# The Nature of Multiplication Constructs, Representations, and Strategies in the South African and Australian Curriculum

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The curriculum serves as a support tool and guiding framework to teachers on possible ways to sequence mathematics concepts (Makgato & Ramaligela, 2012) as well as certain values and education pedagogies. Research on the curriculum of different countries is important as it develops an understanding of the mathematics concepts and what needs to be taught (Makgato & Ramaligela, 2012). This paper was led by the research question:

- What is the nature of multiplication constructs, representations, and strategies in the South African and Australian curriculum?

This paper takes the form of a document analysis of the Australian curriculum and the South African curriculum. The aim of the paper is to examine the nature of the multiplication constructs, representations, and strategies in both curriculums using the Charalambous, Delaney, Hsu and Mesa (2010) analytical framework. For this paper, I focused on 3 aspects on the analytical framework namely the constructs, the representation, and the strategies for the data analysis process. These three categories have clear links in the South African and Australian curriculum. In the theoretical framework by Charalambous, Delaney, Hsu and Mesa (2010) the term multiplication *construct* refers to addition, equal groups, arrays, scaling/comparisons, counting, cartesian product then there are multiplication problems without a construct. The *representation* of a multiplication problem can either be in the form of equal groups, linear equations, arrays, numberlines, multiplication tables, counting, bar/scaling, 10x10 tables, cartesian product. There was also a category with no representation. The theoretical framework suggests that the following *strategies* can be used in multiplication namely, commutativity, multiplication tables, multiplication by 1 and 0, counting, adding/subtracting, distributivity, doubling, bar-models, modelling/ concretization/ drawings, metacognition, estimation, mnemonics, and associativity.

The findings suggest that the dominant constructs such as counting, equal groups, and arrays are in both the South African and the Australian curricula. Counting, equal groups and numberlines are the common mode of representation in multiplication and modelling, concretisation, drawing is the dominant strategy used in both South African and Australian curriculum. Notably, the South African curriculum is more prescriptive. For example, it provides teachers with many clarification notes on how to implement the curriculum. Whereas the Australian curriculum is less explicit and provides room for teachers to used their pedagogical content knowledge.

## References

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