Cognition 122 (2012) 80–85

Contents lists available at SciVerse ScienceDirect

Cognition

journal homepage: www.elsevier.com/locate/COGNIT

Brief article

Exposure to an urban environment alters the local bias of a remote culture

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ARTICLE INFO

Article history:
Received 17 January 2011
Revised 5 August 2011
Accepted 20 August 2011
Available online 29 September 2011

Keywords:
Visual perception
Cross-cultural differences
Environmental effects
Perceptual style
Social organization

ABSTRACT

There is substantial evidence that populations in the Western world exhibit a local bias compared to East Asian populations that is widely ascribed to a difference between individualistic and collectivist societies. However, we report that traditional Himba – a remote interdependent society – exhibit a strong local bias compared to both Japanese and British participants in the Ebbinghaus illusion and in a similarity-matching task with hierarchical figures. Critically, we measured the effect of exposure to an urban environment on local bias in the Himba. Even a brief exposure to an urban environment caused a shift in processing style: the local bias was reduced in traditional Himba who had visited a local town and even more reduced in urbanised Himba who had moved to that town on a permanent basis. We therefore propose that exposure to an urban environment contributes to the global bias found in Western and Japanese populations.

1. Introduction

There is a substantial history of demonstrations showing cultural differences in the processing of information in visual displays (e.g., Davidoff, Fonteneau, & Fagot, 2008; Deregowski, 1989; Miyamoto, Nisbett, & Masuda, 2006; Rivers, 1905; Segall, Campbell, & Herskovits, 1966). In recent research, particular interest has been shown in the discovery that Japanese observers show more global (holistic) than local (analytic) perceptual precedence compared to Westerners (Nisbett, Peng, Choi, & Norenzayan, 2001; Miyamoto et al., 2006; Doherty, Tsuji, & Phillips, 2008). One explanatory account for these findings attributes the more global processing found in the Japanese to the greater clutter of their visual environment and the consequent demands made on visual scene parsing (Miyamoto et al., 2006). A second, and more popular, account (Kühnen & Oyserman, 2002; Markus & Kitayama, 1991; Nisbett et al., 2001; Uskul, Kitayama, & Nisbett, 2008; Varnum, Grossmann, Kitayama, & Nisbett, 2010) suggests that differences in social organisation (individualistic vs. collectivist) promote profound variations in the ways information is integrated within scenes/displays. Indeed, Nisbett (2007) and Uskul et al. (2008) have argued that the influence of social organisation on local/global processing is not specific to the contrast between Westerners and Japanese but also applies to contrasts between other groups where there is a relevant distinction between individualism and collectivism (e.g., that found between capitalist and communist countries, between North and South Italy, between herders and farmers/fishermen).

The present study examines visual processing in a remote people, the Himba of Northern Namibia. Their society is structured around large family compounds and social position is allocated rather than achieved; such society promotes interdependent, rather than independent, behaviours (Gluckman, 1965). Thus, according to the 'social-organisation' account, the Himba society ought to promote global processing similar to the Japanese. However, our previous findings (Davidoff, Fonteneau, & Fagot, 2008; De Fockert, Davidoff, Fagot, Parron, & Goldstein, 2007; Roberson, Davidoff, & Shapiro, 2002) have shown that the Himba do not conform to the latter account as they show more local processing than Westerners. In contrast, as the Himba visual environment is distinctly non-urban,

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doi:10.1016/j.cognition.2011.08.013

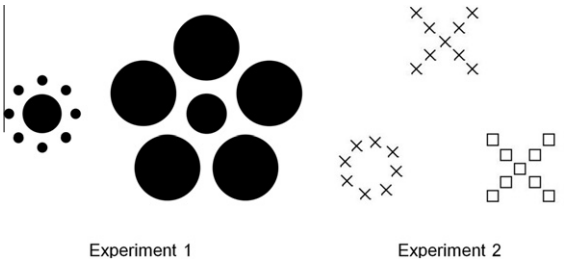

Fig. 1. Examples of stimuli used in Experiments 1 and 2. Experiment 1: the target circle surrounded by large inducers (on the right) measures 103.5% of the size of the target circle surrounded by small inducers (on the left). Experiment 2: the left comparison figure matches the local shapes of the top target figure and the right comparison figure matches the global shape of the top target figure.

the 'visual-clutter' account would suggest that the Himba should show even more local processing than a Western population. Here we assess the visual-clutter account by examining whether exposure to an urban environment can make the Himba process visual information less locally.

