Brock University

Department of Psychology
St. Catharines. Ontario Canada L2S 3A1
Telephone 905-688-5550 Fax 905-688-6922

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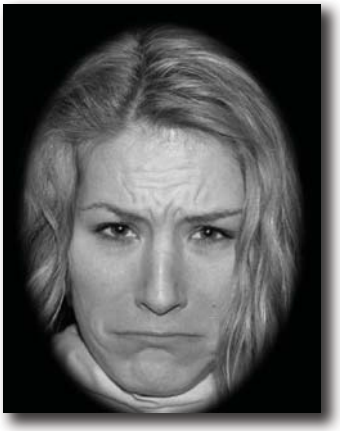
Dear Parents and Teachers,

We are writing this letter to thank you very much for allowing your children to participate in our research. The Infant and Child Development Lab at Brock University is committed to learning more about how children process their social world. Without your cooperation it would not be possible to conduct our work!

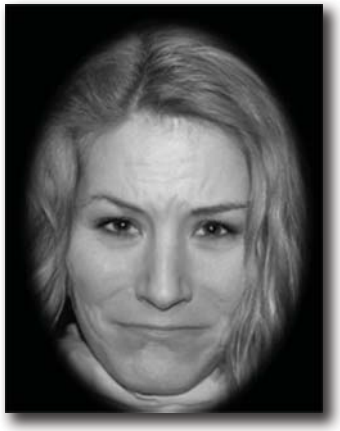
During the past year we completed two studies and started several others. In the first study *A Role for Distinctiveness* we wanted to learn more about children's sensitivity to differences among faces in the spacing of features. Adults' expertise in recognizing faces depends in part on their exquisite sensitivity to this cue to facial identity. It allows them to recognize faces under poor lighting and from new points of view—conditions under which the shape of facial features is less helpful. We asked adults and 6-year-olds to complete two tasks. In one task they sorted faces into two categories—'normal' and 'unusual'. We created the stimuli by moving the eyes and mouth up or down in 9 equal steps; each step involved moving the eyes up/down 5 additional pixels and the mouth up/down 3 additional pixels. We wanted to learn how much features had to be moved before adults and children would categorize the face as 'unusual'. In the second task we showed participants one version of a face (the model) very briefly and then showed them a pair of faces. One member of each pair was identical to the model and one differed only in the placement of features. Participants were asked which member of each pair matched the model. Six-year-olds differed from adults in three ways: 1) Features had to be moved further before 6-year-olds categorized the face as unusual; 2) Six-year-olds were less accurate when matching faces to the model; 3) Adults' sensitivity to the spacing of features was enhanced when the two faces in the test pair belonged to different categories (i.e., only one was bizarre) versus when they belonged to the same category (i.e., both were bizarre/neither was bizarre). Six-year-olds did not benefit from these face categories. Collectively, these results confirm that sensitivity to differences among faces in the spacing of features develops slowly and that children's categorization of faces is less refined than that of adults. They consider a larger set of faces to be 'normal' and on the playground will confuse different facial identities more easily than adults. These results will be presented June 20 at the annual meeting of the Canadian Society for Brain, Behaviour and Cognitive Science.

In the second study, *Understanding Emotional Expressions,* we were interested in children's perception of emotional expressions. It is well known that the ability to label facial expressions continues to develop during the school years and that the ability to label some expressions (e.g., happy) develops earlier than the ability to label other expressions (e.g., fear). However, no previous study has investigated children's sensitivity to facial expressions (i.e., how happy does a face need to be before a child knows the expression is not neutral?). Furthermore, no previous study has investigated whether children's perception of expressions is dynamic. Adults' perception of facial expression is influenced by previously viewed faces; after adapting to (viewing) a happy face, adults label a neutral face 'sad'; after adapting to a sad face, adults label that same neutral face 'happy'. These *aftereffects* teach us about how the brain processes emotional expressions. To investigate children's sensitivity to facial expressions and whether they too show adaptation aftereffects we created blends of happy and sad. We did this by morphing (averaging) two pictures of the same individual. The model posed happy in one picture and sad in the other. Morphing

allowed us to create images that were a combination of happy and sad (e.g., 30% happy-70% sad). In one block of trials we showed 7-year-old children the 13 faces that comprised the happy/sad continuum. After viewing each face they used a joystick to indicate whether the face was happy or sad. Seven-year-olds categorized the happy/sad blends just like adults, indicating that they have adult-like sensitivity to these two expressions. In the next block of trials they again rated each face on the continuum. Prior to each rating they were adapted to either an intense happy face or an intense sad face. Like adults, they showed aftereffects. Faces were more likely to be categorized as sad after viewing the happy face and as happy after viewing the sad face. We are currently testing 5-year-old children and so far they are performing just like adults and 7-year-olds. We also tested adults and 7-year-olds on an anger-fear continuum. Sensitivity to these facial expressions develops slowly. Although 7-year-olds were very accurate when categorizing faces depicting 100% fear and 100% anger they were unable to categorize faces showing only 80% anger or 80% fear; they also failed to show adaptation aftereffects for these expressions. We are currently testing 9-year-olds and 11-year-olds on this pairing. Mark Vida conducted this work for his Honours Thesis. The work earned him funding to attend a National Undergraduate Thesis Conference in BC and contributed to his winning the Dean's Medal for Social Sciences. Mark will present his work at the annual meeting of the Canadian Society for Brain, Behaviour and Cognitive Science on June 20.



20% happy
80% sad



50% happy
50% sad

80% happy
20% sad

Several other projects are ongoing, but as of today we do not have enough data to draw conclusions. Again, we thank you very much for allowing your children to participate. We invite you to learn more about our work by visiting our WEB page: http://www.psyc.brocku.ca/research/infantchildlab. (A virtual lab tour is now available.) If you are interested in visiting our new lab at Brock University with your children you may sign-up through the WEB page or by calling us at (905) 688-5550, x4944.

Sincerely,

Cathy Mondloch
Associate Professor
Brock University