music education majors that lead to less anxiety and higher sense of self-efficacy in MRS.

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