It is possible to examine whether visual environment influences visual processing in the Himba by conducting a naturalistic experiment. Opuwo, the only permanent settlement nearby the Himba, provides an urban environment for its 12,000 inhabitants (www.opuwo.org). Some of its inhabitants are Himba who have spent their early life in a traditional village before moving to Opuwo on a permanent basis in early adulthood. In our study, these urbanised Himba were compared to traditional Himba, urban British, and urban Japanese on their performance at two tasks that index global/local processing preferences, namely, (1) the Ebbinghaus illusion (an illusion of size which is generated by contrast between surrounding irrelevant stimuli),[1] and (2) a global/local similarity-matching task with hierarchical figures (see Fig. 1). We used both these tasks because, although they have both previously revealed global/local differences between Himba and Western observers (Davidoff, Fonteneau, & Fagot, 2008; De Fockert et al., 2007), they are rather different in terms of their task demands and so may be differentially sensitive to the factors underpinning cultural effects.

Using the Ebbinghaus illusion (Experiment 1) and similarity-matching task (Experiment 2), we investigated whether the urbanised Himba would maintain their local processing bias or whether living in an urban environment would cause them to process more globally like British and Japanese observers. In addition, we investigated the degree of exposure to an urban environment required to affect the local bias in traditional Himba, by recording the change in their local bias as a function of their number of visits to Opuwo. In the absence of reliable data concerning the duration of exposure to an urban environment, we deemed number of visits to be a good objective measure of exposure. Indeed, number of exposures rather than duration of exposure is perhaps more likely to have an impact (Cain & Willey, 1939). The majority of the traditional Himba that we tested had visited Opuwo between 0 and 3 times for reasons most often related to health and family matters rather than out of individual choice. In sum, this study tested the hypothesis that the local bias in traditional Himba would decrease with increasing exposure to an urban environment.

2. Experiment 1

Experiment 1 employed the Ebbinghaus illusion (Titchener's circles) that has been shown to be stronger in Japanese than Western observers (Doherty et al., 2008) and stronger in Western than Himba observers (De Fockert et al., 2007). In this illusion (Fig. 1, left), the perceived size of a central target object is affected by the size of surrounding inducers. We compared the illusion across Western and Japanese groups, and groups of Himba who have had varying degrees of contact with an urban environment.

2.1. Method

2.1.1. Participants

Four populations were tested: (1) 63 Japanese (31 females, mean age 20 years, range 18–23), (2) 62 British (35 females, mean age 24 years, range 18–37), (3) 70 urbanised Himba (31 females, mean estimated age 27 years, range 17–46) and, (4) 241 traditional Himba (107 females, mean estimated age 27 years, range 16–45). The traditional Himba were separated into four subgroups: those who had been to Opuwo once (82 individuals), twice (63 individuals), three times or more (62 individuals), or those who had never been to Opuwo (34 individuals). All these groups had a mean estimated age of 27 years (range 16–45) except the group of those who had never been to Opuwo who had a mean estimated age of 25 years (range 16–45).

All traditional Himba tested were monolinguals (in Otjiherero) and had had little contact with Western artefacts. The urbanised Himba had grown up in a traditional Himba village with traditional Himba parents and had moved to Opuwo at an average age of 21 years, range 9–36 (they had been living in Opuwo for an average of 6 years). None of the Himba had ever been involved in experimental research. Twenty-seven of the urbanised Himba could speak some English. The British and Japanese participants were undergraduate native speakers from, respectively, Goldsmiths University of London and Kyoto University. Participants were paid, received course credits or, for the Himba, were rewarded in kind.

2.1.2. Stimuli

The stimuli (Fig. 1, left) were similar to those used by De Fockert et al. (2007). On each trial, two target circles were presented along the horizontal midline of the display, at equal distance (4.2° of visual angle) from its centre. The two targets were surrounded by inducers, one target (mea-

[1] The Ebbinghaus illusion is generated by the processing of surrounding or contextual stimuli, and it has been known for more than a century that remote peoples from all over the world are less sensitive to such illusions (Segall et al., 1966; Rivers, 1905). In contrast, remote peoples are just as sensitive as Western observers to non-contextual illusions, such as the horizontal-vertical illusion (Segall et al., 1966); indeed, we have replicated this in unpublished findings with the Himba.