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Research Report

"Kids Choice" School lunch program increases children's fruit and vegetable acceptance

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Abstract

The "Kids Choice" school lunch program used token reinforcement, food choice, and peer participation to increase children's fruit and vegetable consumption without later drops in food preference sometimes found in past research and often called 'overjustification effects.' Participants included 188 school children (92 boys, 96 girls; mean age =8.0; 95% Caucasian). After four baseline meals, children were randomly assigned for 12 meals to receive token reinforcement for eating either fruits or vegetables. Observers recorded fruit and vegetable consumption and provided token reinforcement by punching holes into nametags each day children ate their assigned foods, then once a week children could trade these tokens for small prizes. Fruit and vegetable preference ratings were gathered with child interviews during baseline, and during follow-up conditions two weeks and seven months after the token reinforcement program. Consumption increased for fruit and for vegetables and the increases lasted throughout reinforcement conditions. Two weeks after the program, preference ratings showed increases for fruit and for vegetables. Seven months later, fruit and vegetable preferences had returned to baseline levels, suggesting the need for an ongoing school lunch program to keep preferences high, but also showing no signs of "overjustification effects" from the token reinforcement used in the "Kids Choice" school lunch program.

Keywords: School lunch; Fruit & vegetables; Food choice; Overjustification effects

Introduction

Approximately 20% of school-aged children in the United States are overweight or obese (Troiano et al., 1995; Whitney and Rolfes, 2002, p. 552), with increased risk for childhood diabetes, high cholesterol, and high blood pressure (American Dietetic Association, 2000; McGill, 1997;United States Department of Health and Human Services, 2000). Children's consumption of low fat and nutritious foods such as fruits and vegetables is not only associated with reduced risk for health problems, but also with improved cognitive development and social adjustment (Center on Hunger, Poverty, and Nutrition Policy, 1994; Contento et al., 1993; Warden, Duncan, & Sommars, 1982). Most children in the United States eat at least one meal each weekday at school (James, Rienzo, & Franzee, 1996), and school lunch is often their most frequent exposure to fruits and vegetables (Baranowski, Smith, Hearn, Lin, Baranowski and Doyle, 1997; Burchett, 2003), making it a unique opportunity for programs that encourage large groups of children to learn to eat and enjoy nutritious foods while in the company of their peers.

By law, school lunches in the United States provide the food groups recommended by federal guidelines (Center on Hunger, Poverty, and Nutrition Policy, 1994), including meat or meat substitute, grains, milk products, and fruits or vegetables. However, school lunches may also include more than 30% of their calories from fat (James, Rienzo, & Franzee, 1996), rather than the 20–30% recommended for children above the age of two (ADA, 1999; Butte, 2000; Centers for Disease Control and Prevention, 2000).

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Also, although fruits and vegetables are often the most nutrient-rich and low-fat foods included in school lunch, 80% of school children do not eat the recommended amounts of them (Gleason and Suitor, 2000; Heimendinger and Van Duyn, 1995), and without intervention their consumption of fruits and vegetables continues to drop by 25% between third and eighth grades (Lytel, Seifert, Greenstein, & McGovern, 2000). Research suggests that girls usually accept fruits and vegetables more than boys do (Corwin, Sargent, Rheaume, & Saunders, 1999), and children usually accept fruit more than vegetables (Baxter & Thompson, 2002; Burchett, 2003; Domel, Baranowski, Davis, & Leonard, 1993; Edwards & Hartwell, 2002) perhaps because of the greater energy density and sweetness of fruit (Birch, 1979; Drewnowski & Specter, 2004; Gibson & Wardle, 2003). When other high-fat, high-sugar, or high-salt foods are available, children are even less likely to choose to eat fruits and vegetables during school lunch (ADA, 2000; Bauer, Yang, & Austin, 2004; Cullen, Eagan, & Baranowski, 2000). Among the reasons children give for whether they eat fruits and vegetables during school lunch are that they want a choice of foods and they want to eat what their friends eat (James, Rienzo, & Franzee, 1996; Marpels & Spillman, 1995).

During the last few years, several multi-component school programs have been developed in the United States and Britain to encourage fruit and vegetable acceptance in children: the "Gimme 5" program by Baranowski and colleagues (2000), the "Food Dudes" program by Horne and colleagues (1995), the "Power-Plus" program by Perry and colleagues (1998), the "Know Your Body" program by Resnicow and colleagues (1992), and the "High 5" program by Reynolds, Franklin, Binkley, Raczynski, Harrington and Kirk (2000). These school programs include a variety of components such as nutrition education, increased cafeteria food choices, peer modeling videos, daily letters of encouragement, offers of reinforcement, and/or parental and community involvement. Although these programs have demonstrated some effectiveness for increasing children's fruit and vegetable acceptance, they can be costly, time-consuming, and labor-intensive to put into practice, which may make school staff and parents somewhat reluctant participants (Bauer et al., 2004; Burchett, 2003; Baranowski, Davis, Resnicow, Baranowski, Doyle and Lin, 2000; Contento, Balch, & Bronner, 1995; Horne et al., 1995; Lytle & Achterberg, 1995; Perry, Bishop, Taylor, Murray, Mays and Dudovitz, 1998; Reynolds et al., 2000), and which suggests the need for an effective school program that is simpler in design for greater acceptability and easier implementation. A brief review of past research provides guidance for components most important to include in such a simplified school program (Burchett, 2003).

For example, although many schools include nutrition information as part of their science education programs, past research suggests that nutrition education alone is unlikely to change children's consumption and preference for fruits and vegetables (Burchett, 2003; Contento, Balch, & Bronner, 1995; Warwick, 1997). Other research suggests children need 8–10 taste exposures to a food before preferences for it increase (Birch & Marlin, 1982; Birch, McPhee, Shoba, Pirok, & Steinberg, 1987; Sullivan & Birch, 1990; Wardle, Herrera, Cooke, & Gibson, 2003). One effective method to encourage preschool children to reach this threshold of taste exposures has been to have adults sit with them and verbally encourage each child to "Please have a taste" (Wardle et al., 2003) or "Please try one bite" (Hendy, 1999), although this approach would be impractical for use with large groups of grade school children.

Another effective method to increase children's consumption of fruits and vegetables is by using offers of positive reinforcement, an approach which can be more readily used with large groups (Baranowski et al., 2000; Davis, Baranowski, Resnicow, Baranowski, Doyle and Smith, 2000; Hendy, 1999; Horne et al., 1995; Lowe, Horne, Bowdery, Egerton, & Tapper, 2001; Perry et al., 1998; Reynolds et al., 2000; Stark, Collins, Osnes, & Stokes, 1986; Story, Mays, Bishop, Perry, Taylor and Smyth, 2000). However, some researchers have expressed concern that such offers of positive reinforcement for food consumption may produce later drops in children's food preferences (Birch, Birch, Marlin, & Kramer, 1982; Birch, Marlin, & Rotter, 1984; Newman & Taylor, 1992), which are often called 'overjustification effects' (Lepper, Greene, & Nisbett, 1973). Cognitive explanations are typically offered for such 'overjustification effects', with the suggestion that children think that if they must be offered rewards to eat the foods, they must not like them (Newman & Layton, 1984; Newman & Taylor, 1992). Another interpretation for 'overjustification effects' that we propose is a simple satiation explanation: If reinforcement pushes consumption of a single food, too much, for too long, children may reach a satiation point and later show reduced preference for that specific food (Rolls, Rolls, Rowe, & Sweeney, 1981). Fortunately, past research and theory provide guidance for components we might include in a school lunch program that could avoid such 'overjustification effects' and that could increase both immediate consumption and later preference for fruits and vegetables. These recommended components include use of small and delayed reinforcement, avoidance of satiation effects by offering food choice and requiring that only a small amount of food be eaten to receive reinforcement, and conditions that encourage peer participation and modeling.

