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The experience of continuity, and Eye-tracking research on visual behavior and cognitive load

Abstract:

Our surrounding world is continuous. Human vision is not. Still our experience of the world is that it goes on consistently. Audiovisual perception is key in the construction of continuity; it is what we rely on. Film and other media, contrary, is fundamentally discontinuous, providing fragmental impressions for our perception. Particularly, the sense of continuity is often at stake in situations that involves interaction with screen media. My research focuses the experience of continuity and how discontinuity affects cognitive load when people interact with 2D imagery, aiming to unravel the nuanced ways visual search strategies play a role in overcoming the potentially disruptive effects of discontinuity. Cognitive load, defined as the mental effort required for task completion, has long been recognized as a critical factor in cognitive psychology. However, how it is affected by discontinuity and visual search behavior remain a dynamic area of exploration. Eye-Tracking as a scientific method, can provide valuable insights into the effects of cognitive load on visual attention and information processing. It allows researchers to analyze participants' gaze patterns and pupil dilation during cognitive tasks as well as film events. This method also illuminates how cognitive load can influence allocation of attention, revealing whether cognitive load leads to shifts in attention, and how stimuli is processed in event segments, as chunks. The results of my ET-research, so far, reveals that cognitive load increases when people unknowingly experience discontinuity. However, changes in pupil size, that indicate cognitive load, do not necessarily correlate with specific gaze behaviors.

Biography

Thorbjörn Swenberg has a background in TV production as a Video Editor at the Swedish Television, and completed his PhD in 2017 at Mälardalen University and is Associate Professor in Audiovisual Studies at Dalarna University since 2021. He is the Vice Head of the School of Culture and Society, heading the Dalarna Audiovisual Academy (DAVA). He has published more than 30 papers, journal articles and book chapters on topics of audiovisual perception, design and media production.