Cvencek, D., Meltzoff, A. N., & Baron, A. S. (2012). Implicit measures of attitudes of preschool children. In J. A. Banks (Ed.), *Encyclopedia of diversity in education* (Vol. 1, pp. 192-196). Thousand Oaks, CA: Sage.

Attitudes of Preschool Children, Implicit Measures of

Implicit measures of attitudes provide a way to measure people's feelings about topics without asking them directly. The measures are called *implicit* because they tap attitudes below conscious awareness that are not accessible to purposeful introspection. Implicit measures complement *explicit* measures of attitudes, which involve verbal self-report, responses to questionnaires, and related direct assessments. One reason for using implicit measures with preschool-aged children is that children this young lack the verbal skills to accurately report their attitudes. Yet, they are assimilating attitudes from society that influence their current behavior and future developmental trajectories, and it is important that we measure these foundational attitudes. Another value of implicit measures is that children may suppress socially unacceptable verbalizations of negative attitudes. If you ask a child directly about his or her attitude toward a child of a different race, ethnicity, or gender, you may not get an accurate reading. Implicit measures are less influenced by such "social desirability effects" than explicit measures of attitudes. This entry provides an overview of implicit measures of attitudes that have recently been created for use with preschool children.

Overview

Attitudes involve people's feelings about objects, ideas, or other people. Intergroup attitudes are evaluations about social groups. If the evaluation concerns a member of the group to which one belongs (e.g., people of your own gender), it is more specifically called an *in-group* attitude.

Assessing how much a young boy prefers to play with other boys would be assessing his in-group attitude. If the evaluation concerns a member of a group to which one does not belong (in this example, girls), it is called an *out-group* attitude. Assessing how much a young boy likes playing with girls would be assessing his out-group attitude. Developmental psychologists, learning scientists, and anthropologists have long observed that in-group preferences and out-group negativity begin to take hold early in child development. New implicit measures of attitudes are providing novel research tools for laboratory-based experimental work on this important topic, with implications for diversity science and education.

Implicit Measures

A broad class of measures, known as implicit measures, shares a goal of assessing attitudes of which children may be unaware and unable to consciously control. Many implicit measures avoid using verbal responses altogether; some implicit measures indirectly tap children's verbal responses, but do not require introspective access on the child's part. Four implicit measures have recently been devised for use with young children.

Memory Recall

The first type of implicit attitude measures used with young children involves memory tasks. Typically, children are told a story in which in-group and out-group members engage in various positive or negative behaviors (e.g., cleaning up the room, scribbling on the wall). Afterward, children are asked to recall as many of these behaviors as they can. An attitude measure derives from comparing the ratio of positive to negative behaviors recalled for in-group versus out-group members.

In a meta-analysis of 36 studies of preschool children's memories for own- and opposite-sex members, Signorella and colleagues showed that story content is better remembered by the children whose sex matches that of the character in the story: Stories that depict female characters tend to be remembered better by girls than by boys (and vice versa). This is thought to be due to better processing of in-group material.

Similar results have been obtained with race-relevant information, as well as stimuli involving novel groups with which children have had no experience. In an example of the latter, Dunham and colleagues randomly assigned 5- to 6-year-old children to either green or orange groups. Children showed enhanced memory for the positive behaviors of in-group members, and had more positive attitudes toward in-group members relative to out-group members. Dunham interpreted this as a bias favoring the in-group, and found evidence supporting the idea that positive attitudes toward an in-group precede negative attitudes toward an out-group.

Ambiguous Situations Task

Another class of implicit measures involves showing children pictures of ambiguous situations concerning transgressions. Killen and colleagues developed the Ambiguous Situations Task, in which the pictures depict an African American child and a European American child in different situations. For each situation there is a version where the African American child is the possible perpetrator of a transgression and another version where the European American child is the possible perpetrator. The situation itself is made ambiguous. Children are asked to interpret the situations and decide whether the potential perpetrator is doing something good, something bad, or something neutral. Children are also asked to evaluate how good or bad the child was for performing the action. The children are also asked if they think the two children depicted in the pictures were friends or could be friends.

In the case of European American children in homogenous schools, situations involving European American characters tend to be evaluated more positively than parallel scenes involving African American characters (evidence for in-group positivity). In the case of European American children enrolled in heterogeneous schools, there was no difference in children's evaluations of situations involving European versus African American characters (no evidence for in-group positivity). Moreover, European American children in heterogeneous schools judged the potential for cross-race friendship to be much higher than did European American children from the homogeneous schools. These experimental findings suggest that social experience

and intergroup contact can contribute to the development of positive racial intergroup attitudes.

Human Figure Drawing

The third type of implicit measure involves a drawing task called human figure drawing (HFD). In HFD, children's drawings of in-group and out-group members are coded for content. HFD is a free-response measure that allows children to produce their images spontaneously by eliciting personal, nonverbal information.