For example, one review of the effects of reinforcement on later preference suggests that a school lunch program using small and delayed reinforcement would reduce risk for 'overjustification effects' (Eisenberger & Cameron, 1996), perhaps because it makes reinforcement less prominent and provides time for the child to discover pleasing properties of the foods themselves (Hitt, Marriott, & Esser, 1992; Newman & Layton, 1984). Such application of reinforcement could be accomplished with a token

reinforcement program in which children receive small tokens for eating fruits and vegetables, which they may later trade in for their choice of small prizes. Eisenberger and Cameron (1996) also suggest that later preference would be enhanced if children were required only to eat a small amount of the food to receive reinforcement, which should also reduce the risk of satiation effects. In support of these suggestions, one study found that young children offered small and delayed prizes for eating only one or two bites of specific foods during preschool lunch reported enhanced preference for those foods one month later (Hendy, 2002). In another study, parents also reported that offering their children small reinforcements for eating foods was effective to increase not only consumption but also lasting preferences (Casey & Rozin, 1989).

Another component for a school lunch program to encourage fruit and vegetable consumption and later preference is food choice as suggested by Self Determination Theory (Deci & Ryan, 1985), which proposes that intrinsic motivation to do any activity, including consumption of fruits and vegetables, would be enhanced by perceived choices surrounding the activity. Although offering food choice is rarely examined as the intervention variable in studies of children's food acceptance, one study found that when teachers gave preschool children a choice of whether or not to eat each lunch food ("Do you want any X,Y,Z?"), food consumption increased as much as when children were offered a special dessert (Hendy, 1999). Similarly, when cafeteria staff gave children the choice of "Which vegetable would (you) like to have?" (Perry, Bishop, Taylor, Davis, Story and Gray, 2004, p. 68), they consumed more vegetables during school lunch.

Finally, Social Cognitive Theory (Bandura, 1997) suggests that children would be more likely to develop 'self-efficacy' or confidence to consume fruits and vegetables if the school lunch program included conditions that enhance such confidence, such as repeated exposure to peer models eating the foods. The Group Socialization Theory (Harris, 1995) also emphasizes the importance of peer modeling in the development of any behavior, and research over 25 years has documented the effectiveness of peer models for increasing fruit and vegetable acceptance in children during school lunch (Birch, 1980; Brody & Stoneman, 1981; Hendy, 2002; Hendy & Raudenbush, 2000; Horne et al., 1995; Lowe et al., 2001).

The purpose of the present study was to develop and evaluate the effectiveness of the "Kids Choice" school lunch program to increase children's fruit and vegetable consumption and preference ratings. Unlike past multicomponent programs, the present program was designed to enhance acceptability to school staff and parents by including only changes to the school lunch procedures, rather than including changes to the school curriculum or home environment. The "Kids Choice" program was also designed to avoid the later drops in food preference ('overjustification effects') sometimes found when food consumption is reinforced by including three components suggested by past research and theory: small and delayed reinforcement, food choice, and conditions that encourage peer participation and modeling. It was hypothesized that with the inclusion of these three components, the "Kids Choice" school lunch program would successfully increase both children's immediate consumption and later preference rating of fruits and vegetables.

Method

Participants of the present study were elementary school children from a rural county in eastern Pennsylvania. Three procedures were used to evaluate the effectiveness of the "Kids Choice" school lunch program to encourage children's acceptance of fruits and vegetables. First, a brief parent questionnaire provided demographic information for the children in the program and to gather parent ratings of their children's fruit and vegetable preferences. Also, lunch observations measured children's fruit and vegetable consumption under baseline conditions and under token reinforcement conditions presented during the "Kids Choice" school lunch program. Finally, child interviews measured children's fruit and vegetable preference ratings during baseline conditions and then during follow-up conditions both two weeks and seven months after completion of the "Kids Choice" program.

Participants

The "Kids Choice" school lunch program was presented to all 346 children from the first, second, and fourth grades (169 boys, 177 girls; mean age = 8.0 years, SD = 1.4; over 95% Caucasian) with participants including 131 first graders from six classrooms, 95 second graders from four classrooms, and 120 fourth graders from four classrooms. These particular grades were chosen because in the school's lunch rotation system, they each sat at two long tables placed close enough together that observers could keep track of the fruit and vegetable consumption of as many as 12 children at one time, and because these tables were adjacent to the hallway location where child interviews could take place without much disruption of the children's lunch period. So that none of the children would feel left out, all children in the first, second, and fourth grades were given the same fruits and vegetables on their trays during school lunch. In addition, all children were given nametag necklaces in the shape of a Penn State lion's PAW, which they wore on the three days per week that the Penn State Team was present during school lunch.

After observations of fruit and vegetable consumption during baseline conditions, half of the classrooms from each grade were randomly assigned to receive token reinforcement either for fruit consumption or for vegetable consumption. Four classrooms from each grade were

selected for targeted observations so that observers would have no more than 12 children at any one time for whom they were recording fruit and vegetable consumption ($n=313$; 153 boys, 160 girls; mean age = 8.2, SD = 1.3; 98 first graders, 95 second graders, 120 fourth graders). Statistical analyses to examine the effects of the token reinforcement program on fruit and vegetable consumption were conducted only for the 188 children of these children (60.1%) who were observed while eating the school-provided lunch for at least four meals under baseline conditions and 12 meals under token reinforcement conditions (92 boys, 96 girls; mean age = 8.0, SD = 1.4; 60 first graders, 61 second graders, 67 fourth graders).

Of the total 346 children in all the three grades, parents of 229 children (66.2%) gave permission for us to conduct child interviews to evaluate delayed effects of the "Kids Choice" token reinforcement program on children's fruit and vegetable preference ratings. Statistical analyses to examine effects of the program on preference ratings two weeks after completion of the program were conducted only for the 158 of these children (70%) who had been present for at least eight meals under token reinforcement and who had been present for interviews under both baseline and follow-up conditions (71 boys, 87 girls; mean age = 8.1, SD = 1.3; 49 first graders, 51 second graders, 58 fourth graders). Statistical analyses to examine effects of the program on preference ratings seven months after the program were conducted only for 98 of these 158 children (62.0%) whose parents again gave permission for child interviews during the following school year (41 boys, 57 girls; mean age = 7.8, SD = 1.2; with 35 of the original first graders now in second grade, 40 second graders now in third grade, 23 fourth graders now in fifth grade).

