**What is being learned? What mathematics is the focus of the activity/technology? Is relational or instrumental understanding emphasized?**

Students learn to relate the area under a piecewise function to a definite integral, and the area function. This demo emphasizes a relational understanding of area and integrals.

**How does learning take place? What are the underlying assumptions (explicit or implicit) about the nature of learning?**

By adjusting the sliders, students can observe how changing the limits changes the area function. They can also see why it is often called an accumulation function. They can also compare the graphs to see a differential relationship between the two. The assumption is that through experimentation and comparison, students will come to their own understandings.

**What role does technology play? What advantages or disadvantages does the technology hold for this role? What unique contribution does the technology make in facilitating learning?**

The technology provides a dynamic visual of a rather abstract relationship between area and integrals. Students can watch the area fill up, and see how that equals a y-value of the area function. It does not, however, explicitly link the definite integral notation to the graphical representation.

**How does it fit within existing school curriculum? (e.g., is it intended to supplement or supplant existing curriculum? Is it intended to enhance the learning of something already central to the curriculum or some new set of understandings or competencies?)**

This demo nicely augments a discussion of definite integrals, accumulation functions and area. It makes a great precursor to the Fundamental Theorem of Calculus.

**How does the technology fit or interact with the social context of learning? (e.g., Are computers used by individuals or groups? Does the technology/activity support collaboration or individual work? What sorts of interaction does the technology facilitate or hinder?)**

Two students sharing a computer could discuss what they notice as they adjust the sliders and compare the graphs. The technology itself isn’t a collaboration tool, but it can spark discussions and arguments.

**How are important differences among learners taken into account?**

Visual and kinesthetic learners will enjoy this demo, as it suits their strengths.

**What do teachers and learners need to know? What demands are placed on teachers and other "users"? What knowledge is needed? What knowledge supports does the innovation provide (e.g., skills in using particular kinds of technology)?**

Teachers may want to know how to embed the html code on their course website. Otherwise, this technology does not have much in the way of demands on the user. It is largely a matter of using sliders, drop down menus and checkboxes.