

Abstract

_____ Everyone can tell if someone is sad or happy right? Well, how do we know they aren't feeling frustrated or surprised? I conducted this experiment because I wanted to see just *how* a person can tell and whether one gender scores higher on an experiment on this topic. I thought that girls might be better at this task than boys.

After the results were totaled up, my hypothesis seemed to be accurate. The female participants scored better than the male participants. Nine fourth graders answered a series of six questions for a total of 54 questions asked. There were five male and four female participants. There were forty-eight correct answers out of 54 - 6 answers were incorrect. This seems to demonstrate that fourth graders have a good ability to recognize facial expressions overall.

After nine questionnaires were handed out, for a total of fifty-four questions answered, there were forty-eight correct answers and six incorrect answers. A variety of correct answers were from the boys, but the rest were all girls. All girls scored 100% on the assessment.

In conclusion, I have learned a lot from this experiment and I've also learned that a lot of things go into conducting a science fair project.

Testable Question

Which Gender is better at recognizing a person's facial expression, and how do they know?

Hypothesis

If girls are better at knowing how someone is feeling by looking at their face, then girls will answer more answers correctly than the opposite gender when they're given a picture and asked what the person is feeling.

Materials

- Informed consent
- Adult volunteer (1)
- Digital camera (Phone works too)
- Printer
- Test subjects (Boys and girls)
- Quiet place for testing
- Table
- Chairs (2)
- Lab Notebook
- Script of instructions
- Graph paper
- Pencils
- Questionnaire

Procedure

To prepare for the project, ask your adult volunteer to pose for pictures of the six basic emotions: Happy, sad, afraid or fearful, angry, surprised and disgusted. To help your volunteer get ready for the facial expressions, ask them to think about situations that make them feel these six different emotions. Once ready to take the pictures, ask him or her to look straight into the camera and only take pictures of their faces. Take a picture for each emotion. Review these photos and make sure you are happy with the results. Next, print out large images of the photos you took on 5" X 7" photo paper. On the back of each image, write the emotion in pencil. Once you have received consent forms from the subjects, start the experiment. Find a quiet place like a library or an empty classroom. Then start setting up the table. Set up two chairs across from each other at the table. Ask your test subjects to sit down in one of the chairs. Tell your subject, "I am doing a science fair project on facial expressions, and I will be showing you six different photos of faces with different expressions on them, and asking you to share about what you think the person is feeling and how you know." In lab notebook, record gender and grade. Now it is time to start testing. Show your subject the first picture. Give them a copy of the questionnaire which asks him or her, "what emotion do you think the person in the picture is showing?" and "what made you think they were feeling this way?" Once done with all six images, tell your subject they are done and thank them for participating. Repeat this process with all subjects using a new questionnaire.

