

Proof Based Teaching for Elementary Education

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Abstract

Proof is the one of most essential parts of teaching, particularly in mathematics subject, enable students better understanding of matters. Although there is a growing interest in proof based teaching and relevant reseaches for high level education, there is a gap in proof based studies which focus on elementary education. This study aims to explore implications of studies and case studies which focused on proof based teaching for children. The paper utilized document analysis methodology. A comprehensive literature review was carried out followed by analyzing different documents, reports, and case studies. Although there is a common perception as proof would be too complicated, formal and rigorous for children, the results of the study clearly showed that proof based teaching plays a key role in improvement of analytical thinking and aritmtical capability of children. It has also potential to enhance academic success by ensuring understanding through proving, development of relational understanding, handling difficulties on moving from arithmetic to algebra, better understanding of mathematical concepts. It was also concluded that proofs are appropriate for children if they are introduced in a proper way and level. Learning by reasoning, justifying and convincing have several benefits for children to be more keen on mathematics.

Keywords: children, elementary education, mathematics, proof, teaching