PROSPECTIVE ELEMENTARY TEACHERS' STRATEGIES WHEN SOLVING MISSING NUMBER SENTENCES

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Research has shown the importance of prospective elementary teachers (PTs) developing relational thinking to be prepared to promote this type of students' thinking in their future practices (Magiera et al., 2011). Taking this into consideration, in this study we seek to identify the strategies used by PTs when solving missing number sentences aimed at mobilizing relational thinking (Molina et al., 2009). The participants were 94 (35 male and 59 female) Spanish PTs who attended the 1st year of a degree in elementary education teaching at a public university. In the analysis we considered a relational thinking framework concerning: (1) relational strategies, when PTs attended to the numbers' characteristics and used arithmetic properties (e.g. properties of operations, compensation, and composition or decomposition); and (2) non-relational strategies, when PTs used arithmetic or algebraic procedures not based on the previous properties and numbers' characteristics.

The results show that the PTs used preferentially non-relational strategies, most of them based on arithmetic calculations (in about 50% of the answers) and others consisting on solving algebraic equations (13%). In turn, only 22% of PTs' answers evidenced relational strategies. In the remaining cases, the PTs used incorrect procedures or computations (9%) or did not justify their answer (5%).

Although no conclusive claims can be made about these PTs' relational thinking, it is evident that they mainly adopt mechanical procedures that lead to correct answers but are less efficient than relational strategies. Making a diagnosis of these situations may constitute a point of reflection on the PTs' relational thinking to design interventions in teacher education courses that support them to further develop this type of thinking, and to understand its importance when teaching mathematics to their future students.

References

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