The effects of a culturally gender-specifying peripheral cue (headscarf) on the categorization of faces by gender

Ahmed M. Megreya

Department of Psychological Sciences, College of Education, Qatar University, P.O. 2713, Qatar

ARTICLE INFO

ABSTRACT

Faces convey a wealth of cues that influence social categorizations and subsequent cognition and behavior. This study examined the effects of wearing a headscarf on face categorization by gender using Egyptian observers who have an extensive exposure with headscarf-framed female faces. A typical headscarf (worn by females) enhanced perceived femininity whereas an atypical headscarf (worn by males) reduced perceived masculinity. Regardless of whether the faces were presented briefly, or until participants responded, the typical headscarf had no effect on categorizing female faces but the atypical headscarf greatly slowed down categorizing male faces. However, a typical headscarf advantage was noticed when the atypical headscarf condition was removed. In addition, both typical and atypical headscarf effects were greatly strengthened when faces were presented as negatives. These data provide support to the dynamic continuity account of social categorization that suggests a competition among multiple simultaneous representations until a construal is stabilized.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

Human faces provide considerable information on several domains including identity (e.g., Burton, Wilson, Cowan & Bruce, 1999), race (Cosmides, Tooby, & Kurzban, 2003), gender (Silvia & Luigi, 2012), estimated age (Rhodes, 2009), emotions (Ekman, 1993), physical health (Kramer & Ward, 2010), intelligence (Moore, Filippou, & Perrett, 2011), attentional focus (Langton, Watt, & Bruce, 2000), personality traits (Kramer & Ward, 2010), trustworthiness (Stirrat & Perrett, 2010), deception (Frank & Ekman, 1997), criminality (Valla, Ceci, & Williams, 2011), aggressive behavior (Carré, McCormick, & Mondloch, 2009), and sexual orientation (Rule, Ambady, & Hallett, 2009). Therefore, faces can be automatically used to extract many social categories that influence subsequent cognition (Brewer & Feinstein, 1999) and behavior (Bargh, Chen, & Burrows, 1996).

The experiments reported here focus on one type of facial information, gender, that helps people to extract an important social category robustly (Bruce et al., 1993) and automatically (Silvia & Luigi, 2012). In fact, there are large physiognomic differences between female and male faces. For example, some features signal femininity (i.e., larger eyes and smaller nose; Burton, Bruce, & Dench, 1993) while others convey masculinity (i.e., a smaller distance between brows and eyelid; Campbell, Benson,

Wallace, Doesbergh, & Coleman, 1999). In addition to these biological dimorphisms, a variety of culturally gender-specifying cues could enhance gender categorization such as maintaining longer hair. For example, hair was found to provide a strongly reliable cue for gender categorization (Brown & Perrett, 1993; Burton et al., 1993; Goshen-Gottstein & Ganel, 2000), and hair cues "alone" could be sufficient to spontaneously trigger gender category (Freeman, Ambady, Rule, & Johnson, 2008; Macrae & Martin, 2007).

Using a semantic priming paradigm, Macrae and Martin (2007) found that long hair triggered access to female knowledge while short hair primed the contents of generic beliefs about males. However, when hair cues conflicted with face gender (short haired females and long haired males), Macrae and Martin (2007) reported a reversed-priming effect; short haired females triggered access to knowledge about men, while long haired males triggered access to knowledge about women. Importantly, these reversed-priming effects disappeared and the veridical gender categorical responses were returned when sufficient times are available to extract additional gender-specifying information from the face. Therefore, the results of Macrae and Martin (2007) provide support to the discrete-based account of cognition proposing that neurocognitive systems activate static and non-overlapping symbolic representations one at a time during the processing stream (e.g., see Dietrich & Markman, 2003).

In contrast, Freeman et al. (2008) proposed a dynamic continuity account of gender categorization postulating that multiple simultaneously

and partially active representations continuously cascade into social categorical judgments. Freeman et al. (2008) tracked online hand movements while observers categorized gender from real and computer-generated faces, which were either typical for their gender (long haired women and short haired men) or atypical (short haired women and long haired men). Although the categorization of atypical faces was highly accurate, online motor outputs exhibited continuous spatial attractions toward the opposite gender category. Accordingly, Freeman et al. (2008) suggested that the representations of both gender categories were partially and simultaneously active while observers categorized faces by gender.

In Egypt, the vast majority of females wear headscarves, which completely cover their hair. Thus, a headscarf could be used as culturally typical and atypical gender-specifying cues if it is worn by females and males; respectively. The present study is sought to examine the effects of those typical and atypical headscarf cues on face categorization by gender. The discrete-based account (Macrae & Martin, 2007) may predict that an atypical headscarf should reduce the accuracy *and* the speed of categorization, while the dynamic continuity account (Freeman et al., 2008) predicts that it should *only* reduce the speed of categorization.

Megreya and Bindemann (2009) found that the mechanisms of unfamiliar face processing are changed in the Egyptian population, and these changes were intuitively attributed to the long-term experiences of Egyptians in recognizing and individuating headscarf-framed female faces. This headscarf effect was confirmed using rather different *identity*-based face processing tasks including eye-witness identification (Megreya, Memon, & Havard, 2012), eye-tracking (Toseeb, Bryant, & Keeble, 2014), and part–whole paradigm (Wang et al., 2015).

Nevertheless, a well-established face recognition model (Bruce & Young, 1986) posited that identity and gender are represented through independent face processing routes. Namely, Bruce and Young (1986) proposed that gender is processed much earlier through the structural encoding of particular facial features, while identity is processed later through matching these structurally encoded features to the previously stored face recognition units. Consistently, a large body of research in behavioral, neuropsychological, and functional neuroanatomical literature supported this gender–identity dissociation (Sergent, Ohta, & MacDonald, 1992; Tranel, Damasio, & Damasio, 1988). Therefore, it is interesting to examine how the experiences with headscarf-framed female faces influence face categorization by gender in the Egyptian population.

The present study reports five experiments designed to examine the hypothesis that typical headscarf cues might enhance perceived femininity while atypical headscarf cues might dynamically compete with perceived masculinity. Experiment 1 utilized a femininity/masculinity rating task using Egyptian female and male faces with or without a headscarf. Experiments 2 through 4 used a variety of tasks demanding face categorization by gender when the faces were presented either briefly or until participants responded. Finally, Experiment 5 utilized a similar categorization task but all face photographs were presented as negative images.

2. Experiment 1

The aim of this experiment was two-fold. As previous research demonstrated, the levels of perceived femininity and masculinity mediate face categorization by gender (e.g., O'Toole, Peterson, & Deffenbacher, 1996). Therefore, this experiment was designed to examine whether

Fig. 1. Examples of Egyptian female and male faces with or without a headscarf.