Face Perception: the separate effects of stimulation and observer

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Faces provide crucial information about other people age, gender, ethnicity and emotional state enabling successful social interaction. Hence, face perception is a very important survival skill. Two types of factors can reduce face perception, those concerning stimuli characteristics and those related to the observer. Certain stimuli present a challenge for face perception, such as faces from different race/gender/age group, faces not well visible, partially covered or distorted. Certain people have a cognitive deficit, in its extreme form known as prosopagnosia, which reduces recognition based on face perception.

We tested stimuli factors potentially critical for face perception using Cambridge Memory Test for Faces. Our Caucasian participants (45 Psychology students, age 22-24, 18 males) observed unknown faces, from three racial samples, either on original or impaired photographs. Two factor ANOVA confirmed better performance for own race faces ($F_{1,2} = 32.37$, $p < 0.000$) and significantly decreased performance for impaired photographs ($F_{1,2} = 447.89$, $p<0.0001$). As expected, participants were significantly better with unimpaired photographs of own-race-faces (interaction: $F_{1,2} = 57.81$, $p < 0.0001$). However, our study revealed a group of people underperforming even in these most favorable conditions.

Therefore, we started scanning for prosopagnosia among students of Psychology. In the Pilot study we collected from Internet a large set of photographs of famous people (100) and presented them to 30 Psychology students. Only faces that were recognized by more than 80% of participants were used in the main experiment (i.e. 40 photographs: 20 domestic/20 international celebrities, 20 males/20 females, 20 profile/20 front, 20 in full color/20 black & white). We tested 341 first year students (age 18 to 23, 64 males). Results suggest extremely good face recognition in the majority of participants (AS = 32.31). However, we found 3% of participants that could recognize less than four faces. This finding is similar to the prevalence rate for prosopagnosia as in other countries (2.47%).