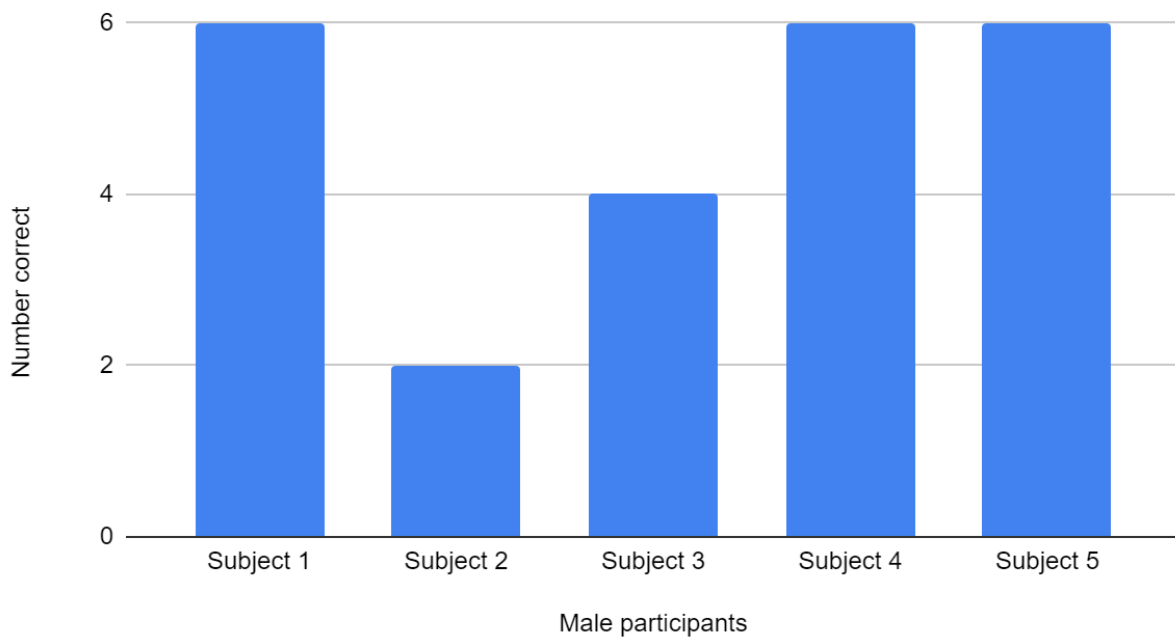
Results

Nine fourth graders answered a series of six questions for a total of 54 questions asked. There were five male and four female participants. There were forty-eight correct answers out of 54 - 6 answers were incorrect. This seems to demonstrate that fourth graders have a good ability to recognize facial expressions overall.

Graph A shows that three male participants (out of five) got 100% of their answers correct.

Graph A

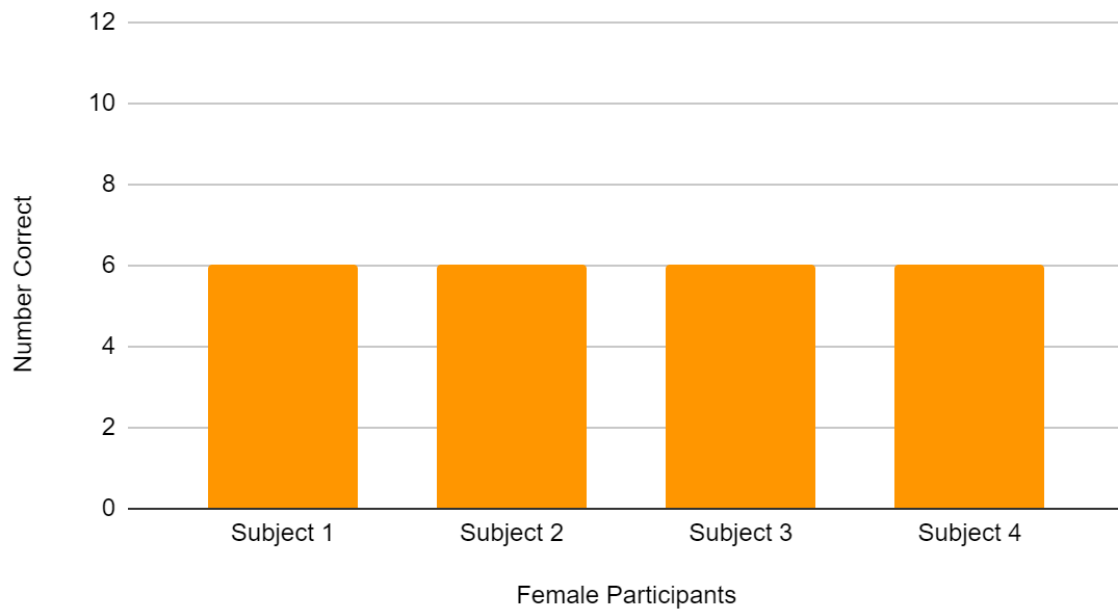
Male Results



Graph B shows that all four female participants got 100% on their assessment.

