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Title

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 44(44)

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Publication Date

2022

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How robust and persistent are intuitive conceptions? Insights from production tasks

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Abstract

Intuitive conceptions are prevalent among young learners and can impose constraints to knowledge acquisition. Even though the data suggests that instruction does not eradicate them, this phenomenon has rarely been quantified. In this study we raise the question of how robust intuitive conceptions are. Moreover, we look at their persistence long after instruction of the studied notions. Production tasks concerning the four elementary arithmetic operations were used for measuring the degree to which they prevail and impose constraints among adults, 131 bachelor students as well as 168 high-school teachers and 57 mathematics teachers. The findings revealed that in most cases (88.93%) participants evoked examples that are congruent with an intuitive conception. This was observed for all the arithmetic operations and populations involved in the study. Even when explicitly prompted to find incongruent cases, they failed on two thirds of the cases. The educational entailments of these findings are discussed.

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