Parent questionnaire

Included with the informed consent documents, parents received a brief questionnaire that requested demographic information and parent ratings of their children's fruit and vegetable preferences during home meals. Unless the father was the primary caretaker of the child, the mother was asked to complete the questionnaire because of past research indicating that the mother is typically the 'nutrition gatekeeper' for the family (McIntosh & Zey, 1989) and the most accurate source of information about behavior patterns of young children (Babbitt et al., 1995). To measure the child's preference for fruits and vegetables during home meals, the parent was given a list of 16 commonly available fruits and vegetables including eight fruits and eight vegetables (presented in random order): pineapples, pears, peaches, applesauce, fruit cocktail, apples, oranges, bananas, cole slaw, green beans, corn, potatoes, sauerkraut, carrots, celery, and tomatoes. These foods were selected from those listed on three months of the school's lunch menus, with the addition of the six fresh foods that would be added to the lunch tray during baseline and token reinforcement conditions (apples, oranges, bananas, carrots, celery, tomatoes). Parents were asked to rate how much their children liked each of the 16 foods (1 = does not like it, 2 = just OK, 3 = lkes it). The child's fruit preference score according to the parent was calculated as the mean of the eight fruit ratings, and the vegetable preference score was the mean of the eight vegetable ratings.

Lunch observations

Lunch observations to measure the children's fruit and vegetable consumption were conducted three days a week by 10 trained observers, with a total of six meals observed under baseline condition and a total of 18 meals observed under token reinforcement conditions. Each observer was randomly assigned to record the fruit and vegetable consumption of between 8 and 12 children during each of the 30 min lunch periods provided for each grade. During each meal, observers recorded whether or not children consumed at least 1/8 cup of fruit and whether or not they consumed at least 1/8 cup of vegetables. By law, the school lunch always included at least one serving of milk, meat or meat substitute, a grain product, and fruit and vegetables. To give children more food choice, one fresh fruit and one fresh vegetable were added to lunch trays during all observed baseline and token reinforcement meals. The fruits and vegetables chosen were selected because they were readily available in local markets throughout the weeks of the school lunch program, they were relatively low in cost, and they had many of the features found by past research to be associated with children's fruit and vegetable acceptance, such as being familiar, colorful, crunchy or juicy, and presented in small pieces (Burchett, 2003). The specific fruits chosen included one small apple, one small orange, or one-half banana. The specific vegetables chosen included two three-inch sticks of celery, four baby carrots, or four grape tomatoes. These foods were added to the school lunch in a counterbalanced order so that each fruit was paired with each vegetable at least once across all the weeks of the study, and so that each fruit and each vegetable were presented each observed day of the week. Care was also taken that the added fruit and vegetable were not served on the same day the school-provided lunch included those foods.

Before observing school lunches, the 10 observers were given two weeks of training so that they could identify 1/8 cup of various fruits and vegetables that might be served for school lunch. Inter-observer reliability trials were also conducted by having the 10 observers' simultaneously record fruit and vegetable consumption by 12 adult volunteers who simulated school children during two lunches. During the simulated lunches, observers stood nearby as the 12 volunteer 'children' ate lunch at a long table similar to those used at the elementary school. Besides their regular lunches that they brought with them, each volunteer was given a divided school lunch tray containing two fruits and two vegetables that would be served to

children during the forthcoming school lunches. During each meal the observers recorded whether each volunteer ate at least 1/8 cup of fruit and whether or not they ate at least 1/8 cup of vegetables. For each meal the agreement score for each observer pair was calculated separately for fruits and vegetables as the number of the 12 'children' that both observers recorded as eating that food type, divided by the number of the 12 'children' that at least one of the observers recorded as eating that food type. Finally, the mean inter-observer reliability score was calculated as the mean of these pair agreement scores for all possible pairs and across both observed meals, separately for fruits and for vegetables. The mean inter-observer reliability score was found to be 0.92 for fruit consumption and 0.94 for vegetable consumption.

Before baseline observations began, all children from first, second, and fourth grade classrooms were given a blue plastic nametag in the shape of a Penn State University lion's PAW and made into a loose necklace with a piece of colorful yarn. Children were also given an explanation for the upcoming presence of the Penn State observers by admired boy and girl peers from their classroom who told them that the Penn State Team was coming to their school during lunch to see what foods children like to eat. For consistency, the boy and girl peers were trained by the school counselor, who was well known to them and who selected them if they were popular and extroverted children whose parents had given permission for them to serve in this role. The trained observers made three practice lunch observations before they began actual baseline observations so they could learn to identify children assigned to them, and so the children could habituate to their presence. Observers were trained to be pleasant but brief in their responses to children's questions to avoid disrupting their socialization with peers.

Consumption under baseline conditions

Observations of children's fruit and vegetable consumption under baseline conditions were recorded for a total of six meals. Each of the 10 trained observers was randomly assigned up to 12 children from each grade. Each grade had a separate 30 min lunch period, with about 10 min typically required to get all children through the lunch line. Observations of each child's fruit and vegetable consumption began when the child sat down at the lunch table with his/her tray, and ended when the child got up from the table to return the tray to the clean-up location in the corner of the lunch room. To avoid discarding children from the final study sample because they had occasional absences from school or because they occasionally brought home-packed lunches instead of eating the school lunch, each child's scores for fruit and vegetable consumption during baseline conditions were based on his/her first four observed baseline meals. Fruit consumption was measured during baseline as the number of four meals in which the child consumed at least 1/8 of any fruit, and vegetable consumption was measured as the number of four baseline meals in which the child consumed at least 1/8 cup of any vegetable. (NOTE: Because some sort of salted and buttery potato was served 2 or 3 days a week, and because it was often the food most favored by children, we were concerned that inclusion of such potatoes would inflate scores for 'vegetable' consumption. As a compromise, consumption of the potato dish was scored as eating a 'vegetable' only during the first lunch it was served each week.)

Consumption under token reinforcement conditions

After observations under baseline conditions were completed, children from half of the classes in each grade were randomly assigned to receive token reinforcement conditions for a total of 18 meals, either for eating fruit or for eating vegetables. The token reinforcement conditions were designed to include the three components suggested by theory and past research for increasing both consumption and later preference ratings: small and delayed reinforcement, food choice and a requirement to eat only a small amount of the chosen food, and conditions that encouraged peer participation and modeling of fruit and vegetable acceptance. The token reinforcement conditions during school lunch were again explained to children by the same admired boy and girl peers who first introduced them to the presence of the Penn State Team during baseline conditions, with the admired peers again trained by the school counselor. Children were told that each day they ate fruit (or vegetables) during school lunch, the Penn State Team would punch one hole in their nametag PAW. They were also told that once a week they would have a Reward Day when they could trade in three holes in their PAWs for a small prize of their choice.

During token reinforcement conditions, children were required to eat at least 1/8 cup of their assigned food group in order to receive the token reinforcement of one hole punched in their PAWs. This amount was selected because it was a balance between being a relatively small amount that would reduce the risk of satiation, while also being a nutritionally meaningful amount that was equivalent to one-quarter of the recommended serving size for young children (Whitney & Rolfes, 2002). So that children would not perceive the observers as 'pushing' them to eat, observers did not initiate comments to children about which specific school lunch foods earned the token reinforcement during each observed meal. However, observers did respond to children's questions about which foods were 'fruits' or 'vegetables' and how much of the foods they needed to eat to earn hole punches in their PAWs. So that children who brought a home-packed lunch would not feel left out, another Penn State research assistant was present to punch holes in their PAWs and they were allowed to trade them in for prizes on Reward Days, but their food consumption data were not included in the final statistical analyses.

