Feeding Frenzy: Using Picture Schedules to Reduce Mealtime Struggles

Joseph Vedora
Robert Ross
Kelly Kelm

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Abstract

Children with autism and other disabilities frequently do not eat a variety of foods, eating only a few very specific foods. Additionally, many children are extremely resistant to trying different foods and attempts to introduce new foods often result in problem behaviors. This can have serious health implications for some children, as the foods they eat may not provide sufficient nutrients. Food refusal can also be extremely stressful for parents, and while effective strategies supported by research exist, these may be difficult for parents to implement. Our recent work with picture activity schedules suggests that this may be an easy to implement and viable alternative to other more complex procedures. We describe a case study in which introduction of a picture activity schedule significantly increased the types of foods eaten by a young boy with autism, and we offer suggestions for parents and educators interested in implementing such picture schedules.

Keywords

Autism, feeding, picture schedule

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Introduction

When Cal was 2, he consumed just three foods: Strawberry PediaSure®, chocolate candy, and oatmeal. Cal is one of a growing number of children with autism that eat a limited number of foods. Indeed, feeding problems are quite common among children with autism and other developmental disabilities. Their restricted food repertoire may put these children at increased risk for health problems including excessive weight loss, lethargy, malnutrition, diminished function and growth retardation (Riordan, Iwata, Finney, Wohl, & Stanley, 1984). Additionally, family mealtime can be a difficult and frustrating experience for parents and siblings. Parents' attempts to introduce new foods often prove futile and may lead to disruptive behavior. These frustrating experiences often lead parents to feed their children only their most preferred foods to ensure that get at least some nutrients and to minimize the disruptions at mealtimes. Several interventions have been demonstrated to be effective at increasing consumption of non-preferred foods and improving mealtime behavior utilizing procedures such as non-removal of the spoon or escape extinction (Ahearn, Kerwin, Eicher, Shantz, & Swearingin, 1996; Cooper et al., 1995; Kerwin, Ahearn, Eicher, & Burd, 1995; Hoch, Babbit, Coe, Krell, & Hackbert, 1994) contingency management and positive reinforcement (Luiselli, Evans, & Boyce, 1985; Riordan et al., 1984;), or texture fading (Johnson & Babbitt, 1993). However, many of these procedures may be difficult for parents to implement, in particular ones that involve a combination of multiple and often complex procedures (Hagopian, Farrell, & Amari, 1996; Freeman & Piazza, 1998; Shore, Babbitt, Williams, Coe, & Synder, 1998). Thus, easy to implement alternatives are needed for parents; one such alternative may be the use of a picture activity schedule.

> ***"Mealtime became a period of unbearable distress in our home. Our attempts to introduce new foods to Cal resulted in two predictable outcomes: Cal would either erupt into a brutal rage or he would force himself to projectile vomit. Needless to say we were desperate"***
>
> ***-Cal's mother***

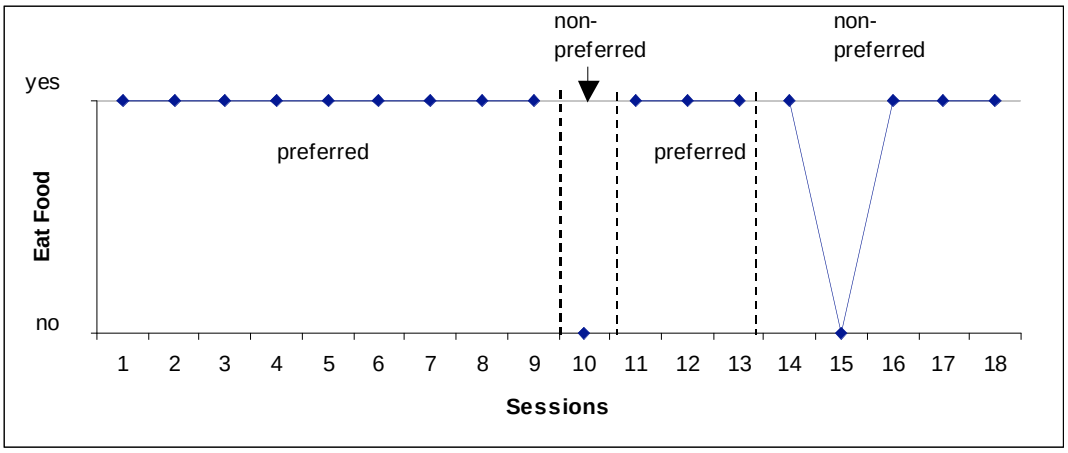
The Utility of Picture Schedules.

