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"People can go against the government": risk-based decision making and high school students' concepts of society.

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Summary: Research in mathematics education stresses the importance of content knowledge in solving authentic tasks in statistics and in risk-based decision making. Existing research supports the claim that students rely on content knowledge and context expertise to make sense of data. In this article, however, I present evidence that the relationship between content knowledge and statistical inference is bidirectional: it is true that students rely on content knowledge to make sense of data, but the converse also holds true. This claim is illustrated and supported by a case study of Grade 11 students (19 girls and 4 boys) as they determine the risk of nuclear power plant accidents. I present a conceptual model of society that emerges from the case study as students struggle to operationalize the concept of impact of nuclear power plant accidents. Findings suggest that the relationship between content knowledge and mathematical knowledge is complex. Finally, this research shows how authentic tasks in the mathematics classroom can be used to foster students' sense of citizenship.

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