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Do Educational Data Systems Support or Hinder Pedagogical Practice?

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Abstract

This study investigates whether educational data systems and Business Intelligence (BI) support pedagogical practice or reinforce a technocratic logic of control in public education. It draws on an exploratory analysis of secondary data from the São Paulo State Department of Education covering 2023–2024, including attendance records and indicators of access and engagement on digital learning platforms across 91 Regional Education Offices. The analysis combines Doug Clow's Learning Analytics Cycle with John Sweller's Cognitive Load Theory to examine relationships among data production, platform engagement, school attendance, and educational outcomes. The findings indicate that increased digital activity does not automatically translate into improved learning. Recurring gaps between activities proposed and completed on platforms such as Redação Paulista and Matific suggest that quantitative expansion may coexist with limited engagement, feedback, and pedagogical mediation. The study conceptualizes this tendency as the hyper-quantification of learning, in which activity-volume metrics can be prioritized over pedagogical quality. It also argues that target-driven platform use and constant monitoring may restrict teacher autonomy by shifting attention from pedagogical decision-making to indicator compliance. The study concludes that educational data can support teaching when incorporated into reflective analytical cycles that connect data collection and analysis with contextualized intervention and systematic feedback. Business Intelligence should therefore function as a pedagogical support tool rather than as a mechanism for standardization or control.

Keywords: Business Intelligence; Cognitive Load; Digital Transformation; Hyper-Quantification; Learning Analytics