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Citation	Shutts, Kristin, Katherine D. Kinzler, Caitlin B. McKee, and Elizabeth S. Spelke. 2009. Social information guides infants' selection of foods. <i>Journal of Cognition and Development</i> 10(1-2): 1-17.
Published Version	doi:10.1080/15248370902966636
Accessed	February 19, 2015 11:30:35 AM EST
Citable Link	http://nrs.harvard.edu/urn-3:HUL.InstRepos:10265017
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RUNNING HEAD: INFANTS' SOCIAL FOOD SELECTION

Social information guides infants' selection of foods

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Abstract

Two experiments investigated the influence of socially conveyed emotions and speech on infants' preferences in the food domain. After watching films in which two unfamiliar actresses each spoke while eating a different kind of food, 12-month-old infants were allowed to choose between the two foods. In Experiment 1, infants selected a food endorsed by a speaker of their native language who displayed positive affect over a food endorsed by a foreign-language speaker who displayed negative affect. In Experiment 2, both actresses displayed positive affect yet spoke in different languages, and infants again selected the food associated with the speaker of their native language. The findings contrast with previous research in which infants and toddlers have shown little selectivity when presented with foods that differ in their intrinsic properties such as color, texture, and familiarity. Although infants may lack capacities for evaluating foods on their own, they do look to other people for guidance in food selection.

Social information guides infants' selection of foods

Research on the development of food selection presents a paradox. On the one hand, choosing safe and palatable foods for consumption is critical for young children's survival, as it is for the survival and well-being of older humans and other animals. On the other hand, infants and toddlers are notoriously promiscuous eaters, who seem unable to categorize foods by their substance properties and determine which substances are edible. Notably, however, young children's failures to engage in appropriate food selection tend to occur in situations that lack strong social support. The present experiments investigate whether infants are more discriminating among foods when social information is available to guide them.

Food identification and selection are particularly difficult problems for organisms that consume a variety of foods, as they must successfully discriminate a wide range of edible and inedible substances. In response to this challenge, humans and other animals possess a number of strategies for choosing and learning about foods (for reviews, see Barker, Best, & Domjam, 1977; Capaldi, 1996; Rozin & Schulkin, 1990; Shepherd & Raats, 2006). Human adults, for example, use domain-relevant properties such color, texture, and odor information to discriminate edible from non-edible substances, as well as to classify and generalize learning about particular foods (e.g., Lavin & Hall, 2002; Ross & Murphy, 1999; Rozin & Fallon, 1987). Adults also practice safe eating by showing neophobic reactions to unfamiliar foods (Pliner & Salvy, 2006), avoiding foods that have induced nausea in the past (Garb & Stunkard, 1974), and rejecting substances that are dangerous (e.g., poisonous mushrooms), inappropriate (e.g., sand), and disgusting (e.g., feces) (Fallon & Rozin, 1983; Rozin & Fallon, 1980; 1987). Finally, adults observe

the consumption behaviors of other individuals – in particular, those from their own culture – and guide their own food choices accordingly (Rozin, 1988; 2007).

Several of the food selection strategies shown by human adults are also apparent in nonhuman animals. Numerous animals use visual (e.g., color) and olfactory cues to discriminate foods from non-foods and to differentiate among different kinds of food (see Barker et al., 1977 for review). Adult rhesus monkeys generalize learning about novel foods by color and texture over changes in shape (Santos, Hauser, & Spelke, 2001). A variety of animals, including rats (Barnett, 1958; Mitchell, 1976), turtles (Burghardt & Hess, 1965), and birds (Rabinowitch, 1969), increase safe food choices by showing phobic reactions to novel substances and by readily learning associations between nausea and particular foods over long time delays (Garcia, Kimeldorf, & Koelling, 1955; Garcia & Koelling, 1966; Gustavson, 1977; Rozin & Kalat, 1971). Rats (Galef & Whiskin, 1995), lambs (Mirza & Provenza, 1990), marmosets (Vitale & Queyras, 1997), chimpanzees (Ueno & Matsuzawa, 2005), and other animals use the eating behaviors of conspecifics to guide their own choices in the food domain (for reviews, see Galef, 1996; Galef & Beck, 1990).