Picture activity schedules are widely used instructional tools for children with autism and other disabilities, and are recommended as a best practice (Quill, 1997; Wetherby & Prizant, 1999). Researchers and practitioners have found that activity schedules help increase engagement with activities while minimizing adult support (MacDuff, Krantz, & McClannahan, 1993). Picture schedules also provide students with a concrete representation of expectations and activities to come. Teachers often use schedules to facilitate transitions from preferred to non-preferred activities (Downing & Peckham-Hardin, 2001). Other applications include the use of picture schedules, as well as computerized schedules, to increase self-help, social skills, academic skills and independent play (Kimball, Kinney, Taylor, & Stromer, 2003; Pierce & Schreibman, 1994; Stromer, Kimball, Kinney, & Taylor, 2006). Additionally, many classrooms commonly use some version of a picture schedule depicting the day's activities.

Picture schedules may be an excellent supplement to traditional discrete trial instruction, which typically involves teacher-directed activities that may inadvertently limit the child's initiation of activities. McClannahan & Krantz (1999) describe a protocol for

teaching children to follow a picture activity schedule that consists of photographs of activities the child is to complete. The picture serves as a cue or reminder of what the child is to play with; hence the picture "tells" the child what to do, rather then a parent or teacher. The child may become a "picture reader", an important skill that allows students to utilize picture prompts to complete long or complex tasks (Alberto & Fredrick, 2000). Picture schedules may consist of one picture or several pictures, depending on the child's age and experience with schedules. Moreover, picture schedules may be relatively easy for parents to implement with their children (Krantz, MacDuff, & McClannahan, 1993).

Figure 1: Cal's acceptance of foods embedded in his picture schedule. *Yes* indicates Cal consumed the food item in the context of his schedule, while *no* indicates he did not. Results show only consumption of chocolate chip muffin; other food items are not represented here.



In Cal's case, he rapidly learned to follow a picture schedule consisting of play activities when he was two and half years old. Initially, his schedule consisted of highly preferred play activities (puzzles, coloring, etc). Cal thoroughly enjoyed completing his schedule and often asked to do it. Although Cal would often engage in problem behaviors during teacher-directed instructional activities, during his activity schedule problem behaviors rarely occurred. Eventually, less preferred activities were introduced into his activity schedule and Cal readily completed these, even though he would often object to these same activities during teacher paced instruction. It was at this point that we decided to address Cal's mealtime difficulties with a picture schedule, and we followed a similar pattern of introducing preferred foods followed by non-preferred foods.

Preparation

Step 1: Teaching the First Schedule

As noted, we began by teaching Cal to follow a picture schedule consisting of three "play" activities prior to targeting food consumption. It is recommended that parents and teachers wishing to apply activity schedules to mealtime routines begin by teaching the child to follow a picture schedule comprised of highly preferred play activities. This establishes the picture schedule as a fun or pre-

ferred activity and it won't be associated with demands or "work" activities. We recommend errorless teaching and prompt fading procedures to expedite learning and decrease frustration for the child. This is an approach in which the teacher provides maximum support and decreases assistance as the child begins to learn the steps. MacClannahan and Krantz (1999) offer specific guidelines for how to best teach a first schedule.

Step 2: Introducing Less Preferred Activities

Once the child independently follows the schedule, add in a less preferred activity between the preferred activities. For example, the first activity might be a highly preferred activity so that the child starts with a familiar and fun activity. Next, you can insert an activity that is less preferred by the child. It may be best to keep this brief and not require the child do the entire activity (e.g., complete 2 or 3 pieces of the puzzle instead of the entire puzzle). Lastly, the child can finish with a highly preferred activity, which will serve to reinforce or reward completion of the less preferred activity and ensure that the schedule ends on a "good note". For Cal, this consisted of his favorite puzzle, the less preferred Mr. Potato Head, and coloring on his white board which he thoroughly enjoyed. Once the child consistently completes these activities without problems you can move introduce foods in the context of the picture schedule.

"Without a doubt, the introduction of the activity schedule to Cal as a means of eating has had an impact beyond words. My son now eats - and he eats EVERYTHING - tacos, meatloaf, BBQ chicken, turkey, spaghetti & meatballs, broccoli, corn on the cob...And what's more - he now has a healthy relationship with food."

- Cal's mother

Step 3: Introducing Preferred Foods

Since the child is not used to eating in the context of his schedule you'll want to gradually introduce preferred foods into the picture schedule. You can follow the same procedure used in Step 2 to increase the likelihood of success. It's best to introduce food into the schedule at a time when you suspect the child is hungry. Thus, by embedding the favored item in between other preferred activities and presenting when the child is hungry, you will leverage things in his favor and remove the struggle previously associated with eating. Additionally, at this point you shouldn't be concerned with the child sitting at the table and eating a formal meal; instead we just want the child get into the routine of seeing a picture of the food item and eating it *without* struggling or resisting. Since there may be a long history of struggle associated with the table where meals are typically served, it may be best to complete this schedule in an area other than the meal table. This can serve to replace the old mealtime routine that may be associated with negative behaviors. Once the child is eating foods in this context (it shouldn't take long as these are preferred items) you can move onto the challenge of introducing less preferred or novel foods.

