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TEACHERS' USE OF EXAMPLES TO PROMOTE MATHEMATICAL PROFICIENCY IN STATISTICS

A Research Report submitted in partial fulfilment of the requirements for the degree of Master of Education

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ABSTRACT

Examples are a prevalent and a powerful tool used in the teaching and learning of Mathematics. In statistics, where data sets used are normally extracted from real life situations, the use of examples is indispensable. This study examines what examples are used and how teachers use them to promote (or fail to) mathematical proficiency in statistics as the outcome of the learning process. Variation theory is employed through the patterns of variation to assess whether the use of examples leads to learning. To ascertain that the use of examples results in the attainment of mathematical proficiency, the strands of mathematical proficiency by Kilpatrick, Swafford and Findell, (2001), are incorporated in the theoretical framework. This study involves observing lessons interactions between Grade 10 teachers and learners, and interviewing teachers after observing the lessons at a school in Johannesburg. An analytical framework derived from variation theory and strands of mathematical proficiency is then used as an assessment tool. Findings show that in and of themselves examples do not necessarily help to achieve the intended object of learning nor mathematical proficiency. More poignant, whatever the teacher's intention to convey the object of learning through the use of examples, and no matter how the teacher enacts it, learners could still fail to grasp the lived object of learning and attain mathematical proficiency.