Given the important consequences of food selection, as well as evidence that both human adults and other animal species, including non-human primates, show sophisticated reasoning about food, one might expect a capacity for reasoning about foods to emerge relatively early in human ontogeny. Yet, many of the food selection mechanisms available to human adults, older children, and other animals appear to be absent in human infants. Although human adults and even preschool-age children generalize learning about novel foods by color and texture (Lavin & Hall, 2002; Macario,

1991; Santos, Hauser, & Spelke, 2002), infants appear oblivious to the visual properties relevant for classifying and reasoning about foods. For instance, infants are equally attentive to domain-relevant properties (such as color and texture) and domain-irrelevant properties (such as the shape of a food's container) when learning about food objects and substances (Shutts, Condry, Santos, & Spelke, submitted).

Human infants also show no evidence of the cautious food practices that have been observed in older humans and other animals. Although avoidance of novel foods emerges in human children by approximately 3 years of age (Birch, 1990; Cashdan, 1994; 1998; Cooke, Wardle, & Gibson, 2003; Harper & Sanders, 1975), infants and toddlers not only accept novel foods, but they also put inedible, disgusting, and dangerous objects and substances into their mouths (e.g., Rozin, Fallon, & Augustoni-Ziskind, 1986a; Rozin, Hammer, Oster, Horowitz, & Marmora, 1986b). In a particularly striking demonstration of toddlers' indiscriminate approach to foods, Rozin et al. (1986b) reported that more than half of children aged 16 to 29 months were willing to put crayons, dish soap, and even imitation dog feces in their mouths. Though children begin to refuse a number of objectionable items (e.g., leaves, poison, feces) during the preschool years, they not develop a mature food rejection taxonomy until middle childhood (e.g., Fallon, Rozin, & Pliner, 1984; Rozin, Fallon, & Augustoni-Ziskind, 1985).

From one perspective, infants' gastronomical naivety is quite surprising, as a core system for rapid learning and knowledge about acceptable foods would likely be useful early in development. Some have proposed, however, that infants' and toddlers' indiscriminate behavior can be attributed to the fact that youngsters have typically relied

on adults to nourish and guide their eating until well after their second birthday (Cashdan, 1994; 1998). Throughout evolutionary times (as well as in some cultures today), infants were breastfed for the first few years of life. Even in the U.S., where many infants begin to consume solid foods during the second half of the first year of life, adults determine infants' diets. Infants, therefore, would not need to reason about food early in development, as caregivers would be responsible for meeting infants' nutritional needs and ensuring their safety.

The present work raises a compatible hypothesis about the nature of infants' early learning about food. Though infants may not possess mechanisms for evaluating foods based on substance properties, infants may share with older humans, as well as with other animals (e.g., Galef, 1996; Galef & Beck, 1990), the capacity to learn about acceptable food choices by observing the behavior of other people. Here we test whether infants use information about other people, whose eating they observe, to guide their earliest food choices, long before they use information about food itself.

A handful of previous studies provide evidence that human children are susceptible to social influences when choosing foods. Preschool-age children are more likely to eat unfamiliar and disliked foods if they have watched others eat them first (Birch, 1980; Duncker, 1938; Hendy & Raudenbush, 2000). Moreover, children are attentive to *which* individuals eat which foods: Peers can exert a more powerful influence than do adults on preschool-age children's food choices (Duncker, 1938; Hendy & Raudenbush, 2000). In a study with children aged 14-20 months, Harper and Sanders (1975) found that children were more likely to accept a novel food from their mother than from a stranger. Interestingly, however, if mothers and strangers modeled eating foods

before offering them, infants were equally likely to taste foods offered by mothers and strangers.

Though not previously tested in the domain of food, several studies have demonstrated that human infants are adept at learning from others' actions, behaviors, and emotions when reasoning about objects (e.g., Csibra & Gergely, 2006; Tomasello Kruger, & Ratner, 1993). For instance, infants are attentive to emotional signals of affect provided by both familiar and unfamiliar adults when evaluating novel objects (e.g., Hornik, Risenhoover, & Gunnar, 1987; Mumme & Fernald, 2003; Mumme, Fernald, & Herrera, 1996). In one study, for example, 12-month-old infants interacted more with a target object after watching an adult display positive or neutral affect compared to negative affect toward the object (Mumme & Fernald, 2003).