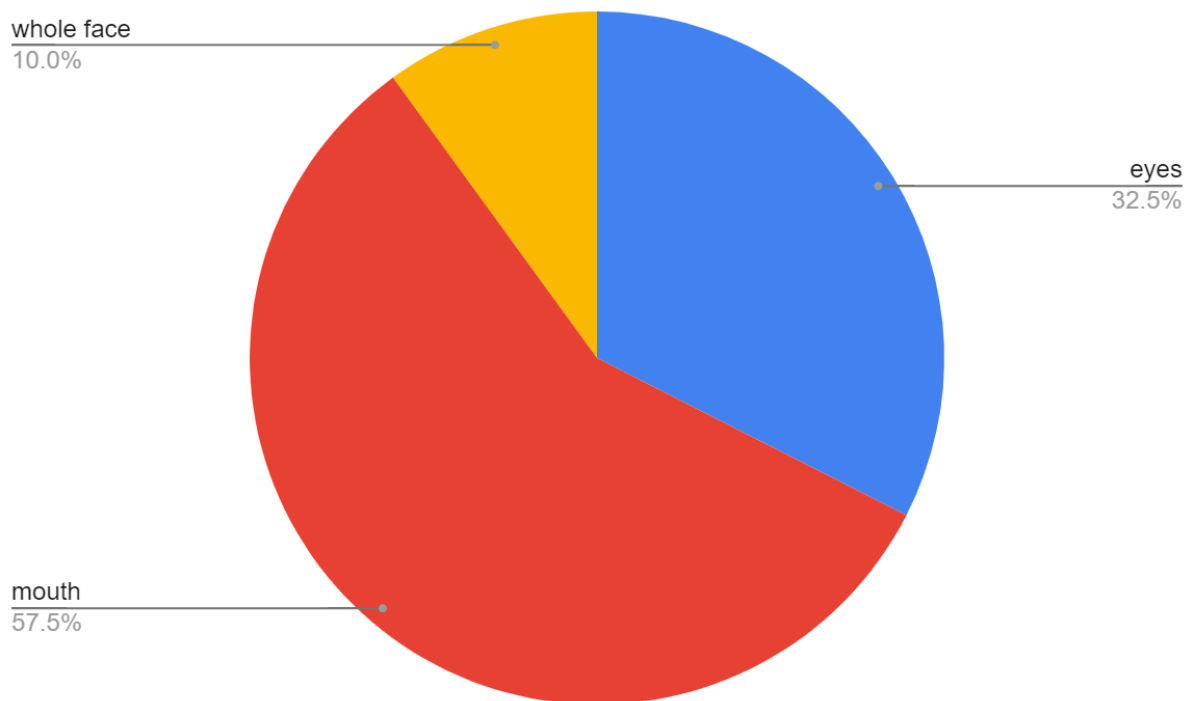
Graph B

Female Results



Graph C shows how participants made their decisions. Participants said they looked at the mouth to make their decision most often (in 23 answers) than looked at the eyes (13 answers). A few participants described a specific quality of the whole face to make their decision (4 answers).

Graph C



Data Analysis

Being able to read someone's facial expressions is important in many ways. For example, in conversations when someone is sad or mad, you want to know how to help them the right way so you look at their facial expressions. If you have a hard time figuring out someone's facial expression then sometimes it will be hard to help a friend or family member. Meaning in order to understand what someone is saying, a helpful skill is to know what their face is telling you as well.

The results of this experiment seem to support my Hypothesis, which is: If girls are better at knowing how someone is feeling by looking at their face, then girls will answer more answers correctly than the opposite gender when they're given a picture and asked what the person is feeling.

This experiment could've been conducted many in ways which might have made the results more accurate. For example, the pictures. The adult in the pictures is a woman, meaning that girls may have had a better chance of getting a good score on the assessment than the boys did (because they are the same gender). If the series of pictures were a mix of women and men, the results may have differed. If the pictures had been of a male, the boys may have scored better.

Another problem with the pictures could've been how clearly the adult was showing an emotion. Trying to take a photo of someone showing one facial expression can give you mixed results.

