Generalizability theory (g-theory) is a powerful data analytic approach that can be applied to many scientific questions. The basis of generalizability theory is to estimate sources of variability to determine which sources affect outcomes most and where to focus future research efforts. Generalizability theory originally was intended to address questions in educational research, but the developers stressed its utility beyond this domain although there remain few examples of its application outside education. The lack of popularity may be due to the lack of mainstream statistical software, inadequate information about the procedure, or few specific examples of generalizability theory applications. Readily available software is not necessary but can be helpful to initiate new users whereas clear information and specific examples are essential to entice researchers to consider generalizability theory as a useful tool. Our objectives are to inform a diverse audience about the utility of g-theory for addressing a variety of common research questions and to demonstrate the application of a simple g-theory analytic tool (written in the R programming language) across different study designs and domains to address these questions. Taken together, we aim to increase the awareness of our colleagues about this important data analytic approach and increase its application beyond educational research to a wider array of important research questions.