Step 4: Introducing Non-preferred Foods

Now that the child is routinely eating preferred foods in the context of the schedule, it is time to introduce novel foods. Again, it is best to embed the food item between highly preferred activities. Careful consideration should be given to the food chosen. Ideally, you can find something that has a similar texture and/or similar flavor to foods the child already eats. Admittedly, our first attempt to

introduce a novel food to Cal actually failed. In retrospect, we realized the food (i.e., applesauce) was a different texture and flavor then the foods he would eat, and his parents had tried to coax him to eat applesauce on other occasions, so there may have been a negative history with that particular food. The next food we introduced was chocolate chip muffins since we knew Cal loved chocolate. The first time Cal encountered the muffin in his schedule, he readily ate it and even asked for another one! Once the child is successfully eating the novel food in this context, you can begin to introduce other foods, again giving careful consideration to which foods are chosen.

Step 5: Family Mealtime

Once the child consistently eats several foods in the context of the schedule, it is time to address mealtime. The first step may be to introduce the schedule in the dining area where the child will be eating. While this may seem unnatural, it may be help the child associate the dinner table with positive and familiar experiences, and it will capitalize on routine following strengths. Once the child is following the schedule in the dining area, the schedule can be altered to include only food items, so that it fits more naturally into the mealtime context (i.e., the child won't be alternating between leisure and food items). At this point, it may be possible to alter the format of the schedule such that the pictures are smaller and less conspicuous. For example, pictures could be placed in a small photo album or they could be presented on small strip so that they do not occupy too much space. It also may be likely that the previously novel foods have become preferred and the child will eat them without the use of the picture schedule. Of course every child's experience will be different, so teachers and parents will need to move and the child's pace.

"Our family was desperate to get Cal to eat. We were panic-stricken about the effect this was having on his body and brain".
- Cal's mother

Final Thoughts

Cal's case highlights several advantages to the use of pictures schedules to increase consumption of non-preferred or novel foods:

- Relative ease of implementation for parents.
- Emphasis on positive procedures that eliminate struggles.
- Reliance on visual supports and familiar routines, both of which are often strengths for children with autism and other developmental disabilities.
- Teaching procedures are based on behavioral principles.

As noted, each child may respond differently to the picture schedule. Careful consideration will need to be given to the child's eating history (e.g., types of foods he eats, types of procedures previously used and the child's response, rate of learning) as well as any medical issues. Likewise, careful attention will need to be given to the initial teaching of the picture schedule. The general idea behind the use of the picture schedule is to promote a positive experience with food by capitalizing on familiar routines, so it is imperative that the child associates the picture schedule with fun and positive activities from the onset. As noted, positive reinforcement can be built into the schedule to ensure increase the likelihood of future success.

The use of the picture schedule described here incorporated several behavioral principles such as shaping and fading (Cooper, Heron, & Heward, 2007). Additionally, the instructional methodology took advantage of a phenomenon referred to as behavioral momentum, in which several high probability responses are followed by low probability responses (e.g., eating novel foods) (Mace et al., 1988). Although this approach may be more gradual than other methods, our initial work suggests that this may be an easy to implement tool for parents to address a critical problem.

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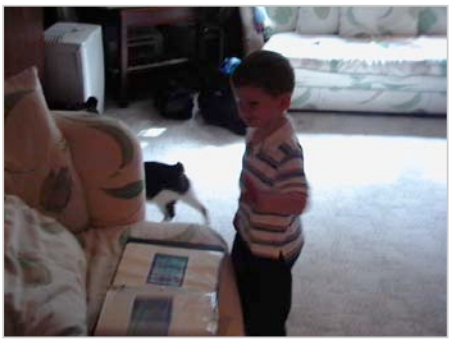
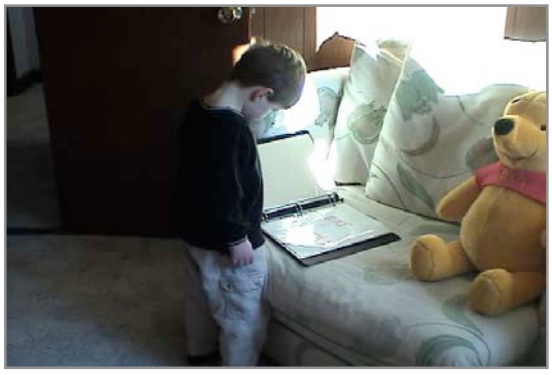
Figure 2: Photographs of Cal completing his picture schedule



1. Points to photo/text

2. Completes activity

Figure 3: Cal using his picture schedule and eating a novel food.



1. Points to photo/text

2. Obtains novel food

3. Consumes food

About the Authors:

Joseph Vedora is a Vice President of Educational Services at BEACON Services in Milford, Massachusetts.

Robert Ross is a Senior Vice President of Research and Development at BEACON Services in Milford, Massachusetts.

Kelly Kelm is a Behavioral Educator at BEACON Services in Milford, Massachusetts.