Understanding technology use through multimodal layers: a research review

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# Abstract

Purpose: The purpose of this study is to examine the use of digital technologies by teachers and students in teaching and learning from a multimodal layer perspective. Design/methodology/approach: The article reviews 64 studies on technology use. A content analysis based on the theoretical concepts of “multimodal layers” was used to synthesise previous research. Findings: The findings indicate that the use of technology in classroom practices by teachers and students is multifaceted and that transitions exist between technologies and sign-systems and are differently related to sign-making activities and thus constitute different uses. Between layers, traces can be made that connect the use of technology to differences in sign-making activities. Practical implications: A multimodal layer perspective on technology use is fruitful to understand what happens at the intersection of technology and human activities in school practices. Moreover, more attention to multimodal layers can inform future effective technology usage and design. Originality/value: The review offers comprehensive insights on how previous research has studied technology using multimodal layers as an analytical lens.

# Outcome

"Research on digital technologies in education that illuminates connections between digital hardware and software use is scarce. However, the research compiled in this review indicates that PCs and visual software are frequently employed, in favour of student use. Research on other technologies such as IWBs, tablets and smartphones is limited. Teachers’ use of smartphones has been absent. Another finding is that different technologies are usually incorporated into the same activities, which is why differences or similarities between activities and the other layers are difficult to distinguish, important to investigate further." (Authors, 383-384)