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Math, Literacy, and Games: Teacher Preparation Across the Globe

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Abstract

This presentation focuses on an interdisciplinary Collaborative Online International Learning (COIL) project, where teacher candidates from various educational disciplines collaborated in an interdisciplinary unit. In this COIL, U.S. undergraduate math teacher candidates, graduate literacy students, and Spanish TESOL (Teaching English to Speakers of Other Languages) students worked together across time zones and cultures. Merging COIL models (Rubin, 2022) and active learning through gamification (Kingsley & Grabner-Hagen, 2015; Sakai & Shiota, 2016), teacher candidates designed an interdisciplinary game for a specific school context to enhance students' language and knowledge in math and literacy. They co-created games that integrated language learning, literacy, and math concepts for elementary education, and addressed diverse student needs, promoting active learning and building professional communities. A key focus was the relationship between math and literacy teaching, emphasizing disciplinary literacy. It is through disciplinary literacy that math learners grow as speakers, listeners, and meaning makers in mathematics learning contexts (Buehl, 2023; Lent, 2015). The process included collaboration, understanding gamification techniques, negotiating game design, and presenting their work through a video on Padlet. This presentation uses autoethnographic methods (Chang, 2008) to reflect on the instructors' experiences throughout the COIL. Lessons learned from previous projects, a revised COIL collaboration template, and future collaboration plans will be shared. The presenters will also discuss the implications of their framework for future international collaborations in teacher education and other disciplines, demonstrating how other COIL researchers can use co-authored narratives and reflections for self-analysis to deepen their COIL instruction and COIL design.

Keywords: Disciplinary Literacy, Gamification, Higher Education, Interdisciplinary, International Collaboration