

Balancing ease and interactivity: Learner perceptions of textual and AI-enhanced support in L2 television viewing

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Abstract

Television viewing has become an increasingly important source of second language (L2) input, with streaming platforms providing widespread access to authentic audiovisual content. Research has consistently shown that static on-screen text, including captions or subtitles (traditional textual support) and dual subtitles (enhanced textual support), can facilitate comprehension and language learning (e.g., Reynolds et al., 2022), although different forms of static support involve distinct cognitive trade-offs (e.g., Montero Perez, 2022). More recently, advances in AI-enhanced technologies have shifted attention from the effects of technology to the effects *with* technology (Vanderplank, 2016), highlighting learners' interactions with digital tools such as Language Reactor, which combines interactive subtitles, instant translations, transcript navigation, and personalised vocabulary support. Despite growing interest in these technologies, empirical evidence comparing interactive AI-enhanced and static forms of support remains scarce (e.g., Alm & Watanabe, 2025), particularly in longitudinal studies involving adolescent learners.

This longitudinal study addresses this gap by examining how different types of textual and AI-enhanced support influence learners' perceptions of cognitive load, engagement, and usefulness during extended L2 television viewing. A total of 141 intermediate EFL learners (mean age = 14.8 years, SD = 0.73; mean vocabulary size = 3,482.39 word families, SD = 1,328.22) from a Spanish secondary school were assigned to three viewing conditions: captions (Captions, $N = 46$), dual subtitles (L1+L2) (DualSubs, $N = 51$), and captions with an interactive GenAI-enhanced tool (Language Reactor) (Caps+LR, $N = 44$). Learners watched one 25-minute episode per week for eight weeks. Their viewing comprehension was assessed after each episode, and their vocabulary gains were measured before and after the intervention. Learner perceptions were evaluated using a post-viewing questionnaire. Employing a mixed-methods approach, the study analysed perceptions of cognitive load, engagement, and usefulness based on 22 Likert-scale items and one open-ended question.

Composite score analyses showed that dual subtitles significantly reduced perceived cognitive load, particularly with regard to viewing comprehension, compared with both the captions-only and interactive conditions. Differences in engagement were more nuanced, with the dual subtitles condition exhibiting only marginally higher engagement than the captions condition. Both dual subtitles and the interactive tool were rated as significantly more useful than captions alone, particularly for vocabulary and grammar learning, with no significant differences between DualSubs and Caps+LR. Qualitative findings further explained these patterns and highlighted learners' preferences and suggestions for more personalised and effective viewing practices.

Overall, the results reveal a trade-off between ease and interactivity, with different types of enhanced support serving complementary pedagogical functions. Both enhanced static and interactive forms of support can boost perceived usefulness without increasing cognitive load or reducing learner engagement. These findings have important implications for the design of L2 curricula for both classroom instruction and independent learning, as well as for promoting extensive out-of-class television viewing in ways that effectively balance cognitive load, perceived learning outcomes, and learner engagement.