

**Qi Chun Yan**

School of Mathematical and Computational Sciences,  
Lingnan Normal College, Guangdong Zhanjiang, China  
476890742@qq.com

**What specialized content knowledge do senior high teachers have about trigonometry from the perspective of HPM? An empirical study**

**Abstract**

This study reports on the level of trigonometry history-based specialized content knowledge (HSCK) of senior high school mathematics teachers ( $n = 153$ ) at Yi Xing senior high school in China. The aim of the study was to determine if this sample of senior high school teachers has an appropriate level of HSCK to teach trigonometric concepts. The development of an instrument to measure senior high school teachers' HSCK of trigonometry with respect to teaching trigonometric concepts is detailed in this report, and the subsequent findings from its administration to the sample are discussed. The findings indicate that the teachers in this sample have gaps in their HSCK of trigonometric concepts that are included in the senior high mathematics syllabi, and are underprepared to teach these concepts. This study reveals that the majority of the sample does not have enough HSCK to teach trigonometry concepts at the senior high school. The strengths and shortcomings of the sample in relation to their HSCK of trigonometry are presented. The author concludes that senior high school trigonometry content should be taught in initial mathematics teacher education in order to combat this issue.

---

---