Reward Days were held once a week during school lunch so that children could trade in their token reinforcement (the three holes punched in their PAWs) for back-up reinforcement (such as fancy pencils, gel pens, notebooks, clay, playing cards, collectable cards, decals, toy gliders, plastic banks). Each Reward Day, a choice of four or five different prizes was available in large plastic bins placed on a long table in the corner of the lunchroom. Two Penn State research assistants monitored the reward table, punched a special 'cancel' code into the PAW of each child who came to trade in three holes in their PAW for a prize, and offered the child a choice of prizes.

As during baseline conditions, fruit consumption during token reinforcement conditions was measured as the number of four meals in which the child consumed 1/8 of any fruit, and vegetable consumption was measured as the number of four meals in which the child consumed 1/8 cup of any vegetable. Once again, to avoid discarding children from the final sample because of occasional absences or occasional home-packed lunches, each child's scores for fruit and vegetable consumption were based on the first 12 of the 18 observed meals under token reinforcement conditions, with these 12 meals divided into three four-meal blocks.

Child interviews

Child interviews were conducted to measure children's preference ratings for fruits and vegetables during baseline conditions, and during follow-up conditions both two weeks after and seven months after completion of the "Your Choice" token reinforcement program during school lunch. Children were randomly assigned to one of five interviewers, who were different individuals than the lunch observers so that children would not associate receiving rewards from the interviewers and inflate their preference scores in hopes of receiving a prize. Interviewers were also kept blind to whether each child was assigned to the group that received token reinforcement for eating fruits or for eating vegetables.

Each day that interviews were conducted, a member of the school staff with whom the children were familiar used the microphone in the lunchroom to introduce the Penn State Interviewers so that children would feel safe and comfortable with them. The staff member was provided with a written script that said, "The Penn State Interviewers have come to our school today to ask children how much they like foods that we sometimes have for lunch. When your interviewer calls your name, you can go out into the hall for a couple of minutes. You will not have to eat any foods. You can just tell your interviewer how much you like them. Then you can come back inside to finish your lunch. Now, let's meet the Penn State Interviewers." Interviewers introduced themselves, called out the name of one child, and escorted the child into the hallway just outside the lunch room, where they sat in two chairs facing each other.

Interviewers used a memorized written script and said, "Hello, my name is X. I came to your school today to ask children how much they like fruits and vegetables they sometimes have for school lunch. Can you help me? OK, I will give the name of a fruit or vegetable, then I will ask you to tell me how much you like it or don't like it. Let's use these three faces to make it easier. Would you point to the face we use to show we don't like a food? Would you point to the face we use to show we really like a food? Would you point to the face we use to show that a food is just OK?" Children were given a laminated card with three cartoon faces (frown face, neutral face, smile face) as developed by Birch and Sullivan (1991) to obtain food preference ratings. If the child's responses indicated that he/she was using the three faces in the intended manner, the child was asked to point to the face that showed his preference rating for each of the eight fruits and eight vegetables rated in the parent questionnaire. For each food rating, the frown face was scored as 1, the neutral face was 2, and the smile face was 3. The interviewer ended the brief interview by saying, "Thank you very much for helping us! You can go back inside now to finish your lunch." Each child's overall preference score for fruit was then defined as the mean of the eight fruit ratings, and the overall preference score for vegetables was the mean of the eight vegetable ratings.

Because we hoped that a unique feature of our "Kids Choice" school lunch program was that it was designed to avoid 'overjustification effects' and that it would be shown to increase both consumption and preference ratings, we examined the psychometric properties of our measurement of fruit and vegetable preference. For example, internal reliability of the preference scores was assessed with Cronbach alpha coefficients and found to be .76 for the eight fruit ratings used for the overall fruit preference score ($n=173$) and .60 for the eight vegetable ratings ($n=173$), with the preference ratings for cole slaw and sauerkraut often being noticeably lower than those of the other vegetables. To evaluate test–retest reliability for the preference scores, a second interview was conducted during baseline conditions for a random subset of the children interviewed and Pearson correlation coefficients were calculated for the two scores, which were found to be 0.87 for the fruit preference score ($n=127$, $P<0.001$) and 0.75 for the vegetable preference score ($n=128$, $P<0.001$). Criterion validity of the preference scores was examined by calculating Pearson correlation coefficients between the child's preference score and the child's actual consumption of that food type during baseline conditions (defined as the number of four baseline meals during which at least 1/8 cup of that food type was eaten), which were found to be significant both for fruit ($r=0.50$, $n=138$, $P<0.001$) and for vegetables ($r=0.35$, $n=139$, $P<0.001$). Finally, convergent validity for the preference scores was examined by calculating Pearson correlation coefficients between the preference scores given by the children themselves and those provided by their parents, which were found to be 0.85 for fruit ($n=90$, $P<$

0.001) and 0.68 for vegetables ($n=94$, $P<0.001$). These results suggest that the child interviews used in the present study produced measurements of fruit and vegetable preference ratings with acceptable reliability and validity.

Besides interviews under baseline conditions, interviews were also conducted under follow-up conditions two weeks and seven months after completion of the token reinforcement phase of the "Kids Choice" school lunch program. For the 2-week follow-up interviews, children were in the same grade and school as during the baseline interviews. For follow-up interviews conducted at seven months, however, the first and second grade children were in the next grade at the same elementary school, and the fourth graders were in fifth grade at the nearby middle school. Children were again randomly assigned to one of the trained interviewers who conducted the baseline interviews, and interviews used the same list of 16 fruits and vegetables and the same three cartoon faces to gather a three-point preference rating for each food. As before, the overall fruit preference rating was calculated as the mean rating for the eight fruits, and the vegetable preference rating was the mean rating for the eight vegetables.

Results

Preliminary analyses

Before conducting analyses of variance (ANOVAs) to examine the effectiveness of the "Kids Choice" school lunch program for changing children's consumption and preference ratings of fruits and vegetables, preliminary analyses were made to determine whether children began the program with differences in fruit and vegetable acceptance, grade differences in their acceptance, or gender differences. First, correlated *t*-tests examined whether children showed differences in their acceptance of fruits or vegetables under baseline conditions, with consumption defined as the number of four baseline meals in which at least 1/8 cup of the food type was eaten, and with preference rating defined as the mean three-point rating given for eight foods of that type. Results indicated that under baseline conditions children consumed more fruit than vegetables ($t_{corr(208)}=7.14$, $P<0.001$) with a mean of 2.46 meals (SD = 1.25) children ate fruit and 1.76 meals (SD = 1.18) they ate vegetables. Under baseline conditions children also gave higher preference ratings for fruits than for vegetables ($t_{corr(172)}=9.84$, $P<0.001$) with a mean rating of 2.48 (SD = 0.42) for fruit and 2.12 (SD = 0.39) for vegetables. Next, one-way ANOVAs examined whether first, second, and fourth graders showed differences in consumption and preference ratings for fruits and vegetables under baseline conditions. Results found significant grade differences in baseline fruit consumption ($F_{(2,185)}=11.44$, $P<0.001$), with a mean of 2.18 meals (SD = 1.32) for first graders, 2.21 meals (SD = 1.21) for second graders, and 3.06 meals (SD = 1.01) for fourth graders, indicating that children in higher grades consume more fruits than children in lower grades. Significant grade differences were also found for baseline vegetable consumption ($F_{(2,185)}=2.75$, $P<0.07$), with a mean of 1.55 meals (SD = 1.05) for first graders, 1.67 meals (SD = 1.18) for second graders, and 2.01 meals (SD = 1.25) for fourth graders, indicating that children in higher grades consume more vegetables than children in lower grades. However, one-way ANOVAs found no grade differences in baseline preference for fruit or vegetables ($F_{(2,154)}=1.86$, $P<0.16$; ($F_{(2,155)}=1.29$, $P<0.28$; respectively), indicating that children in higher grades consume more fruits and vegetables than children in lower grades despite having no greater preference for them. Finally, *t*-tests found no significant gender differences in fruit or vegetable consumption ($t_{(186)}=1.58$, $P<0.12$; $t_{(186)}=3.1$, $P<0.76$; respectively), or fruit or vegetable preference ($t_{(155)}=1.16$, $P<0.25$; $t_{(156)}=0.39$, $P<0.70$; respectively).