In a study by Teichman, HFD was used with Israeli children, some of whom were as young as 4 years of age. The children were asked to draw a "typical Jewish" or a "typical Arab" man. The results not only showed that preschoolers already possessed distinct images of "a typical Jewish" and "a typical Arab" person, but also that they favored the Jewish person and rejected the Arab person. For example, the image the children drew of the Jewish person included more details than that of the Arab person and the picture they drew of the Jewish person was higher in quality than that of the Arab person. In addition, the figure of the Jewish person was significantly larger and more colorful than that of the Arab person. Teichman interpreted these findings as children expressing both positive attitudes toward the in-group and negative attitudes toward the out-group: The Jewish person (i.e., in-group) was represented as higher in status and was ascribed more positive feelings than the Arab person.

Implicit Association Test

The fourth type of implicit measure involves a computerized task called the Implicit Association Test (IAT), which was developed by Anthony Greenwald and his colleagues within the field of social psychology. In its original form for adults, the IAT is an easy-to-administer sorting task in which words are presented on a computer screen and the participant is asked to rapidly sort the words by pushing one of two keys on the computer. Computer presentation allows the fast and accurate calculation of reaction times required to categorize items. The difference in reaction times is thought to reveal underlying associations between pairs of items.

For example, during a gender attitude IAT, individuals classify stimuli representing *male, female, good,* and *bad.* In one instructional condition, *good* words and *male* names share a response key, with *bad* words and *female* names sharing the other response key (Task A). For men with a strong in-group preference, this would be a very fast and easy categorization task, called a "congruent" task because it is congruent with their own attitude. In the other instructional condition, two of the response assignments are reversed, such that *good* and *female* share one key while *bad* and *male* share the other key (Task B). For men with a strong in-group bias, this would be an incongruent task and therefore more difficult. The IAT measure is based on the principle that it is easier and faster to give the same response to items belonging to two categories if the two categories are more strongly associated in memory than if they are not. Males with positive in-group gender attitudes (i.e. *male* = *good*) should respond faster to the congruent task (Task A) than the incongruent task (Task B).

The IAT has been applied to attitudes about domains in education. In adults, IAT measures of people's feelings or attitudes toward mathematics (*math* = *good* or *math* = *bad*) correlate with actual mathematics performance and real-world behavioral choices. In recent years there have been several modifications to the IAT so it could be used with children.

Child IAT

A child-friendly version of the IAT task was created to explore how implicit attitudes and beliefs develop. The Child IAT modifies the adult methodology by utilizing both pictures and sounds to communicate concepts and using large response buttons (color matched with each side of the screen) instead of a keyboard.

Using the Child IAT with children aged from 5 to 18 years old, Baron and colleagues examined the development of implicit race attitudes among African American, European American, and Latino American children in the United States—as well as native Japanese children in Japan. Across these studies, the results showed that children as young as age 5 have positive attitudes toward their ethnic in-group, particularly when that in-group is contrasted with a minority out-group. For example, in the United States, Child IAT results showed that

European American and Latino American children preferred their own group over African Americans. Similarly, native Japanese children preferred their ethnic in-group over European Americans and African Americans (who would both be minority out-groups in the case of Japanese children in Japan).

Minority children, however, do not show this in-group preference when the out-group is a culturally dominant ethnic group. For example, in the United States, Latino American and African American children showed no implicit preference for their ethnic in-group when their in-group was contrasted with a more culturally dominant out-group (i.e., European Americans). Collectively, these results suggest that children demonstrate positive in-group attitudes when their ethnic in-group is contrasted with an ethnic minority out-group, but not when their own in-group is a minority group itself and contrasted with a more culturally dominant out-group. Moreover, this line of research has suggested that the levels of implicit positivity (or negativity) in children are comparable in strength to the levels found in adults, supporting the implication that educational interventions designed to reduce intergroup bias may profitably begin even during the early years of development.

Preschool IAT

The Preschool IAT (PSIAT) was recently developed as an adaptation of the IAT for even younger children, between 3 and 6 years old. The PSIAT embodies additional modifications that make it more effective for children who do not read by reducing their working memory demands and sustaining their attention during the task. This approach will be increasingly useful for examining the origins of preschoolers' attitudes—toward gender, race, academic domains—before they enter formal schooling.

Using a gender attitude PSIAT, Dario Cvencek and colleagues found that strong in-group attitudes based on gender had already formed in preschool children: 4-year-old girls held more positive attitude toward girls (*girls = good*) and 4-year-old boys had more positive attitude toward boys (*boys = good*). In addition, the gender attitude PSIAT was significantly correlated with corresponding explicit measures of gender attitudes obtained from asking the children questions about their feelings toward boys and girls. The implicit and explicit measures of gender attitudes were not just duplicates of one another—each predicted variance in children's gendered play activities (e.g., playing with dolls vs. trucks) beyond that predicted by the other measure. This result suggests that, taken together, these measures may provide new tools for making predictions about real-world behavior, choices, and preferences in preschool children.

