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Jana L Gevertz* (gevertz@tcnj.edu). *Choosing a Solution Strategy: Distinguishing between Analytic, Qualitative and Numerical Approaches*. Preliminary report.

In many undergraduate Ordinary Differential Equations courses that cover first-order initial value problems, students learn analytic approaches for solving such equations, qualitative approaches to extract some solution behavior, and numerical approaches to approximate the solution. As individual techniques, students typically become quite proficient at each of these tasks. However, students often struggle to understand the connections between these approaches, when one approach is more appropriate to answer a given question, or when an approach cannot actually give the desired answer. In this talk, I will share some pedagogical and assessment strategies for encouraging this sort of connected and integrative thinking. A course-culminating project that pushes students to understand the strengths and weaknesses of each solution strategy will also be discussed. (Received July 30, 2015)