Based on results from these preliminary analyses, ANOVAs used to examine the effectiveness of the present school lunch program were conducted separately for fruits and vegetables, and separately by grade but not gender. Another reason to conduct separate analyses by grade was a practical consideration: many schools use separate lunch

Table 1
Results from 4×2 repeated-measures ANOVAs to examine changes in fruit consumption and vegetable consumption across four study phases (one four-meal block under baseline, three four-meal blocks under token reinforcement in the "Kids Choice" program), for children who received reinforcement for eating one of two food types (fruit, vegetable)

	FIRST GRADE		SECOND GRADE		FOURTH GRADE	
	F	$P<$	F	$P<$	F	$P<$
FOR FRUIT CONSUMPTION:						
Study phase	$18.98_{(3,174)}$	0.001	$14.66_{(3,177)}$	0.001	$13.66_{(3,195)}$	0.001
Food type reinforced	$26.92_{(1,58)}$	0.001	$21.42_{(1,59)}$	0.001	$18.66_{(1,65)}$	0.001
Study phase×Food type reinforced	$11.04_{(3,174)}$	0.001	$11.94_{(3,177)}$	0.001	$16.99_{(3,195)}$	0.001
FOR VEGETABLE CONSUMPTION:						
Study phase	$16.39_{(3,174)}$	0.001	$16.53_{(3,177)}$	0.001	$17.77_{(3,195)}$	0.001
Food type reinforced	$13.91_{(1,58)}$	0.001	$28.98_{(1,59)}$	0.001	$20.70_{(1,65)}$	0.001
Study phase×Food type reinforced	$11.71_{(3,174)}$	0.001	$13.82_{(3,177)}$	0.001	$12.26_{(3,195)}$	0.001

Dependent variables are the number of four meals in which at least 1/8 cup of the food type was consumed. Separate ANOVAs are shown for 60 1st graders, 61 2nd graders and 67 4th graders. (See Figs. 1 and 2).

periods for children in different grades, making it cost-effective to know whether setting up the present school lunch program would be worthwhile only for certain grades.

Changes in fruit and vegetable consumption

To evaluate the effectiveness of the "Kids Choice" school lunch program for increasing children's consumption of fruits and vegetables 4×2 repeated-measures ANOVAs were conducted, separately for each grade. The analyses considered four study phases as the within-subjects factor (one four-meal block under baseline, three four-meal blocks under token reinforcement), and two food types reinforced as the between-subjects factor (fruit, vegetable). One set of analyses used fruit consumption as the dependent variable, defined as the number of four meals in which at least 1/8 cup of fruit was consumed (Table 1 and Fig. 1). Another set of analyses used vegetable consumption as the dependent variable, defined as the number of four meals in which at least 1/8 cup of vegetables was consumed (Table 1 and Fig. 2). Of greatest interest to us in these analyses was a significant interaction effect between study phase and food type reinforced, especially if it revealed an increase in consumption from baseline through token reinforcement selectively for children reinforced for eating that food type.

The first three rows in Table 1 report ANOVA results (seperately for each grade) that examined changes in fruit consumption from baseline through token reinforcement conditions, for children reinforced for eating either fruits or vegetables. For all grades, a significant interaction effect was found between study phase and food type reinforced, with a lasting increase in fruit consumption shown from baseline through all three blocks of token reinforcement, but only for children who has been reinforced for eating fruit. (See Fig. 1.) Post-hoc comparisons using correlated *t*-tests revealed that only children reinforced for eating fruit showed a lasting increase in fruit consumption from baseline through the first, second, and third blocks of reinforcement, with this pattern found for first graders ($t_{corr(28)}=6.31$, $P<0.001$; $t_{corr(28)}=4.82$, $P<0.001$; $t_{corr(28)}=3.72$, $P<0.001$; respectively), second graders ($t_{corr(32)}=7.31$, $P<0.001$; $t_{corr(32)}=4.52$, $P<0.001$; $t_{corr(32)}=6.00$, $P<0.001$; respectively), and fourth graders ($t_{corr(33)}=5.92$, $P<0.001$; $t_{corr(33)}=4.41$, $P<0.001$; $t_{corr(33)}=3.44$, $P<0.001$; respectively). In contrast, children reinforced for eating vegetables showed at most only a temporary increase in fruit consumption from baseline to the first block of reinforcement, as seen with first and second graders ($t_{corr(30)}=2.87$, $P<0.009$; $t_{corr(27)}=2.09$, $P<0.05$; respectively) but with fourth graders reinforced for eating vegetables showing no significant increases in fruit consumption at all.

The second three rows in Table 1 report ANOVAL results (seperately for each grade) that examined changes in vegetable consumption from baseline through token reinforcement conditions, for children reinforced for eating

