STEM Sims™

Microexpressions

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Do you need an idea for a scientific study?
Try out one of our ideas or make one of your own.

Start right now learning about the basics of how experts use very brief facial expressions to determine the real emotional state of a person. Take the following brief quiz to see how much you already know about microexpressions. See the bottom of page 4 to check your answers.

1. When most people have a true smile, that is a smile that is *not* faked:
    a. their teeth show.
    b. their ears move downward.
    c. the shape of their eyes becomes more rounded.
    d. the corner of their eyes rise.

2. About how many muscles does the human face contain?
    a. 12
    b. 28
    c. 43
    d. 60

3. Which organism is capable of using facial muscles to express emotional states in a manner similar to humans?
    a. tiger
    b. ape
    c. rabbit
    d. none of these (Only humans are capable of expressing emotions using facial muscles.)

4. It takes more muscles for a human to create a frown than to create a smile.
    a. true
    b. false

5. Trained actors can "fool" the current best microexpression face recognition systems into indicating the wrong emotional state for a given facial expression.
    a. true
    b. false

Marvelous feats in Mind Reading.

It's All in the Eyes... Or Is It?

Can you detect the true emotional state of a person? Match the eyes with the correct emotional state.

1.

2.

3.

4.

a. anger

b. sadness

c. happiness

d. surprise

e. disgust
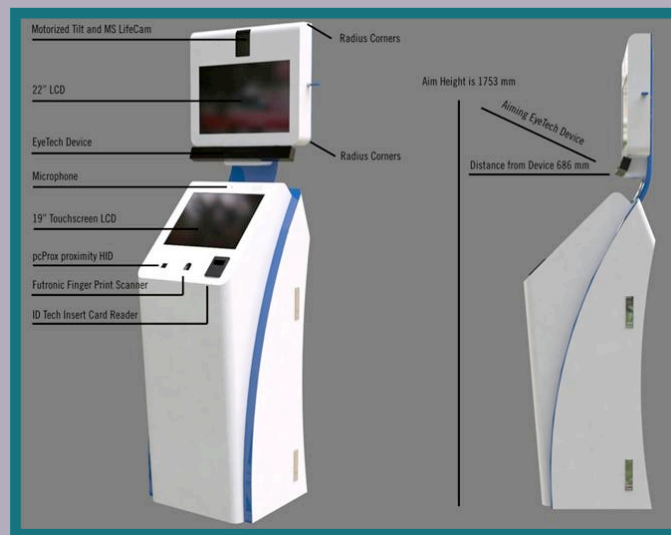
f. neutral

A Mind Reading Machine?

The Department of Homeland Security's National Center for Border Security and Immigration has created a device called the Avatar Kiosk for Rapid Screening and Credibility Assessment. The function of the kiosk is to rapidly screen for deception in a field environment, such as an airport.

The machine's microphone sample voices at a rate of 11,000 times per second to find clues that a person is being deceptive. Two cameras measure over 78 different points around the face to detect microexpressions that indicate less than truthful responses. The cameras record and analyze body language, which can show a person's stress level. The Avatar also measures pupil dilation, blink rate, and eye movement indicating a guilty individual.

To find out more about the Avatar Kiosk go to:

http://www.borders.arizona.edu/research/detection/

Please visit our site for more helpful information:

STEMsims.com

Answers: Page 2 Answers: 1) d. 2) c. 3) b. 4) b. For some people this is true, for others it is not. People smile and frown very differently and therefore use a variety of muscle combinations to accomplish the action. 5) a. **Page 3 Answers:** 1) a. 2) c. 3) a. 4) b.