In this presentation, quantitative and qualitative results from four large scale NSF funded grant projects on the preparation and placement of mathematics specialists in Virginia’s elementary and middle schools will be presented. Virginia’s program to prepare practicing teachers to serve in this coaching-based role will be described. In particular, what we have learned a successful program must include. In addition to presenting findings on the impact of mathematics specialists on student achievement, we will also share results related to (1) what specialists learned through the preparation program, (2) specialists’ influence on teachers’ beliefs about how mathematics should be taught, (3) the meaningful ways specialists spend their time in the school buildings, and (4) proven methods specialists use to help teachers make practical and useful shifts in their pedagogical practices. (Received September 22, 2015)