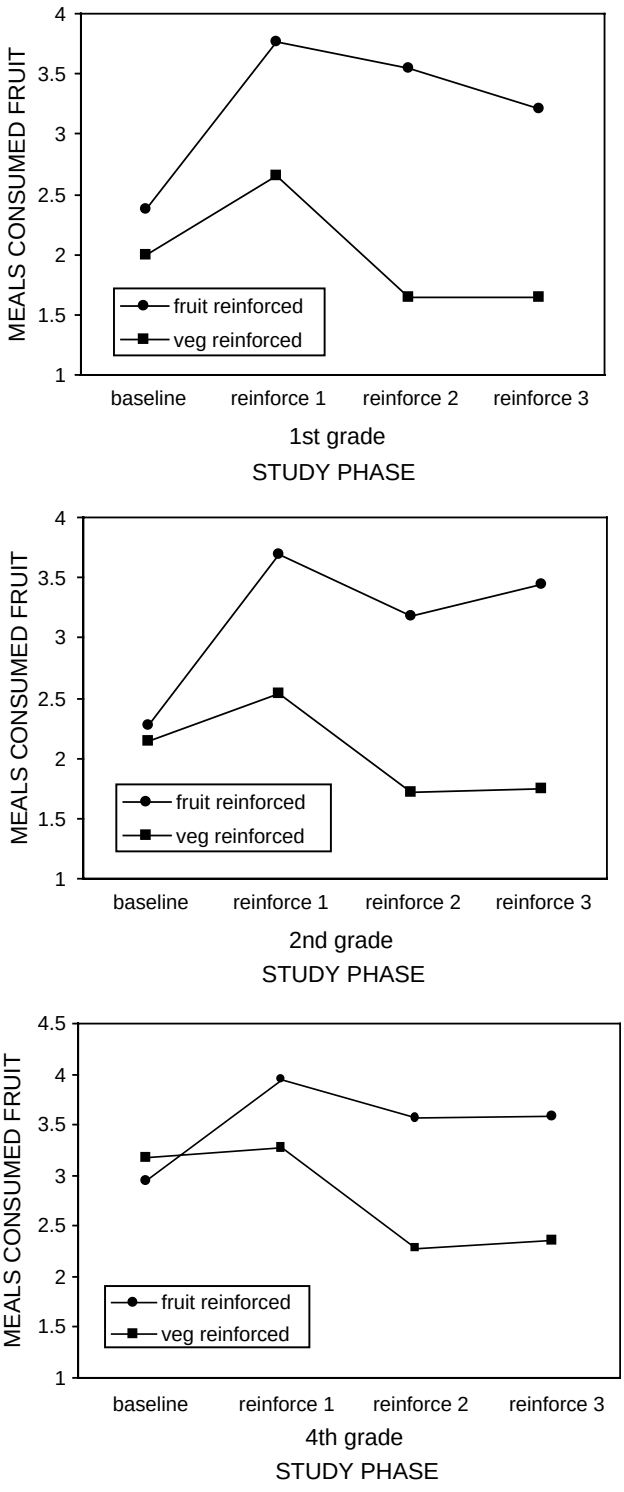

Fig. 1. Changes in fruit consumption across four study phases (one four-meal block under baseline, three four-meal blocks under token reinforcement in the "Kids Choice" program) for children who received reinforcement for eating either fruit or vegetables. Fruit consumption was scored as the number of four meals in which 1/8 cup of fruit was consumed, with significant and lasting increases seen only for children reinforced for fruit ($P<0.001$). Graphs are shown for 60 1st graders (29 reinforced for fruit, 31 for vegetables), 61 2nd graders (33 reinforced for fruit, 28 for vegetables), 67 4th graders (34 reinforced for fruit, 33 for vegetables).

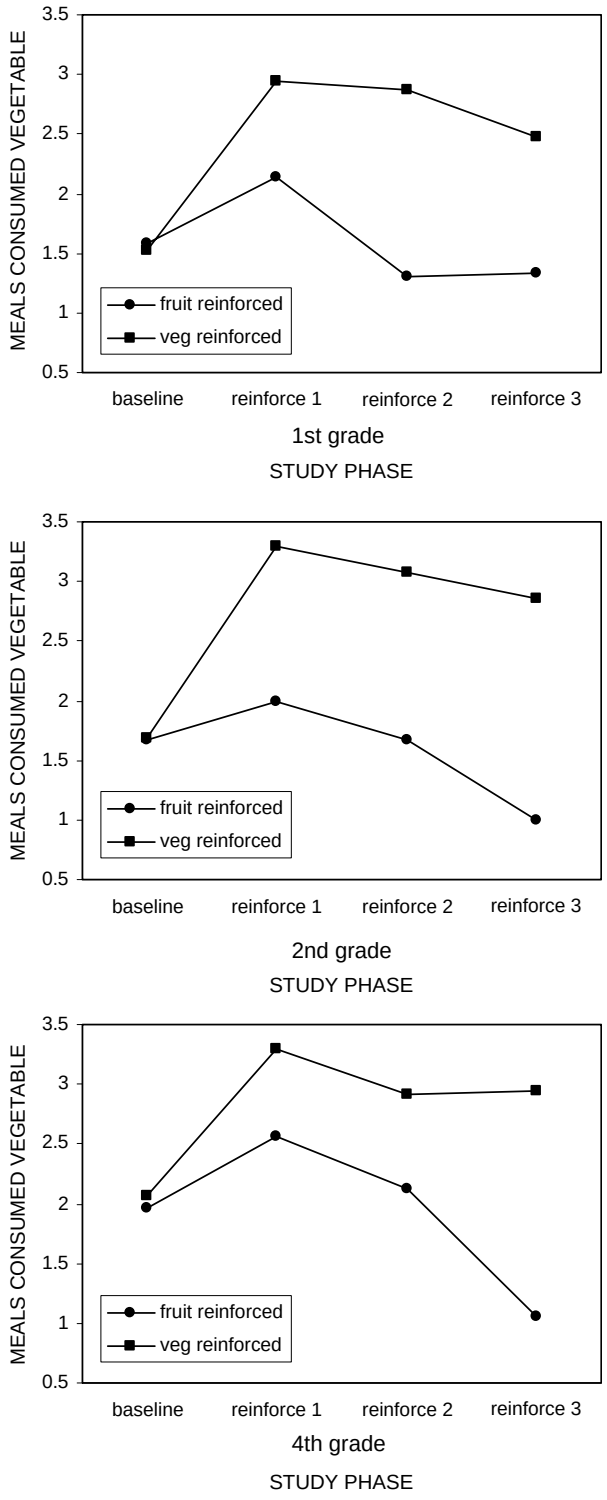

Fig. 2. Changes in vegetable consumption across four study phases (one four-meal block under baseline, three four-meal blocks under token reinforcement in the "Kids Choice" program) for children who received reinforcement for eating fruit or vegetables. Vegetable consumption was scored as the number of four meals in which 1/8 cup of vegetables was consumed, with significant and lasting increases seen only for children reinforced for vegetables ($P<0.001$) Graphs are for 60 1st graders (29 reinforced for fruit, 31 for vegetables), 61 2nd graders (33 reinforced for fruit, 28 for vegetables), 67 4th graders (34 reinforced for fruit, 33 for vegetables).

either fruits or vegetables. As with results for fruit consumption, a significant interaction effect was found for all grades between study phase and food type reinforced, with a lasting increase in vegetable consumption shown from baseline through all three blocks of token reinforcement, but only for children reinforced for eating vegetables. (See Fig. 2.) Post hoc comparisons revealed that only children reinforced for eating vegetables showed a lasting increase in vegetable consumption from baseline through the first, second, and third blocks of reinforcement, with this pattern found for first graders ($t_{corr(30)}=7.06$, $P<0.001$; $t_{corr(30)}=8.60$, $P<0.001$; $t_{corr(30)}=4.31$, $P<0.001$; respectively). Second graders ($t_{corr(27)}=7.98$, $P<0.001$; $t_{corr(27)}=6.16$, $P<0.001$; $t_{corr(27)}=4.58$, $P<0.001$; respectively), and fourth graders ($t_{corr(32)}=5.82$, $P<0.001$; $t_{corr(32)}=3.50$, $P<0.001$; $t_{corr(32)}=3.98$, $P<0.001$; respectively). In contrast, children reinforced for eating fruit showed at most only a temporary increase in vegetable consumption from baseline to the first block of reinforcement, as seen with first and fourth graders ($t_{corr(28)}=2.82$, $P<0.01$; $t_{corr(33)}=2.68$, $P<0.02$; respectively) but with second graders reinforced for eating fruit showing no significant increases in vegetable consumption at all.