In addition to affect, infants are sensitive to information that connotes language group membership when engaging with objects. In one series of studies, 10-month-old infants were presented with short films of two people who spoke to them, one in English and one in French. Then the two people appeared silently, side by side, and each offered the infant a toy as real toys appeared in front of them. Infants living in France with French-speaking parents reached preferentially for the toy offered by the person who previously spoke in English, whereas those living in the U.S. with English-speaking parents reached for the other toy after presentation of the same videotaped events (Kinzler, Dupoux, & Spelke, 2007). Thus, social information conveyed by language influences infants' choice of objects. This finding raises the possibility that such information also will influence infants' choice of foods.

The present experiments tested the impact of social information on 12-month-old infants' food preferences. In light of previous work suggesting indiscriminate food choices on the part of infants, our first experiment attempted to maximize differential social information relayed to the infant. In Experiment 1, infants watched two unfamiliar women eat two different kinds of food. One woman displayed positive affect toward the infant and the food, and spoke to infants in their native language. In contrast, the other woman displayed negative affect toward the infant and the food, and spoke in a foreign language. In Experiment 2, affect was removed as a distinguishing factor between the films, by presenting one native and one foreign speaker who both expressed positive affect toward the food and the infant. In both experiments, we measured infants' willingness to eat each kind of food in isolation immediately following each woman's introduction. In addition, we assessed infants' preference between the two foods during a subsequent choice trial in which both foods appeared side-by-side.

Experiment 1

Experiment 1 tested for the combined impact of affect (positive vs. negative) and language (native vs. foreign) on 12-month-old infants' food choices. In two familiarization trials, infants watched movies of actresses who spoke to them while eating differently colored fruit sauces presented in containers of different colors and shapes, and then infants were given the opportunity to sample the foods featured in the movies. One familiarization trial featured an actress who displayed positive affect and spoke in English while sampling one food; the other trial featured an actress who displayed negative affect and spoke in French while sample a different food. After each of these trials, infants were presented with the food that they had just seen and were given the

opportunity to taste it. After tasting the second food, infants were presented with a test trial in which the two actresses appeared together silent and smiling onscreen, and the two foods were offered simultaneously. Infants' manual choice between the two foods was measured.

Method

Participants. Participants were 18 (9 female) full-term 12-month-old infants (mean age = 12 months, 8 days; range = 11 months, 25 days – 13 months, 5 days) from monolingual English-speaking households in the greater Boston area. Two additional infants were tested but excluded from analyses because they never reached for foods during familiarization or test.

Materials. Two bilingual college-age female speakers of English and French served as actresses for the “positive English familiarization,” “negative French familiarization,” and “test” movies. Positive English familiarization movies (23 s) featured an actress who spoke in English with positive affect, and expressed liking for the food she was eating. Negative French familiarization movies (23 s) featured an actress who spoke in French with negative affect, and expressed dislike for the food she was eating. During the course of each familiarization video, actresses tasted their foods twice, each time smiling and saying “yummy” (in positive English movies) or scowling and saying “beurk” (in negative French movies); see Figure 1 for example displays and the Appendix for scripts. At the end of the movies, the actresses lowered their containers until they were off-screen, and then pointed forward. The static image of the actress pointing forward and looking down at the table remained onscreen for 30 s.

The test movie featured both actresses from the familiarization phase who appeared silent, smiling, and holding their foods side-by-side onscreen. After 2 s, the actresses simultaneously extended their arms forward and down until their food containers disappeared from view.

-- Insert Figure 1 about here --

Movies were back-projected onto a 57.5 cm (width) x 48 cm (height) video screen surrounded by black foam core and curtains. A black table (121 x 75 x 70 cm) was placed directly in front of the video screen, and the infant sat at the table on a parent's lap. A black foam core box (101.5 x 20 x 27 cm deep) rested on the table, touching the video screen and facing the infant, and contained two real-life examples of the foods featured in the videos (plum sauce in a tall purple cup and applesauce in a wide green bowl). Foods were pushed through an opening in the box on foam-core trays such that they could appear and be moved in reach of the infant at the appropriate time in the procedure. Sessions were recorded on video for use in offline coding.