The use of implicit measures of attitudes is common in studies of adults, but is relatively new in studies of developing children. These new tools have the potential for illuminating the origins and development of societally significant attitudes about race and ethnicity at younger ages than currently achievable using explicit verbal measures. In adults, IAT measures of racial attitudes predict racial discrimination more strongly than do parallel self-report measures. The new tools for assessing implicit attitudes in preschool children now make it possible to investigate attitudes about diversity and education in increasingly young children—at ages when attitudes are just beginning to form and, theoretically, are maximally amenable to change based on experience.

Dario Cvencek, Andrew N. Meltzoff, and Andrew Scott Baron

See also Ethnic and Racial Identity Development; Intergroup Contact and Social Justice; Interracial Friendship, Dating, and Marriage; Intragroup Diversity; Multiracial and Multiethnic Identities; Out-of-School Learning and Family Involvement; Parenting Young Children; Prejudice Reduction; Race, Gender, and Skin Tone

Further Readings

Allport, G. W. (1954). *The nature of prejudice.* Cambridge, MA: Addison-Wesley.

Ambady, N., & Adams, R. B., Jr. (2011). Us versus them: The social neuroscience of perceiving outgroups. In A. Todorov, S. T. Fiske, & D. Prentice (Eds.), *Social neuroscience: Toward understanding the underpinnings of the social mind* (pp. 135–143). Oxford, UK: Oxford University Press.

Baron, A. S., & Banaji, M. R. (2006). The development of implicit attitudes: Evidence of race evaluations from ages 6 and 10 and adulthood. *Psychological Science, 17,* 53–58.

Baron, A. S., & Banaji, M. R. (2009). Evidence of system justification in young children. *Social and Personality Psychology Compass, 3,* 918–926.

Cvencek, D., Greenwald, A. G., & Meltzoff, A. N. (2011). Measuring implicit attitudes of 4-year-old-children: The Preschool Implicit Association Test. *Journal of Experimental Child Psychology, 109,* 187–200.

Cvencek, D., Meltzoff, A. N., & Greenwald, A. G. (2011). Math-gender stereotypes in elementary school children. *Child Development, 82,* 766–779.

Davis, S. C., Leman, P. J., & Barrett, M. (2007). Children's implicit and explicit ethnic group attitudes, ethnic group identification, and self-esteem. *International Journal of Behavioral Development, 31,* 514–525.

Dennis, W. (1966). *Group values through children's drawings.* New York: John Wiley.

Dunham, Y., Baron, A. S., & Banaji, M. R. (2006). From American city to Japanese village: A cross-cultural investigation of implicit race attitudes. *Child Development, 77,* 1268–1281.

Dunham, Y., Baron, A. S., & Banaji, M. R. (2007). Children and social groups: A developmental analysis of implicit consistency in Hispanic Americans. *Self and Identity, 6,* 238–255.

Dunham, Y., Baron, A., & Carey, S. (2011). Consequences of "minimal" group affiliations in children. *Child Development, 82,* 793–811.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74,* 1464–1480.

Killen, M., McGlothlin, H., & Henning, A. (2008). Explicit judgments and implicit bias: A developmental perspective. In S. R. Levy & M. Killen (Eds.), *Intergroup attitudes and relations in childhood through adulthood* (pp. 126–145). Oxford, UK: Oxford University Press.

Lawrence, V. W. (1991). Effect of socially ambiguous information on White and Black children's behavioral and trait perceptions. *Merrill-Palmer Quarterly, 37,* 619–630.

McGothlin, H., Killen, M., & Edmons, C. (2005). European-American children's intergroup attitudes about peer relationships. *British Journal of Developmental Psychology, 23,* 227–249.

Nesdale, D. (2001). The development of prejudice in children. In M. Augoustinos & K. J. Reynolds (Eds.), *Understanding prejudice, racism, and social conflict* (pp. 57–73). London: Sage.

Nesdale, D., Lawson, M. J., Durkin, K., & Duffy, A. (2010). Effects of information about group members on young children's attitudes toward the in-group and out-group. *British Journal of Developmental Psychology, 28,* 467–482.

Pauker, K. B., Ambady, N., & Apfelbaum, E. P. (2010). Race salience and essentialist thinking in racial stereotype development. *Child Development, 81,* 1799–1833.

Rutland, A., Cameron, L., Milne, A., & McGeorge, P. (2005). Social norms and self-presentation: Children's implicit and explicit intergroup attitudes. *Child Development, 76,* 451–466.

Signorella, M. L., Bigler, R. S., & Liben, L. S. (1997). A meta-analysis of children's memories for own-sex and other-sex information. *Journal of Applied Developmental Psychology, 18,* 429–445.

Steele, J., Choi, Y. S., & Ambady, N. (2004). Stereotyping, prejudice, and discrimination: The effect of group based expectations on moral functioning. In T. A. Thorkildsen, J. Manning, & H. J. Walberg (Eds.), *Nurturing morality* (pp. 77–97). New York: Kluwer Academic.

Teichman, Y. (2001). The development of Israeli children's images of Jews and Arabs and their expression in human figure drawings. *Developmental Psychology, 37,* 749–761.