Changes in fruit and vegetable preference ratings

To evaluate effectiveness of the "Kids Choice" school lunch program for changing preference ratings of fruits and vegetables two weeks after completion of the program, 2×3 repeated measures ANOVAs were conducted, using the two study phases as the within-subjects factor (baseline, follow-up), and using the three grades as the between-subjects factor (first, second, fourth). To enter these analyses, children were required to have been present for at least eight school meals under their token reinforcement conditions. For children who had been reinforced for eating fruits, the dependent variable was the mean three-point preference rating given for eight fruits. For children who had been reinforced for eating vegetables, the dependent variable was the mean preference rating given for eight vegetables. Of greatest interest to us in these analyses were main effects for study phase and whether they showed a drop in preference for the reinforced food, which would suggest 'overjustification effects', or whether they showed a steady or increased preference for the reinforced food, which would suggest that the token reinforcement used in the "Kids Choice" school lunch program had been effective for increasing children's fruit and vegetable consumption (as shown above) without signs of later 'overjustification effects'. The first three rows in Table 2 display ANOVA results two weeks after the program, with fruit preference ratings given by 76 children reinforced for eating fruit, and vegetable preference ratings given by 82 children reinforced for eating vegetables. Two weeks after the "Kids Choice" school lunch program, fruit preference ratings had increased above baseline levels for all grades, as shown in

Table 2
Results from 2×3 repeated measures ANOVAs examine changes in fruit preference and vegetables preference between baseline and follow-up conditions, with separate analyses conducted in follow-up conditions two weeks and seven months after completion of the "Kids Choice" school lunch program for children from three grades (first, second, fourth)

	FRUIT PREFERENCE RATING		VEGETABLES PREFERENCE RATING	
	F	*P*<	*F*	*P*<
AT TWO-WEEK FOLLOW-UP:				
Study phase	$6.59_{(1,73)}$	0.02	$3.49_{(1,79)}$	0.07
Grade	$0.56_{(2,73)}$	0.58	$0.76_{(2,79)}$	0.48
Study phase×Grade	$0.29_{(2,73)}$	0.75	$0.38_{(2,79)}$	0.69
SEVEN-MONTH FOLLOW-UP:				
Study phase	$0.34_{(1,\ 43)}$	0.57	$0.83_{(1,49)}$	0.37
Grade	$0.04_{(2,\ 43)}$	0.96	$1.46_{(2,49)}$	0.25
Study phase×Grade	$0.41_{(2,\ 43)}$	0.67	$0.82_{(2.49)}$	1.45

Dependent variables were the mean three-point rating given for eight fruits and for eight vegetables. (see Fig. 3)

the significant main effect for study phase ($P<0.02$). (See Fig. 3a) Vegetable preference ratings also increased for all grades, with a marginally significant main effect for study phase ($P<0.7$) (See Fig. 3b.).

To evaluate effectiveness of the "Kids Choice" school lunch program for changing preference ratings for fruits and vegetables 7 months after completion of the program, 2×3 repeated measures ANOVAs were conducted, again with the two study phases as within-subjects factor (baseline, follow-up), and with the three grades as the between subjects factor (first, second, fourth). As before, children were required to have been present for at least eight school meals under token reinforcement conditions, but because they were in a new grade and/or school, they also required a second signed permission form from their parents. For children reinforced for eating fruit, the dependent variable was the mean preference rating for eight fruits. For children reinforced for eating vegetable, the dependent variable was the mean preference rating for eight vegetables. We were again most interested in the main effects for study phase as an indication of whether the 'Kids Choice' program had been effective for increasing children's fruit and vegetable consumption without showing delayed 'overjustification effects'. The second row in Table 2 display ANOVA results seven months after the program, with fruit preference ratings given by 46 children reinforced for eating fruit, and with vegetable preference rating given by 52 children reinforced for eating vegetables. Seven months after the 'Kids Choice' school lunch program, fruit preference ratings had returned to baseline levels for all grades as shown in the non-significant main effect for study phase ($P<0.57$), with an overall mean fruit preference rating of 2.47 (SD=0.07) at baseline and 2.49 (SD=0.06) at the seven month follow-up. Vegetable preference ratings had also returned to baseline levels seven months after completion of the program ($P<0.37$), with an overall vegetable preference rating of 2.09 (SD=0.06) at baseline and 2.15 (SD=0.05) at the 7-month follow-up.

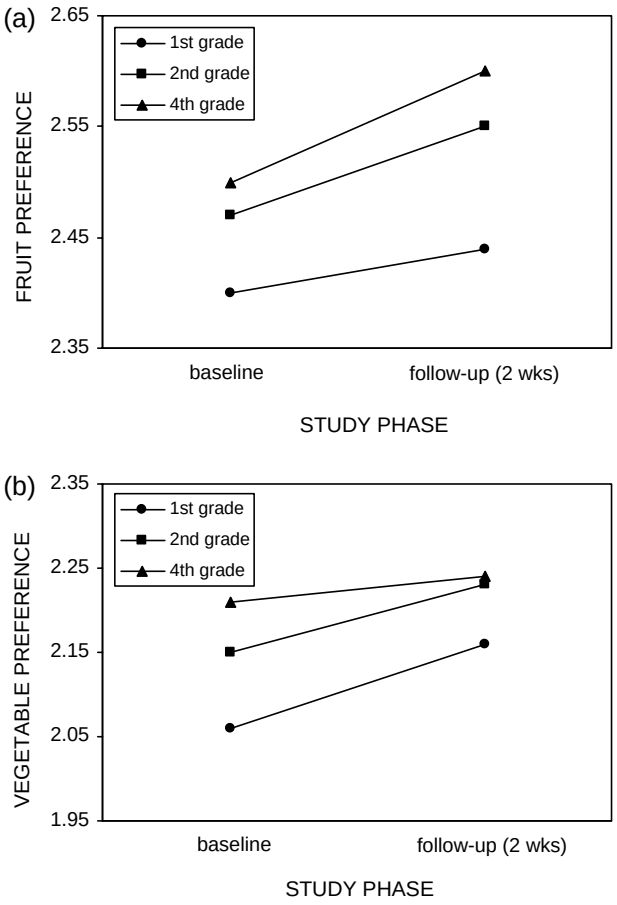

Fig. 3. (a) Changes in mean three-point preference ratings for eight fruits from baseline to follow-up conditions two weeks after completion of the "Kids Choice" school lunch program ($P<0.02$) for 76 children reinforced for eating fruit (17 1st graders, 27 2nd graders, 32 4th graders). (b) Change in preference ratings for eight vegetables ($P<0.07$) for 82 children reinforced for eating vegetables (32 1st graders, 24 2nd graders, 26 4th graders).

Discussion

Results of the present study indicate that the "Kids Choice" school lunch program using token reinforcement, food choice, and peer participation was effective for increasing children's fruit and vegetable consumption, that the increases were shown for children in all grades considered (first, second, fourth), and that the increases lasted throughout the duration of the school lunch program. The results also indicate that two weeks after completion of the "Kids Choice" school lunch program, children in all grades had increased their fruit and vegetable preference ratings above baseline levels, with preferences for vegetables more difficult to change significantly than

preferences for fruits. Seven months later, both fruit and vegetable preferences had returned to baseline levels, suggesting the need for a more ongoing program to keep preferences high, but also demonstrating that the "Kids Choice" school lunch program had avoided 'overjustification effects" sometimes found in past research as delayed drops in food preferences after reinforcement is offered for food consumption.

