Writing units or decades first in two digit numbers dictation tasks: The case of Arabic—an inverted writing system

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This study investigated the effect of educational level and of the syntactic representation of numbers in Arabic writing system on the task of transcoding two-digit numbers from dictation (writing verbal number word into digits). The participants were primary, junior-high, and high school pupils and higher education students. All spoke Arabic as a mother tongue. They performed a transcoding task, namely writing two-digit numbers from dictation. Units first writing patterns-writing units first and then decades and decades first writing patterns- writing decades first and then units were collected depending on the differential syntactic structures of the two-digit number dictated (decades first: whole tens-e.g. 30, 40; units first: teen numbers-e.g. 16, 18; identical units and decades-e.g. 33, 44, remaining two-digit numbers-e.g. 23, 58). The findings reveal that in general, Arabic speakers adopt a decades-first writing pattern for two-digit numbers in the Arabic writing system, especially when it is consistent with the syntactic structure of two-digit numbers, as in whole-tens numbers. This decade first writing pattern is more evident and consistent in junior-high school, high school, and higher education than in primary school due to the improvement in mathematical skills and second and third languages. However, this pattern is modulated by the syntactic complexity of the unit–decade structure. This complexity is more pronounced in two-digit numbers whose processing is more dependent on numerical syntax. Thus, whole-tens numbers, teen numbers, and identical-decade–unit numbers are less complex than the remaining two-digit numbers. The findings of the current study stress in the Arabic writing system the contribution of text writing direction (right to left) and mathematical writing direction (left to right) to the writing of two-digit numbers to dictation in Arabic.

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