

ZMATH 2016b.00210

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Mathematics in the hands of deaf learners and blind learners: visual-gestural-somatic means of doing and expressing mathematics.

Barwell, Richard (ed.) et al., Mathematics education and language diversity. The 21st ICMI study. Cham: Springer (ISBN 978-3-319-14510-5/hbk; 978-3-319-14511-2/ebook). New ICMI Study Series, 141-162 (2016).

Summary: In this chapter, we consider the language resources of learners who are deaf or blind and describe how these resources mediate their experiences of mathematics. We begin by summarizing how visual-gestural-somatic expressions, as compared to spoken and written language forms, have been devalued or even, in the case of the signed languages of the deaf, excluded from educational policies and instruction. Drawing from Vygotsky's work and from embodied cognition, we explore the challenge of understanding the mathematical practices of students whose access to the world differs from the dominant norm. Using examples from Mexico and Brazil, we describe how visual-gestural-somatic language resources both enable and shape the mathematical practices of deaf learners and blind learners, bringing a dynamism to their mathematical discourse which reflects the particular ways in which they express and feel mathematics.

Classification: C50 C40 E40

Keywords: deaf learners; blind learners; language; gesture; visual-gestural-somatic expressions; mathematical practices

doi:10.1007/978-3-319-14511-2_8