How the program avoided 'overjustification effects'

According to past research and theory, token reinforcement used in the 'Kids Choice' school lunch program avoided later drops in food preference called 'overjustification effects' because it included three recommended components: (1) Small and delayed reinforcement—Past research suggests that by only presenting Reward Day once a week when children could trade tokens for small prizes, the prizes may have become less prominent and the children may have had more opportunity to become familiar with the rewarding tastes of the fruits and vegetables themselves (Eisenberger & Cameron, 1996; Hitt et al., 1992; Newman & Layton, 1984). (2) Food choice and only being required to eat a small amount of the fruit or vegetable—Based on Self Determination Theory (Deci & Ryan, 1985), the daily offer of two choices for both fruit and vegetables in the "Kids Choice" school lunch program may have reduced the risk that children felt pushed to eat specific foods, which would have allowed development of 'intrinsic motivation' to eat the foods. Also, by requiring that children eat only a small amount (1/8 cup) of their chosen food to earn reinforcement, they would have been less likely to eat beyond the point of satiation (Eisenberger & Cameron, 1996; Rolls et al., 1981), and they would have been more likely to accumulate the 8–10 taste exposures believed necessary to increase food preference (Birch & Marlin, 1982; Birch et al., 1987; Sullivan & Birch, 1990; Wardle et al., 2003). (3) Conditions that encourage peer participation and modeling—Social Cognitive Theory (Bandura, 1997) would suggest that the "Kids Choice" school lunch program enhanced children's 'self-efficacy' or confidence to eat and enjoy fruits and vegetables because it provided repeated exposure to peer models eating these foods. Group Socialization Theory (Harris, 1995) would also propose that the most powerful component of the "Kids Choose" school lunch program was its inclusion of conditions in which children were surrounded by peers who were eating fruits and vegetables. Anecdotally, children in the present study often spontaneously made comments to each other about fruits and vegetables served during school lunch, with unusual methods of consuming the foods were seen to move down the lunch table in a 'wave' (such as using a fork to eat apples, using a straw to eat oranges, or stuffing small tomatoes into each cheek to squish out the juice).

Why fruits were more readily accepted than vegetables

As expected from past research (Baxter & Thompson, 2002; Burchett, 2003; Domel et al., 1993; Edwards & Hartwell, 2002) children of the present study accepted fruits more readily than vegetables under baseline conditions, as shown in both the number of days they ate the foods during observed school lunches, and in the preference ratings they gave the foods during child interviews. Fruit preference ratings were also easier to increase than vegetable preference ratings taken 2 weeks after completion of the school lunch program, with the increases in preference ratings statistically significant for fruit ($P<0.02$) but only marginally significant for vegetables ($P<0.07$). One interpretation of these findings is that fruits are accepted more readily than vegetables because of their higher energy density or sweeter flavor (Birch, 1979; Drewnowski & Specter, 2004; Gibson & Wardle, 2003). However, consumption of low density vegetables especially at the beginning of the meal has been shown to have a strong association with portion control, total calorie control, and lasting weight management (Rolls, Ello-Nartin, & Tohill, 2004; Rolls, Roe, & Meengs, 2004), making it particularly important that programs be developed that can encourage children to develop a lasting acceptance of vegetables as well as fruits. Unfortunately, the present "Kids Choice" school lunch program was successful only in producing temporary increases in children's fruit and vegetable preference ratings as seen 2 weeks after the program was completed, whereas 7 months later they had returned to baseline levels.

Why increases in fruit and vegetable preference were only temporary

One interpretation for why improvements in children's fruit and vegetable preference ratings were only temporary in the present study is that the "Kids Choice" school lunch program did not last long enough to allow children to reach the threshold of 8–10 taste exposures with a specific food believed necessary to produce more lasting increases in preference (Birch & Marlin, 1982; Birch et al.,1987; Sullivan & Birch, 1990; Wardle et al., 2003). Future research could evaluate whether the "Kids Choice" school lunch program conducted as an ongoing program throughout the school year would produce more lasting changes to children's fruit and vegetable preference ratings. The selection of specific fruits and vegetables to target for improvement in such an ongoing program could be guided by research indicating that children most readily accept foods that are colorful, crunchy or juicy, and presented in small pieces (Burchett, 2003), but with the caution that children's acceptance of such fruits and vegetables would be reduced if less nutritious foods that are high in fat, salt, or sugar are also available (ADA, 2000; Bauer et al., 2004; Cullen et al., 2000; Drewnowski & Specter, 2004; Gibson &

Wardle, 2003). Similar patterns were seen in the present study during baseline conditions when 53.8% of the 313 children ate (1/8 cup of) oranges, 52.1% ate bananas, 41.9% ate apples, 32.2% ate carrots, 32.1% ate tomatoes, and 14.5% ate celery, but these fresh fruit and vegetable choices could not compete with the salted and buttery potato dish, which was eaten by 81.4% of the children. However, besides selecting target fruits or vegetables with sensory characteristics most likely to be accepted by children, and applying the "Kids Choice" school lunch program for longer durations so each target food is presented enough so children can reach the threshold of eight to ten taste exposures, an ongoing program would also need to take care not to produce satiation effects by offering the target foods too often (Rolls et al., 1981), and future research is needed to identify such satiation thresholds for various food types.

Other suggestions for future research

Future research could also evaluate the cost-effectiveness of the "Kids Choice" school lunch program and its acceptability to school staff and parents (Burchett, 2003; Lytle & Achterberg, 1995; Reynolds et al., 2000), factors which are probably of particular importance to school superintendents and principals in making the decision to adopt the program for their schools. For example, what is the dollar cost, per month, per 100 children showing improvement in fruit and vegetable acceptance? Such costs could include purchase of the fresh fruits and vegetables added to the school lunch, materials to make nametags, hole punchers to deliver token reinforcement, and small prizes used as backup reinforcement. The cost-effectiveness of the "Kids Choice" school lunch program would also be enhanced by an examination of how 'thin' the reinforcement schedule of reinforcement could be and still be effective for increasing children's consumption and preference ratings of fruits and vegetables. For example, could children be given token reinforcement two days a week instead of three, and could Reward Day be offered every two weeks instead or every week?

Finally, future research could examine the effectiveness of the "Kids Choice" school lunch program when applied to more individualized nutrition problems children may face, such as being overweight or being extremely food selective (a 'picky eater'). During token reinforcement conditions of the present study, we were pleasantly surprised to find that children who were required to eat one food type to receive reinforcement rarely complained that other children were reinforced for eating the other food type. From this observation, we believe that the token reinforcement procedures of the "Kids Choice" program could be applied to different target behaviors for each child. For example, overweight children could be reinforced for weight management behaviors such as making low-fat choices (e.g. lowfat milk instead of whole milk) or showing portion control actions such as eating fruits or vegetables first, which has been found to reduce consumption of later high calorie foods by 12% (Rolls, Roe, & Meengs, 2004). Food selective children who usually eat only a limited number of foods could be reinforced for choosing foods from all four-food groups. Perhaps such an individualized "Kids Choice" school lunch program could serve the needs of children with specialized nutrition problems so some of them may avoid being singled out for hospital clinics and special camps.

The "Kids Choice" school lunch program developed and evaluated in the present study shows promise as a simple and effective method to increase children's fruit and vegetable acceptance. The program requires only a few changes to school lunch rather than requiring changes in school curriculum and home environments, so it may be more readily accepted by school staff and parents than more labor-intensive and multi-component programs (Baranowski et al., 2000; Horne et al., 1995; Perry et al., 1998; Resnicow et al., 1992; Reynolds et al., 2000). We believe school lunch provides a unique opportunity for prevention and intervention efforts to improve children's nutrition because it provides children with their most consistent presentation of fruits and vegetables, it takes place 5 days a week, and it offers a perfect setting in which to harness the power of peers to encourage children to eat and enjoy nutritious foods.

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