

How does the Use of Mathematical Symbols Influence Understanding of Mathematical Concepts by Secondary School Students?

By

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Abstract

If students understand and properly communicate using math symbols and notation, their achievement in math might improve (Rubenstein & Thompson, 2001). This study investigated how the use of mathematical symbols influences understanding of math concepts by secondary school students in Shurugwi District (Zimbabwe). Convenience sampling (for the district), simple random sampling (for the schools), judgemental sampling (for the teachers) and stratified random sampling with proportional allocation (for the students) were used. The sample included six schools, 120 "O" level students, 27 "A" level students and 7 teachers of those students. The "O" level students completed questionnaires and were interviewed as a group at each of the 6 selected schools. "A" level students wrote a diagnostic test and were later interviewed as a group while the teachers were individually interviewed. It was found that most students fail to understand or interpret the meaning of math symbols due to the way they are taught to read, pronounce and use them. This misuse (and also abuse) of symbols may considerably hinder formation, understanding and communication of concepts and might affect achievement; the final outcome desired. Teachers are therefore sensitized on appropriate strategies to take to overcome students' difficulties on the use of symbols. The strategies include informed choice of the main classroom textbook to use, integration of math with other subjects and a firmer grasp of the subject matter and its pedagogy.

Keywords: *Symbols, symbolism, notation, misuse, abuse, influence, maths concepts*