Adaptive Multimedia Interfaces in Learning Systems: Enhancing Cognitive Load Management

Samwel Mwangi

Computer Science Teachers, Nazabayev Intellectual School Semey, Kazakhstan

Mynbayeva Maigul

Computer Science Teachers, Nazabayev Intellectual School Semey, Kazakhstan

Abstract:

Cognitive load management is one critical factor in optimizing learning outcomes, especially in an online digital learning environment. This paper discusses how video, audio, and interactive simulations can have their multimedia content better designed using the principles of cognitive informatics that manage cognitive load. CLT will be discussed, along with adaptive multimedia interfaces, neurofeedback mechanisms, the impact of different multimedia modalities on memory retention, understanding, and cognitive engagement, and finally the practical applications in e-learning and virtual classrooms.