YouTube Subtitles and Captioned Media: Enhancing Reading Fluency among ESL Students

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Abstract

The digital media revolutionized English Language Teaching (ELT) significantly, particularly in enhancing reading fluency among English as Second Language (ESL) learners. Subtitles and captions in videos are more effective in this digital era, provides support to the learners in active participation in audio visual content. This study explores how videos with captions enhance reading fluency, vocabulary acquisition, comprehension skills, and pronunciation awareness among learners. Learners can enhance their word recognition skills, improve reading speed, and develop their understanding of spoken English through authentic videos by offering a synchronized combination of text and speech. This paper discusses how the benefits of reading, listening, and visual elements work together to support their language learning and how interactive captions improve their learning experience. Furthermore, the study addresses some existing challenges such as over-reliance on subtitles, lack of accuracy, and differences in learners' proficiency levels. The results indicate that strategic incorporation of captioned media can make significant outcomes: improving reading fluency and comprehension. As digital platforms continue to evolve, the study emphasizes the need for educators to foster creative pedagogical approaches for effective and engaging English learning experiences.

Keywords: Captioned Media**,** ESL Learning**,** Multimodal Language Acquisition**,** Reading Fluency**,** YouTube Subtitles**.**

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Introduction

The evolution of digital media has significantly influenced English Language Teaching (ELT), specifically in developing reading fluency among English as Second Language (ESL) learners. YouTube subtitles and captioned media have emerged as powerful tools for improving learners' reading and comprehension skills among the various technologies. Captions give real-time textual support, help learners learn through spoken language, allow them to connect between written and oral communication. By integrating multimodal content combines text, visuals, and audio—improves their cognitive skill, make language learning more engaging and effective (Vanderplank 22). Studies recommend captions help ESL learners develop word recognition, fasten their reading ability, and improve pronunciation. Additionally, digital platforms such as YouTube, TED Talks and other OTT platforms provides AI-powered captions, and adjustable playback speeds, enable personalized learning experiences. Pervasive thinking states that over-reliance on captions may obstruct listening development; however through strategic use of captions improves language acquisition rather than impeding it. Some challenges such as inaccurate captions, varying proficiency levels, and learners' dependence on reading rather than listening must be addressed for better language learning results.

This study explores how YouTube subtitles and captioned media contribute to ESL learners' reading fluency, examining both advantages and its limitations of integrating such tools into language instruction. Instructors can make learners participate actively and bring positive outcomes in reading comprehension among ESL learners by understanding pedagogical implications of captioning method.

Role of Subtitled Media

Reading fluency carries three main components: accuracy, speed, and comprehension. Subtitles help learners to improve their fluency, recognize words quickly and understand sentences through authentic language use and by providing real-time text support. Moreover, captioned media allows learners to understand the nature of spoken language, pronunciation, and colloquial expressions, which are missing in traditional reading materials. As digital learning evolves, caption method and interactive transcripts provides new possibilities for personalized reading instruction, making it an essential tool in modern ELT practices (Pujolà 187). Incorporating captioned media into reading instruction, educators can create immersive and engaging learning experiences and improve ESL learners' pronunciation and reading fluency. However, it has to be strategically incorporated, subtitles alongside traditional reading methods, to ensure a balanced approach to literacy development.

AI-Powered Captioning and Its Role in ESL Learning

The integration of Artificial Intelligence (AI) in captioning technology has significantly impacted English as Second Language (ESL) learning, particularly in developing reading fluency, vocabulary acquisition, and listening comprehension. AI-powered captions offer real-time, adaptive, and interactive subtitles, allowing ESL learners to engage with personalized and contextually relevant language input. These tools support learners by providing instant text representations of spoken language, making them valuable for enhancing reading comprehension and fluency development (Vanderplank 35).

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AI-Generated Captions vs. Traditional Subtitles

Unlike traditional human-generated captions, AI-powered captioning systems use speech recognition and Natural Language Processing (NLP) to generate real-time subtitles. These AI-generated captions are widely used on platforms like YouTube, Netflix, and educational language apps, where learners benefit from interactive subtitles that adjust to their reading proficiency levels. Furthermore, AI-powered captioning tools can highlight key vocabulary, break down complex sentences, and provide instant translations, making them particularly useful for beginner and intermediate ESL learners (Paivio 89).

The Cognitive and Linguistic Benefits of AI-Powered Captions

From a cognitive perspective, AI-generated captions enhance learning through dual coding theory, which suggests that learners process language more effectively when combining visual and auditory inputs (Paivio 56). AI-powered subtitles allow ESL learners to match spoken words with written text, reinforcing word recognition and reading fluency development. Research suggests that students who regularly use captioned media show greater improvements in reading speed, vocabulary retention, and comprehension compared to those relying solely on traditional text-based learning.