Another thing that may have impacted the results is how much effort the participants put in, or how long they could pay attention to. Also, a bigger number of participants could have made the results change.

Generally speaking, it seems the participants used the mouth and eyes as clues to figure out which emotion was being shown.

One final point is that question number two and three generated the most wrong answers. It could be that anger and disgust are hard to capture on camera, or that they have similar facial features.

Conclusion

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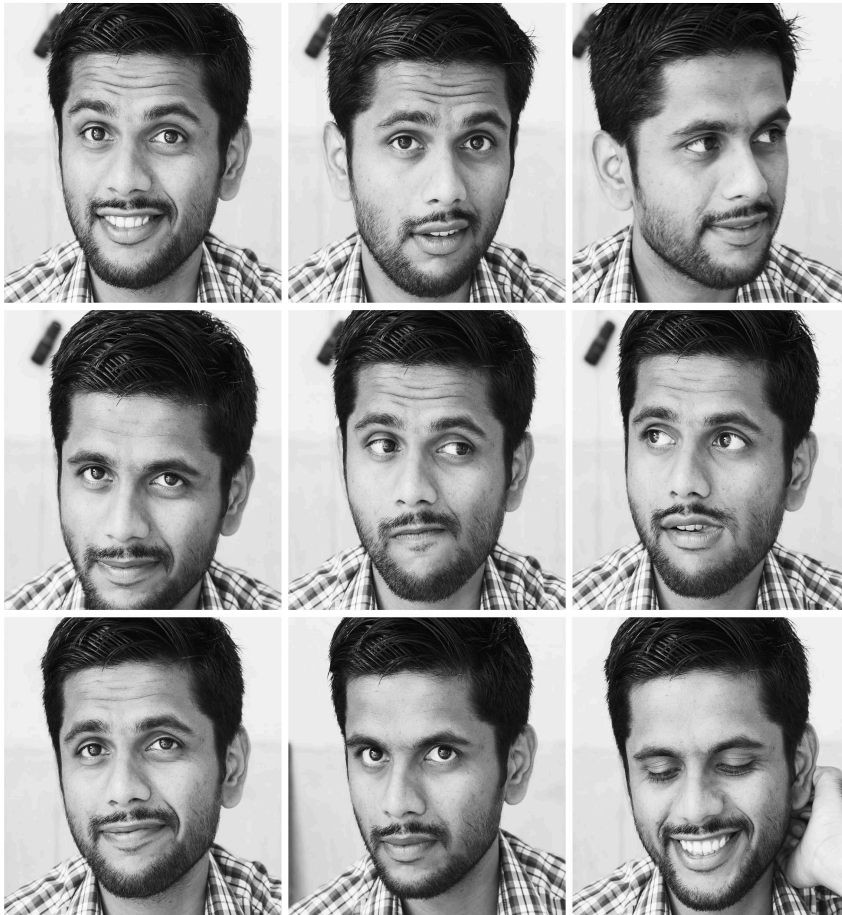
After conducting this experiment, I learned that lots of things go into whether someone can tell what someone else is feeling. I also learned that people get facial expressions mixed up sometimes, but when they get them right it is usually by looking at their facial features, like the eyes and mouth.

This information could be helpful since so many young people text each other without seeing or looking at each others' faces. It makes it hard to tell if someone texting you is being honest, or sarcastic, or rude. This could make face to face interactions harder too, because we're not used to talking face to face and we might question what people are saying and what they mean.

If someone else is going to do this study, it could be set up so that the odds for girls and boys are more even. The researcher could make a set of photos of a woman's face (like I did) and also make a set of a man's face. Genders of the photos could be alternated, and the pictures could all be of different people to see if the participants still figure it out. A bigger age range of participants could also improve results - for example older participants would have more practice at reading peoples' facial expressions.

For now, everyone just has got to make their *BEST GUESS*.

Best Guess
Nina Schwachter



STEM Fair
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