

## The Development of Local-Global Perceptual Bias across Cultures: Examining the Effects of Gender, Education, and Urbanisation

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**Abstract :** Local-global bias in adulthood is strongly dependent on environmental factors and a global bias is not the universal characteristic of adult perception it was once thought to be: whilst Western adults typically demonstrate a global bias, Namibian adults living in traditional villages possess a strong local bias. Furthermore, environmental effects on local-global bias have been shown to be highly gender-specific; whereas urbanisation promoted a global bias in urbanised Namibian women but not men, education promoted a global bias in urbanised Namibian men but not women. Adult populations, however, provide only a snapshot of the gene-environment interactions which shape perceptual bias. Yet, to date, there has been little work on the development of local-global bias across environmental settings. In the current study, local-global bias was assessed using a similarity-matching task with Navon figures in children aged between 4 and 15 years from across three populations: traditional Namibians, urban Namibians, and urban British. For the two Namibian groups, measures of urbanisation and education were obtained. Data were subjected to both between-group and within-group analyses. Between-group analyses compared developmental trajectories across population and gender. These analyses revealed a global bias from even as early as 4 in the British sample, and showed that the developmental onset of a global bias is not fixed. Urbanised Namibian children ultimately developed a global bias that was indistinguishable from British children; however, a global bias did not emerge until much later in development. For all populations, the greatest developmental effects were observed directly following the onset of formal education. No overall gender effects were observed; however, there was a significant gender by age interaction which was difficult to reconcile with existing biological-level accounts of gender differences in the development of local-global bias. Within-group analyses compared the effects of urbanisation and education on local-global bias for traditional and urban Namibian boys and girls separately. For both traditional and urban boys, education mediated all effects of age and urbanisation; however, this was not the case for girls. Traditional Namibian girls retained a local bias regardless of age, education, or urbanisation, and in urbanised girls, the development of a global bias was not attributable to any one factor specifically. These results are broadly consistent with aforementioned findings that education promoted a global bias in urbanised Namibian men but not women. The development of local-global bias does not follow a fixed trajectory but is subject to environmental control. Understanding how variability in the development of local-global bias might arise, particularly in the context of gender, may have far-reaching implications. For example, a number of educationally important cognitive functions (e.g., spatial ability) are known to show consistent gender differences in childhood and local-global bias may mediate some of these effects. With education becoming an increasingly prevalent force across much of the developing world it will be important to understand the processes that underpin its effects and their implications.

**Keywords :** cross-cultural, development, education, gender, local-global bias, perception, urbanisation, urbanization

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