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Guided Group Work in Graduate-Level Quantum Mechanics
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— Guided group work (GGW) has been effectively used in undergraduate physical classrooms for years. Given the substantial selection effects between graduate and undergraduate populations, it is an open question whether group work might be useful at the graduate level. At The Ohio State University, GGW sessions have been developed and run over the past five years for each core course, but this work will focus on quantum mechanics. Students were given pretests and posttests that consist of some calculations, but mostly of conceptual questions. We will discuss trends in student performance across four years (˜160 students), using many assessment questions covering various standard quantum mechanics content areas. We will note some prevalent misconceptions. We find a statistically significant effect of GGW attendance on student performance on related conceptual questions, even many weeks after instruction. Potential confounding effects are discussed, including student self-selection into treatment groups.

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