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Putting the unit in pre-service secondary teachers' unit circle.

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Summary: We discuss a teaching experiment that explored two pre-service secondary teachers' meanings for the unit circle. Our analyses suggest that the participants' initial unit circle meanings predominantly consisted of calculational strategies for relating a given circle to what they called "the unit circle." These strategies did not entail conceiving a circle's radius as a unit of measure. In response, we implemented tasks designed to focus the participants' attention on various measurement ideas including conceiving a circle's radius as a unit magnitude. Against the backdrop of the participants' actions on these tasks, we characterize shifts in the participants' unit circle meanings and we briefly describe how these shifts influenced their ability to use the unit circle in trigonometric situations.

Classification: G60 G40

Keywords: unit circle; trigonometry; pre-service secondary teachers; measurement; teaching experiment; quantitative reasoning

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