Abstract

When scaling up or down two-dimensional geometric figures, students tend to believe that if the lengths are doubled, the area is doubled as well. Although a lot of effort has been made to study and overcome this illusion of linearity, previous research reports that the illusion often remains after teaching. We add to this research by studying students' experiences of the relationship between change in length and change in area when enlarging or reducing two-dimensional geometric figures, identified in a learning study aimed at finding powerful ways of teaching scale to 14-year-old students. The aim of this study is to contribute to a deeper understanding of students' experiences of the relationship and how it can be taught. Teaching the change in length and the change in area simultaneously was found to be one key to students' learning.

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