

## **RETHINKING ONLINE STEM "BEST PRACTICES": EVIDENCE FROM A HISPANIC-SERVING INSTITUTION**

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### **Abstract**

Despite rapid growth in online higher education, evidence-based guidance for online STEM instruction remains fragmented, especially in Hispanic-Serving Institutions (HSIs). This article synthesizes findings from a National Science Foundation-funded mixed-methods project at a public Hispanic Serving Institution in the U.S. Southwest. Guided by a theoretical lens that foregrounds social presence, cognitive presence, and student readiness, the evidence base combines a cleaned Spring 2023 student survey dataset (N = 1,256 overall), 58 usable faculty surveys, descriptive project analyses, 12 faculty interviews, 12 student focus groups, and the peer-reviewed articles that emerged from the grant. Because the published papers used different inclusion rules and theme-specific subsamples, analytic Ns vary across individual findings. Across sources, three conclusions were consistent. First, STEM students valued structured and content-linked practice more than generic interactivity. Second, disciplinary differences were large enough that one-size-fits-all guidance was unreliable. Third, equity-oriented design depended less on lowering expectations than on increasing transparency, instructional presence, and coherent practice opportunities. Students did not favour minimizing lecture altogether; rather, they preferred substantial weekly lecture time when content was clearly organized and segmented. They also rated instructor-designed rehearsal, such as study guides, practice quizzes, and automatically graded practice problems, more highly than optional or loosely connected engagement tasks. Online testing was viewed as less anxiety-producing than in-person testing, but its credibility still depended on alignment among question design, timing, rehearsal, and feedback. Online labs showed promise, especially in hybrid or carefully targeted formats, but remained more context-sensitive than lectures or rehearsal. The article concludes with implications for faculty development, course design, and future implementation research, with lessons relevant both within and beyond U.S. HSI settings.

**Keywords:** *Online education, STEM education, active learning, Hispanic-Serving Institutions, equity in higher education.*

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## **FROM FIELD TO FEED: A SOCIAL NETWORK ANALYSIS OF A PHYGITAL EXPERIENTIAL LEARNING CASE IN HIGHER EDUCATION**

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### **Abstract**

The digital transformation of higher education requires innovative pedagogical models that bridge the gap between physical experiences and digital reflection. This study explores the role of the Teaching Learning Centre (TLC) at the University of Palermo as a strategic driver for "onlife" didactics. Central to this approach is the evolution of the educational visit through an innovative framework of experiential pedagogy. By connecting physical territory with digital interaction spaces, the project creates a "phygital" learning environment where students move from the field to the social media feed. Utilizing Social Network Analysis (SNA) via NodeXL, we analysed the communication dynamics of a joint didactic visit involving the Universities of Palermo and Coimbra. Results demonstrate that while institutional nodes act as primary hubs (Star Topology), gaining high levels of visibility within the institutional community from Meta Analytics, the digital re-elaboration of the experience not significantly effected peers' relation, although promoting students perceived self-efficacy and professional identity.

**Keywords:** *Educational visit, experiential learning, phygital, onlife perspective, teaching learning centre.*

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