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LEARNING OF MATHEMATICS AND LANGUAGE BARRIERS: UNDERSTANDING BASIS FOR SUSTAINABLE LEARNING

Abstract:

In this paper I show how the understanding of mathematical conceptualisation from the lowest levels to the higher order cognitive functioning is based on fluency in a language of teaching and learning. The argument I pursue is informed by many theories of learning which emphasise the importance of language as the symbolic order through which meaning is created, coded, disseminated, decoded and understood. Language also enables the learner of whatever subject to be able to make the otherwise concrete world to be portable and ideational. In fact knowledge consists of concrete material objects represented in abstract form of ideas thus understood to be knowledge. Informed by this theorisation I report in this paper on how learners of mathematics in some 51 schools in South Africa examined on the English language at grades 10 to 12 showed correlating performance in mathematical conceptualisation in terms of manipulative procedures, logical reasoning, problem-solving, number and function concept. The conclusion and recommendation I come to is that for high order cognitive functioning in mathematics to occur, there has to be concerted efforts to create sustainable learning environments in and through the language of teaching and learning. The paper comes to an end with a discussion of how such learning environments can be creating based on findings from related research contexts.

Keywords:

sustainable learning environments, mathematical conceptualisation, language in learning manipulative procedures, logical reasoning, problem-solving, number and function concept,

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