Design. All infants were presented with one familiarization trial with each actress and food in succession, followed by a test trial in which both actresses and foods appeared side-by-side. For any given infant, the lateral positions of each actress and food were fixed. Across infants, the order of trials in familiarization (positive English or negative French first), lateral positions of actresses during familiarization and test, pairing of actresses with languages/affects (i.e., positive English or negative French), pairings of actresses with particular foods, and pairings of languages/affects with particular foods were counterbalanced.

Procedure. Before the session began, an experimenter familiarized parents and infants with the apparatus using rubber ducks attached to the foam core trays of the apparatus. The ducks were pushed towards the infant, and infants were encouraged to reach for them.

Infants next saw two familiarization trials (positive English and negative French). At the start of each familiarization trial, an occluding screen was raised to reveal the video screen. Near the end of each familiarization movie, a replica of the food featured in the movie was moved out of the foam core box and pushed toward the infant. Infants were given 30 s to reach for the container and sample the food, if they desired. A static image of the actress pointing remained onscreen during this time.

At the start of the subsequent test trial, the screen was raised to reveal both actresses silent and smiling side-by-side onscreen. Both food containers (one beneath each actress) were simultaneously pushed toward the infant, and infants were given 30 s to reach for one of the foods, while the actresses remained onscreen smiling. After the infant touched one of the containers, the experimenter occluded the video display by lowering the screen.

Scoring and Data Analysis. Coding was conducted offline by observers who were unaware of each infant's testing condition. Coding for familiarization trials consisted of noting whether infants reached for and sampled each food. For the test trial, infants were given a score of +1 for reaching for and touching the food associated with the positive English actress first, a score of -1 for choosing the food associated with the negative French actress first, or a score of 0 for selecting neither food. Scores were compared to chance by a one-sample t test. One observer coded all the trials, and a

second blind observer scored 5 sessions for reliability. Agreement between coders was 100%.

Results and Discussion

During the familiarization phase, all but 3 infants tasted both of the foods. Two infants tasted neither of the foods, and familiarization trial data from one infant were not recorded due to equipment failure. At test, infants chose the food associated with the positive English actress over the food associated with the negative French actress (Chance = 0, $M = .61$; $t(17) = 3.34$, $p < .005$, $d = .79$; see Figure 2, left).

-- Insert Figure 2 about here --

Infants' willingness to sample both foods during the familiarization trials replicates previous studies demonstrating indiscriminate food selection behaviors by young children (Rozin et al., 1986a;b). Results from the paired preference test trial, however, provide evidence that infants can nonetheless be discerning when engaging in food choices. Infants' selectivity at test is particularly striking, considering that most infants sampled both of the foods during the familiarization phase, and therefore knew both containers held highly palatable fruit sauces. Moreover, each food had a distinctive appearance and produced a different taste; because the pairing of these foods to speakers was counterbalanced, any preferences that a particular infant had for one food over the other would have worked against an effect at test. Nevertheless, when given a choice, infants reached for the food that had been previously eaten and endorsed by a friendly speaker of their native language. Since both actresses were silent and smiling at the time of the choice (and since test displays were identical across infants, regardless of each

actress's behavior during familiarization), infants relied on their previous knowledge of the actresses' contrasting behaviors.

What aspects of these speakers' behavior did infants remember and use in guiding their food choices? Multiple features were available in the familiarization movies to guide infants' learning about the foods, including actresses' facial expressions, vocal tone, and language. Previous studies have demonstrated that infants are particularly reliant on other people's expressions of negative affect when learning about objects (e.g., Mumme & Fernald, 2003), but infants' choices among objects have also been shown to be influenced by the language and accent of the adult who endorses them when affective cues are equated (Kinzler et al., 2007). Experiment 2 investigated whether infants' food choices would also be influenced by the language spoken by the person who eats the food, in the absence of distinguishing affective information.

Experiment 2

Experiment 2 investigated the effect of native vs. foreign language on 12-month-old infants' food choices. Infants first watched movies of two actresses eating different kinds of foods. Both actresses displayed positive affect, but one spoke in English and the other spoke in French. As in Experiment 1, infants were first given the opportunity to sample each of the foods featured in the movies, and then at test, infants were given a paired preference reaching trial featuring the two foods from familiarization.

Method

The method was identical to the previous experiment, except as follows: The participants were a new group of 28 12-month-old infants (11 females; mean age = 12 months, 5 days; range = 11 months, 18 days – 12 months, 25 days) drawn from the same

population as in Experiment 1. Seven additional infants were tested, but excluded from analyses, because they never reached for foods during familiarization or test (6), or were fussy (1).

