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

This demo focuses on the relationship between tangent lines and secant lines. Students can see the differences between a secant line and a tangent line, but also use limit reasoning to see how to find the tangent line’s slope.

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

Learning takes place through the active manipulation of two different variables and observing what happens. The assumption is that learning happens better through active involvement, and not the passive reception of information.

**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 helps present mathematical ideas in a visual and manipulable way. In this case, it allows students to see the secant line becoming a better and better approximation to the tangent line, at a variety of different points of tangency. It would be better if the demo could track the value of the secant line, or give the coordinate points so that students could see the numerical representation, as well.

**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?)**

The Secant and Tangent Lines demo definitely supports the existing curriculum. It could be used as an exploration of the definition of the slope of the tangent line, or as a visual aid when the teacher introduces the concept (though that makes the learning more passive).

**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?)**

The technology itself doesn’t allow for collaboration, but two students on a computer together could certainly explore the tangent lines and secant lines together. It would be unwise to put too many students on the computer at once, because only one can actually manipulate the demo at a time.

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

This demo is good for kinesthetic and visual learners. It provides a way for them to see the limit process as well as manipulate it.

**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)?**

Mathematically, students need to have an idea of the difference between a secant line and a tangent line. They also need to understand how average slope is calculated and why that’s a problem for tangent lines. Technologically, they just need to be able to find the website and manipulate sliders. There are some instructions on the site for how to make the sliders move by very small amounts, if they mouse over the words “slider zoom”. Teachers might want to know how to embed the demo on their course website using the html code provided.