

## Faces that distract from actions



### Faces displaying emotions change the course of our actions

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The sudden appearance of a face within our visual field can affect the motor action accompanying a gesture even if the face is totally unrelated to what we are doing and even if we try to ignore it. At one condition, though: the face must display an emotionally significant expression. A study conducted by scientists of the International School for Advanced Studies (SISSA) in Trieste, and just published in *Psychonomic Bulletin & Review*, describes the phenomenon in detail.

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Many are the things that can influence our actions at the motor level. Among them, a particularly effective one identified by a new study conducted at SISSA seems to be seeing a face displaying an emotionally significant expression just as we are doing the action. This type of stimulus modifies the trajectories of our motor actions, even when it completely unrelated to the content of the action, and the effect remains even when we try to ignore it. According to a study carried out by Elisabetta Ambron and Francesco Foroni, research scientists at SISSA, what counts in this



case is the expression displayed by the face: "with emotionally neutral faces the distracting effect is not seen", explains Ambron.

The types of actions studied by Ambron and Foroni are the "reaching" movements performed by our hand, for example, when we want to pick something up or point at an object. This is a very important class of movements, that take place at arm's length and are crucial for survival. "Many studies have evaluated what might interfere with these them, for example emotions or other cognitive aspects, but ours is the first to look at the effect of stimuli that are so evolutionarily important and meaningful for human beings, namely faces".

In everyday situations, our gaze may easily fall upon a smiling or angry face, just as we are carrying out an action. To perceive or ignore this expression can have major consequences. That's why it's plausible that we developed a mechanism involving the motor system. On the other hand, "we are so well-equipped to pick up emotions in other people's faces that our brain just cannot ignore them, even when these cues are irrelevant to the ongoing motor action", comments Ambron.

Ambron and Foroni tested the effect on a tablet screen: while the subjects traced a path from a starting point to a target using the tip of a stylus pen, a face, with either an emotional or "neutral" expression, would suddenly appear in a fixed position on the screen. "Only when the face was emotionally charged, did the path traced by the subject's finger tend to deviate and veer towards the distractor, something that didn't happen with neutral faces or with other control stimuli".

The effect observed has important implications even in everyday life: "try to imagine the consequences it could have on someone driving a car", comments Ambron. "We think this effect can be produced not only by photos of faces – or real faces – but even by schematic drawings of faces, a possibility we intend to investigate in the future. If this were the case, those who design the various types of road signs, for example, would have to take this effect into account", concludes Ambron.

No "gender" effect was found for the faces: males and females are equally distracting. By contrast, there may be a difference related to the emotion being expressed: "happy faces seem to be more effective. However, our study was not designed to discern the effect of the single emotions so we are unable to say anything definitive in this respect – we need further experiments to understand this aspect".

#### USEFUL LINKS:

- Original paper: <http://www.ncbi.nlm.nih.gov/pubmed/25471046>

#### IMAGES:

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