During familiarization, infants saw a positive English trial and a positive French trial featuring the actresses from the previous study. The positive English familiarization movie was the same as in Experiment 1. The positive French movie was identical to the positive English movie, except that the actresses spoke in French (see Appendix). Infants sat either on a parent's lap or in a high chair. Reliability between coders ($N=7$ sessions) was 100%.

Results and Discussion

As in Experiment 1, the majority of infants (86%) tasted both of the foods when they were presented during the familiarization phase. Two infants tasted neither of the foods, one infant tasted only the food presented in the English familiarization trial, and one infant tasted only the food presented in the French familiarization trial. At test, infants chose the food eaten by the positive English actress over the food eaten by the positive French actress (Chance = 0, $M = .36$; $t(27) = 2.17$, $p < .05$, $d = .41$; see Figure 2, right). Infants in Experiment 2 therefore used language information, in the absence of distinguishing affective cues, to guide their food selection.

It should be noted that although Experiment 1 (in which both affect and language differed between actresses) appeared to have a larger effect on infants' behavior than Experiment 2 (in which only language was manipulated), an analysis comparing the test scores of infants in the two experiments revealed no significant difference ($t(44) = 1.01$, $p = \text{n.s.}$, $d = .22$). It is possible that a larger sample size would reveal a meaningful

difference between infants' performance in the two conditions, or that an experiment that equated for language and manipulated emotional information would show an effect of emotion on infants' food choices. Nevertheless, the present results do not provide evidence for the influence of emotion, above and beyond that of language, in guiding infants' food preferences.

General Discussion

Two experiments reveal that human infants exploit social information provided by adults to guide their choices in the food domain, prior to the onset of neophobia and domain-specific reasoning about foods. When presented with a choice, 12-month-old infants in Experiment 1 selected a food that had been previously endorsed by a woman who spoke in their native language and displayed positive affect over a food that had been associated with foreign-language speaker who displayed negative affect. Infants in Experiment 2 reached preferentially for a food endorsed by a model who spoke in their native language and displayed positive affect over a food endorsed by an equally friendly speaker of a foreign language. In both studies, therefore, infants' food choices were guided by their social choices between adults who endorsed different foods.

Infants showed selective food choices in the present studies, even though early food reasoning abilities are not immediately apparent in observations of infants' and toddlers' eating behaviors. Although infants will indeed put anything in their mouths in non-social encounters with objects and substances, infants in the present studies showed greater discretion. In particular, infants' selection of "native foods" in Experiment 2 suggests that cultural learning in the food begins in infancy, consistent with the vast diversity of foods eaten by different cultures, and adults' robust preference for food from

their own culture (Rozin, 1988; 2007). Although mature food likes and dislikes certainly have many causes, Experiment 2 provides evidence that a food's ethnic origin, as conveyed by language of eaters, can affect infants' food choices.

The present findings raise many questions for future research. First, since infants were never presented with positive vs. negative actresses speaking the same language, the independent impact of others' emotions on infants' food choices is not clear. The substantial body of previous research on infants' attention to positive and negative emotions when learning about artifact objects (e.g., Hornik et al., 1987; Mumme & Fernald, 2003; Mumme et al., 1996; see Vaish, Grossman, & Woodward, 2008, for review) points to a possible role for emotion in guiding infants' learning about foods as well. Nevertheless, further research is necessary to clarify this point. Second, since neither experiment contained food choices endorsed by neutral or silent actresses, it is difficult to know whether infants' performance at test was driven by a preference for one speaker or an aversion to the other speaker. Additional research is necessary to illuminate whether infants' behavior at test in Experiment 2 was due to a preference for the food endorsed by the English speaker or to an aversion to the food endorsed by the French speaker (or whether both processes were at work).

Additional questions concern the mechanism by which infants came to prefer the food eaten by the native over a foreign speaker in Experiment 2. One possibility is that infants attended to the semantic content conveyed by the English speaker: Infants may have recognized and remembered some words (e.g., "good" and "yummy") and used this content to guide their subsequent choice of foods. Against this explanation, one may note that infants were equally willing to taste both foods during familiarization, and therefore

had first-hand knowledge about the tastes of both foods. Nevertheless, young children have sometimes been reported to weight adults' language over their own perceptual experience in guiding their choices among objects (Jaswal & Markman, 2007). Future research might use filtered speech, or speech about irrelevant topics, in order to gauge infants' reactions to foods modeled by native and foreign speakers.

