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A case study of an expert problem poser for mathematics competitions.

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Summary: This paper is concerned with organizational principles of a pool of familiar problems of expert problem posers and the ways by which they are utilized for creating new problems. The presented case of Leo is part of a multiple-case study with expert problem posers for mathematics competitions. We present and inductively analyze the data collected in a reflective interview and in a clinical task-based interview with Leo. In the first interview, Leo was asked to share with us the stories behind some problems posed by him in the past. In the second interview, he was asked to pose a new competition problem in a thinking-aloud mode. We found that Leo’s pool of familiar problems is organized in classes according to certain nesting ideas. Furthermore, these nesting ideas serve him in posing problems that, ideally, are perceived by Leo as novel and surprising not only to potential solvers, but also to himself. Because of the lack of empirical research on experts in mathematical problem posing, the findings are discussed in light of research on experts in problem solving and on novices in mathematical problem posing.

Classification: D50 B60

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