

14 - 16 August 2026

Berlin , Germany

Broadband Access and Classroom Teaching Practices: A Cross-National Analysis of Post-COVID Associations

Kayode Oluwafemi

HSE University, Russia

Abstract

Digital infrastructure has been associated with both professional-development access and teaching practice in prior research, but few studies test which domain shows the stronger association following a major system-wide disruption. This study examines whether pre-pandemic broadband capacity is associated with 2018-2024 change in classroom teaching practices or professional development differently across Nordic and non-Nordic systems. Using TALIS data from 40 education systems, country-level regression models with HC2-robust standard errors estimated an exploratory cross-moderator framework testing all macro-moderator-by-outcome combinations alongside the pre-specified confirmatory model. The confirmatory hypothesis that broadband access moderates change in professional development by Nordic status was not supported ($p > 0.05$). Exploratory analysis instead identified a robust broadband-by-Nordic association across teaching-practice outcomes: the composite scale (TPCOMP: $b = -0.083$, $p = .004$, 95% CI $(-0.136, -0.029)$), clarity of instruction (TPCLAIN: $b = -0.157$, $p = 0.002$, 95% CI $(-0.250, -0.063)$), and classroom management (TPCLASM: $b = -0.229$, $p = 0.009$, 95% CI $(-0.397, -0.061)$). Nordic systems with higher pre-pandemic broadband showed smaller post-pandemic practice gains, consistent with diminishing returns in high-capacity contexts. Cognitive activation showed no comparable pattern. As a cross-sectional design, temporal precedence and unmeasured confounders cannot be ruled out.

Keywords: Classroom Management; Digital Infrastructure; Instructional Practice; Nordic Education Systems; Teaching Practices