Another question concerns the role of social group reasoning in infants' food choices. Infants may have relied on language as a cue to social group membership, and their selective behavior at test therefore may reflect a preference for foods that are consumed by members of their own social group. For adults and older children, the language and accent with which others speak is a reliable marker of social group membership (Henrich & Henrich, 2007; Labov, 2006). Young children attend to the language and accent with which others speak when selecting friends and reasoning about others (Hirschfeld & Gelman, 1997; Kinzler, Shutts, DeJesus & Spelke, in press) and infants attend to a speaker's language when accepting artifact objects, even when the semantic content of speech has nothing to do with the objects featured (Kinzler et al., 2007). Such socially guided learning could be supported by a preference for foods that are paired with people who appear either more familiar or more similar to the infant and other individuals in his or her environment. Though previous research has revealed little or no correlation between the food preferences of children and parents *within* a particular culture (see Rozin, 1990, for review), looking across cultures, it is clear that children emulate the food preferences of individuals who surround them. Nevertheless, further research is needed to investigate whether infants use the languages that other people speak as information for their social and cultural group membership.

A final question concerns the basis for infants' selection of the food offered by the native speaker. On one hand, the experience of observing a food consumed by a native speaker may change infants' subjective experience of that food. Contextual variables – such as how a substance is described – can affect adults' subjective experience of the very same odor (e.g., de Araujo, Rolls, Velazco, Margot, & Cayeux, 2005; Herz & von Clef, 2001). Perhaps such effects operate in infancy: Infants may have actually enjoyed a fruit sauce more when it was associated with a speaker of their native language compared to when it was associated with the foreign language speaker. Alternatively, infants' food choices may have depended on social factors at the moment of choice. During the choice trial, the two actresses appeared onscreen in front of the infants. It is possible, therefore, that babies were equally attracted to the two foods, but preferred to partake in a social eating “exchange” with a person who spoke their native language. From birth, eating is an inherently social experience, raising the possibility that babies were sensitive to the social nature of the task presented in these experiments. Natural social interactions may reveal even stronger effects of others' behaviors on infants' actions (e.g., Nielsen, Simcock, & Jenkins, 2008).

As these questions indicate, the present findings raise many further avenues for research investigating mechanisms of social learning about foods in infancy, as well as for understanding origins of food choices shown by adults. Many aspects of adults' food selection – including decisions about which substances are disgusting or inappropriate for consumption – are guided by social information such as what is eaten by other members of one's ethnic or national group (Rozin, 1988; 2007). The present findings suggest that

socio-cultural learning about foods originates in infancy, and may be one of the first mechanisms available to guide children's choices in the food domain.

More broadly, the present findings contribute to a substantial and growing body of evidence demonstrating infants' early and robust social and cultural learning. Infants, who have relatively limited knowledge of and experience in the world, successfully look to others for assistance in learning about novel objects and actions, as well for help in understanding the conditions under which objects should be used and actions should be performed (e.g., Csibra & Gergely, 2006; Repacholi & Meltzoff, 2007; Tomasello et al., 1993). As in the present study, the effects of social learning and adults' testimony on children's behavior are sometimes so powerful that they override children's own perceptions and knowledge of aspects of their environment (e.g., Jaswal & Markman, 2007; Lyons, Young, & Keil, 2007; Sorce, Ernde, Campos, & Klinnert, 1985). The present findings extend this literature by revealing that infants are selective social learners who weigh the opinions of some individuals over others. Further research using the present methods could fruitfully investigate the nature and development of this selectivity.

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Author Note

This work was supported by NIH Grant HD23103 to E.S.S. We thank Katharina Cieplak-von Baldegg for assistance with video stimuli, and Jasmine DeJesus, Marissa Martinez, and Jessica Wang for assistance with testing.

Appendix

Positive English Familiarization Movie:

“This is one of my favorite foods to eat. I always eat it.”

[speaker tastes food]

“Umm, yummy.”