AI and Personalized Language Learning

One of the most significant advantages of AI-powered captioning is its ability to adapt to individual learners' needs. AI-driven platforms such as Duolingo, LingQ, and Google's Live Transcribe offer customized reading exercises, automatic word glossaries, and progress tracking, which help learners strengthen reading comprehension and linguistic awareness. These features create a dynamic, learner-centered environment, where students can pause, rewind, and re-read captions at their own pace, promoting self-directed learning and engagement.

Challenges and Limitations

Despite its advantages, AI-powered captioning still presents challenges. Studies indicate that speech recognition errors and inaccurate AI-generated subtitles can sometimes hinder learning rather than facilitate it (Mayer 58). Additionally, some ESL learners may become overly dependent on captions, reducing their ability to develop listening skills without visual support. Educators must therefore ensure that AI-powered captioning is used as a supplementary tool rather than a replacement for traditional reading strategies.

Pedagogical Implications and Best Practices

The integration of AI-powered captioning and subtitled media in ESL learning has significant pedagogical implications, particularly in reading instruction, vocabulary acquisition, and listening comprehension. Educators must adopt strategic methodologies to ensure that captioned media enhances language proficiency rather than fosters passive learning habits (Mayer 72). Best practices include adaptive scaffolding, interactive engagement, and a blended learning approach that incorporates both digital and traditional reading methods.

Scaffolding Reading Skills with AI-Powered Captions

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Scaffolding is a critical instructional strategy that helps ESL learners gradually develop reading fluency and comprehension. AI-generated captions can function as a form of scaffolding, providing learners with instant vocabulary support, phonetic guidance, and contextual explanations. By progressively reducing caption dependence—moving from full captions to keyword-based cues—instructors can encourage active reading and listening rather than rote reliance on subtitles.

Interactive and Engaging Learning Approaches

To maximize the effectiveness of AI-powered captioning, educators should integrate interactive learning strategies, such as pause-and-reflect activities, prediction tasks, and shadow reading exercises. Research suggests that ESL students who actively engage with captioned media—by reading along, predicting words, and summarizing content—develop stronger literacy skills compared to passive viewers. Furthermore, platforms like YouTube's interactive transcripts and AI-enhanced digital flashcards provide personalized learning pathways, allowing learners to track progress and reinforce linguistic patterns.

Blended Learning: Combining AI-Powered Captioning with Traditional Reading

While captioned media enhances digital literacy, it should complement rather than replace traditional reading practices. Educators can implement a blended learning approach by alternating between AI-assisted reading tools and print-based materials, ensuring learners develop both digital and offline comprehension skills. Dual coding theory supports this approach, highlighting that multimodal learning—combining text, audio, and visual elements—reinforces retention and cognitive processing.

Addressing Challenges and Limitations

Despite its pedagogical benefits, AI-powered captioning presents challenges, such as inaccurate subtitles, over-reliance on textual support, and cognitive overload. Instructors must guide learners in critically assessing AI-generated captions and recognizing contextual errors, thereby fostering autonomous learning and critical thinking skills (Mayer 79). Additionally, structured caption-reduction exercises—where learners gradually transition from full captions to minimal text cues—can mitigate dependence on subtitles while strengthening aural and decoding skills.

Conclusion

The integration of AI-powered captioning and subtitled media in ESL reading instruction presents a transformative opportunity to enhance reading fluency, vocabulary acquisition, and overall language comprehension. By providing visual, textual, and auditory reinforcement, AI-driven tools offer adaptive learning experiences that cater to diverse learner needs. However, while these technologies facilitate engagement and comprehension, they must be implemented with pedagogical precision to prevent over-reliance on subtitles and promote active language processing. Educators must strategically integrate captioned media into their curriculum using scaffolded reading techniques, interactive learning activities, and blended learning models. AI-generated subtitles, when combined with traditional reading practices, create multimodal

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learning environments that strengthen cognitive processing and literacy skills. However, challenges such as inaccurate AI-generated captions, cognitive overload, and passive learning habits necessitate careful instructional planning. Encouraging critical engagement, independent reading strategies, and gradual reduction of caption dependence will help learners develop autonomous reading skills and linguistic proficiency. Moving forward, further research and technological advancements in AI-powered CALL (Computer-Assisted Language Learning) and CALT (Computer-Assisted Language Testing) will continue to reshape ESL instruction. As digital media and AI-driven learning tools evolve, educators must adapt their methodologies to harness these innovations while maintaining a balanced, learner-centered approach. Ultimately, the effective use of captioned media in ESL education requires a harmonious blend of technology, pedagogy, and human interaction to ensure sustainable language development.

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