

Reading Online Mathematics Textbooks

Preliminary Research Report

Abstract: This study explores how students read from an online mathematics textbook. The particular textbook that we are exploring is *Precalculus: Pathways to Calculus*, which was developed at Arizona State University as part of a redesigned precalculus course that focuses on developing students' ability to reason conceptually about functions and quantity. We are interested in understanding the way students read their mathematical textbooks so that research-informed activities can be developed and incorporated into online textbooks to increase comprehension and retention. In order to investigate authentic student reading habits as closely as possible, we used nonintrusive screen capture software to measure activities such as scrolling, latency, and browsing, as students complete their regular reading assignments in a study hall setting. Other data sources include brief surveys, assessments and interviews. Interventions include reading instruction and embedded activities with feedback and sequences of hints that are intended to promote deeper engagement with the text.

Keywords: online textbooks; precalculus; reading; textbooks