1077-A0-49   **Frank Wattenberg***, U. S. Military Academy, Department of Mathematics, West Point, NY. *Examples of how mobile/Web technologies can impact how, when, where, what, and why students learn.*

This interactive talk will include both big ideas and examples. The Web and mobile devices can deliver interactive content using cell-assisted GPS, accelerometers, gyroscopes, compasses, and cameras. This content can be used in both formal and informal education and break down the barriers between classroom and field. For example,

Tree rings play an important role in our understanding of the Earth's past climate. Students near a tree could access core samples from that tree and compare them with its environment – for example, stressed trees show greater variability – and with meteorological and historical records and samples from other trees. They could apply statistical techniques to isolate the various signals and study the Mann Hockey Stick controversy.

Many students have difficulty understanding three dimensions. For two dimensions students specify the window into a graph by giving x- and y-ranges. For 3D they need to specify the location of a camera, aim, and focal length. Students could be given a series of photographs of well-known objects from unusual perspectives. Their job would be to reproduce the photographs using mobile device equipped with a digital camera and the score would depend on both accuracy and speed to reward 3D understanding. (Received July 7, 2011)