“Would you like to have some more? It tastes so good and delicious.”

[speaker tastes food]

“Umm, yummy.”

“Look [speaker points directly in front of her], there’s some of the same snack for you to eat right there.”

Negative French Familiarization Movie:

“Ceci est un des plats que j’aime le moins. Je ne le mange jamais.”

[speaker tastes food]

“Beurk.”

“Est-ce-que tu en veux encore? Ce n’est pas bon du tout.”

[speaker tastes food]

“Beurk.”

“Regarde [speaker points directly in front of her], il y a un peu de goûter pour toi, juste là.”

Positive French Familiarization Movie:

“Ceci est un des plats que je préfère le plus. Je le mange toujours.”

[speaker tastes food]

“Mmm, délicieux.”

“Est-ce-que tu aimerais en manger plus? C’est si bon et délicieux.”

[speaker tastes food]

“Mmm, délicieux.”

“Regarde [speaker points directly in front of her], il y a un peu de goûter pour toi, juste là.”

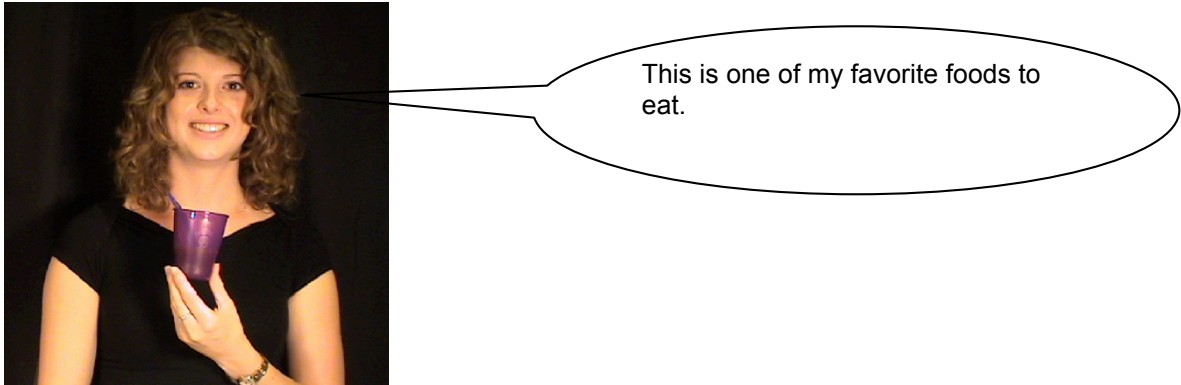
Figure Captions

Figure 1. Example familiarization and test displays from Experiment 1.

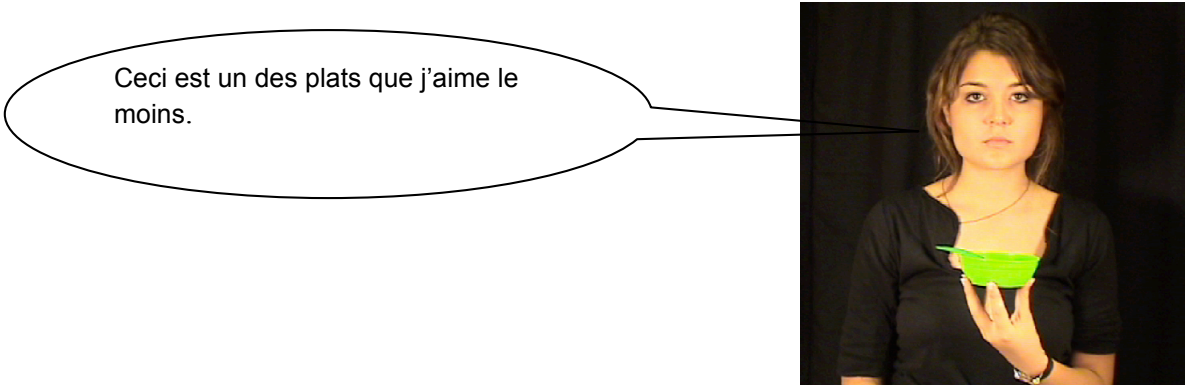
Figure 2. Test trial choices of infants in Experiments 1 and 2.

Figure 1.

Positive English Familiarization:



Negative French Familiarization:



(Silent) Test Display:



Figure 2.

