

'A word's worth more than a thousand pictures' according to study on young children

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Researchers at Florida Atlantic University and their collaborators used a face-morphing software program to alter images of a 6-year-old girl and boy to make them look younger and older. The unaltered image of the girl appears in the center with the younger version of the child to the left and the older version of the child to the right. Credit: Florida Atlantic University

It is widely known that "a picture is worth a thousand words." But a new study by researchers at Florida Atlantic University published in *Evolutionary Psychology* begs to differ when it comes to young children.

Children play an important role in ensuring that they are cared for by adults by using physical and cognitive cues. Since humans were hunters and gatherers, babies and young children have relied on adults to serve their caretaking needs, especially at a time when they faced a constant struggle for survival, competing for limited resources under harsh conditions. They used these physical and behavioral cues as potent attractants for adults at a time when their survival was strongly dependent on adult care—and these cues are still as powerful today. But what's more important in how they influence adults and elicit their nurturing spirit? Is it their physical features or

what they say?

Prior research has shown the significant influence physical and cognitive cues have on adults' perceptions of young children. However, until now, these two cues have been studied independently. Researchers in FAU's Charles E. Schmidt College of Science and their collaborators at the Universitat Juame I and Universidad de Málaga in Spain are the first to study children's facial features and their expressions simultaneously to gauge adults' reactions. They have revealed that when it comes to young children, "one word is worth a thousand pictures," and that words are more powerful than appearances in how adults feel about and respond to young children.



Researchers at Florida Atlantic University and their collaborators used a face-morphing software program to alter images of a 6-year-old girl and boy to make them look younger and older. The unaltered image of the boy appears in the center with the younger version of the child to the left and the older version of the child to the right. Credit: Florida Atlantic University

The aim of this study was to contrast adults' reactions toward two specific indicators of maturity status in children: physical maturity, reflected by

faces with different degrees of maturity, and cognitive maturity, reflecting "natural" cognition such as a child overestimating his or her abilities, and "supernatural" cognition, such as when a child attributes animate characteristics to an inanimate object.

The researchers used four photos of boys and four photos of girls aged 6 years old as face stimuli. Using a face-morphing software program they altered the images to make them look younger (between 4 and 7 years old) and older (between 8 and 10 years old).

They selected adjectives and statements they believed represented a wide range of characteristics that potentially play an important role in how adults interact with young children. Descriptors were classified into four factors: positive affect, negative affect, intelligence, and helpless. They generated five scenarios: mature face/mature vignette, face only, immature face/immature vignette, mature face/immature vignette, and immature face/mature vignette.

Participants in the study were asked to select which of the two hypothetical children (younger or older) best reflected a series of traits (cute, friendly, likely to lie, smart). A total of 36 versions of the questionnaires were created so that each face was associated with both natural and supernatural vignettes equally as often.

"Our results indicate that children's thinking is the more important cue to their maturational status and attributions of positive and negative affect than facial appearance," said David Bjorklund, Ph.D., professor of psychology in FAU's College of Science. "As children enter the preschool years, additional cues become available to assess a child's maturational status, among them language and the type of cognitive abilities that children express via language. It is during this time that children's verbalized thinking becomes the most reliable source of information for adults about children's psychological characteristics, with physical appearance assuming a more secondary or complementary role."

Overall results of the study clearly showed that for

children of the ages depicted (ages 4 to 10), cues of cognitive immaturity played a more potent role in influencing adults' judgements than cues of physical immaturity. For the supernatural vignette, expressions of immature thinking (e.g. "the sun didn't come out today because it's angry") garnered a greater positive affect and greater helplessness for children with immature thinking regardless of whether or not these supernatural attributes were paired with an immature or mature face. Although the sex of the participants in the study was significant in several interactions, the absolute magnitude of these differences was small and patterns of responses were similar for both men and women in all conditions. Overall, these results reflect the significance of cognitive over physical information for understanding adults' evaluations of [young children](#).

"From an evolutionary developmental perspective, our study shows that physical cues like big doe eyes, cherub-like cheeks and large round heads - typical baby traits - are more relevant to adults during infancy than during the preschool period," said Bjorklund. "In preschool, with the spoken language, the verbalized expressions of children's thoughts become the principal cues influencing [adults'](#) perceptions."

Provided by Florida Atlantic University

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