ISSN 0975-1122
International Journal of
EDUCATIONAL SCIENCES

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Int J Edu Sci, 17(1-3): 224-237 (2017)
DOI: 10.31901/24566322.2017/17.1-3.27

Using Questionnaires in the Learning of Congruency of Triangles to Incite Formal and Informal Reasoning

Deonarain Brijlall

Department of Mathematics, Durban University of Technology, South Africa
E-mail: deonarainb@dut.ac.za

KEYWORDS Transformation Geometry. Euclidean Geometry. Activity Design. Formal Reasoning. Informal Reasoning. Pedagogical Content Knowledge

ABSTRACT This qualitative study examined the influence learning material design has on the learning of geometry in the middle school curriculum. The middle school mathematics learners (n =82) involved were from two South African rural schools in the province of KwaZulu-Natal. The research was conceptualised in terms of Vygotsky's educational theory and the process of scaffolding. Researchers from a South African university designed questionnaires based on scaffolding guidelines suggested by Zhao and Orey. The questionnaires comprised of a series of geometry tasks which spanned two weeks. These questionnaires were administered to the learners and their written responses were analyzed. After analysis of these responses interviews were carried out to verify or refute the views of the researcher. Data yielded by these research instruments confirmed certain assumptions and literature claims. The study revealed that the intervention design effectively managed to integrate the two types of geometries to strengthen the concept of congruency of triangles. Many recommendations, for the teaching of congruency of triangles, emanated from the findings.