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Rational errors in learning fractions among 5th-grade students

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Abstract. Our paper focuses on empirical research in which we map out the errors in learning fractions. Errors are often logically consistent and rule-based rather than being random. When people face solving an unfamiliar problem, they usually construct rules or strategies in order to solve it (Van Lehn, 1983). These strategies tend to be systematic, often make 'sense' to the people who created them but often lead to incorrect solutions (Ben-Zeev, 1996). These mistakes were named rational errors by Ben-Zeev (1996). The research aims to show that when learning fractions, students produce such errors, identified in the literature, and that students who make these kinds of mistakes achieve low results in mathematics tests. The research was done among 5th-grade students.

Key words and phrases: rational errors, learning fractions, operations with fractions, interpretation of fractions.

MSC Subject Classification: 97C10; 97C30; 97C70; 97D60; 97D70; 97F50.

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