Teaching Functional Skills to Individuals with Autism and other Developmental Disabilities

Dr. Barry D. Morgenstern

Institute of Professional Practice

"Son, there's a world out there ripe for the taking. You better stay home with me."

A smart person learns from his own mistakes, but a wise person learns from the mistakes of others

What are your Goals?

Independence

Why Focus on Functional Skills?

Functional skills and Activities of Daily Living (ADLs) are critical foundations for a variety of life outcomes. These skills are related to participation in school, social opportunities, communality participation, housing, and employment.

What do adults have to help the child do that they would not have to help a typically developing child of the same age do?

What do adults have to avoid doing with the child that they would not have to avoid doing with a typically developing child of the same age?

Activities of Daily Living (ADLs)

There is a high rate of failure to teach functional skills to children with autism

Evidence for the High Rate of Failure

Green, Gilchrist, Burton, and Cox (2000) found:

50% of the children with Asperger's Syndrome were not independent in basic self care like tooth brushing

Schools are focused on academics and there is often little time scheduled for other skills.

There are often fundamental misunderstandings about what it takes to be successful

Can the person learn from rules?

If the child can learn from rules classroom based instruction can be very useful

"This baby drives so smooth you'll feel like you are flying."
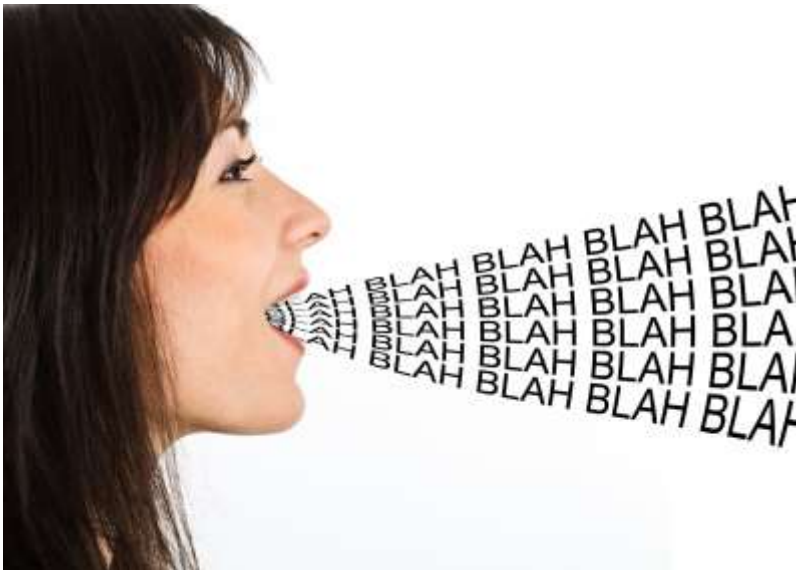
The Basic Teaching Procedures

Basics of Teaching Functional Skills

(1) Prompting- Help the person engage in the behavior

(2) Fading- Systematically remove the prompts over time

(3) Reinforcement- Provide reinforcement contingent on improvements

(4) Chaining- Combine the specific behaviors into useful functional skills

(5) Schedules- In some situations, schedules can greatly facilitate the development of functional skills

(6) Rules- In some situations, learning basic rules will greatly facilitate the development of functional skills

Prompting

Prompting is something that you do to make it more likely the individual will engage in the behavior of interest.

Verbal Prompts

Gestural Prompts

Modeling Prompts

Video Models

Physical Prompts

Should you work on imitation first?

- ▶ If the child doesn't have imitation skills many things will be very difficult to teach. It will require extensive molding of the movement with physical prompts to be successful. If the child could simply imitate the action the task could be learned at a much faster rate.
- ▶ In some cases, imitation can be acquired quickly. In these cases it is usually helpful to work on this skill before many commonly taught functional skills.
- ▶ If it appears that imitation will take a long time to develop, it is probably worth starting to teach functional skills while imitation skills are developed.

Picture Prompts

Picture-Object Matching is a Critical Skill for Using Pictures as Prompts

Fading

Prompting is great to get the behavior started. But it is really only useful if those prompts can be removed over time. Fading is the process by which those prompts can be removed.

Which Type of Fading Strategy to Use?

Research does not clearly suggest which fading strategy is best under all circumstances. But there are some logical reasons for choosing one over another.

Most-to-Least Prompting

▶ This prompting procedure is most likely to prevent errors during instruction. Therefore it is often recommended for learners who engage in problem behavior contingent on making errors.

Least-to-Most Procedures

▶ This procedures minimizes the need for physical prompts. Therefore it can be very helpful for learners who are resistant to physical prompts.

▶ This procedure gives the learner more of an opportunity to try things first. So it is helpful for skills that require thinking or creative behavior (e.g., problem solving, social situations).

Graduated Guidance

▶ This procedure is often helpful for learners without strong imitation skills where physically molding the movement is likely to be needed.

Time Delay

▶ This procedure is often very helpful when the end result of the task is highly reinforcing. The faster you do the task, the faster you can access the reinforcer.

Flexible Prompt Fading

▶ Several studies have shown that combinations of different prompt fading methods and allowing the instructor to use judgement when fading prompts can be highly effective. One example of these combinations is flexible prompt fading.

Soluaga, Leaf, Taubman, McEachin, and Leaf (2008) – A Comparison of flexible prompt fading and time delay for 5 children with autism. Research in Autism Spectrum Disorders, 2, 753-765.

Described in more detail in:

A Work in Progress

EDS: Ron Leaf and John McEachin

Reinforcement

Poor Reinforcement- Most Common Reason for Failure

Nothing *great* was ever achieved without *enthusiasm.*

~Ralph Waldo Emerson

Most behaviors are not performed in isolation

▶ Very rarely is a behavior performed in isolation. Most functional skills are performed in a sequence or a "behavior chain."

What is a behavior chain?

Adapted from Cooper, Heron, and Heward (2007)

A behavior chain involves performing a series of discrete responses that must be performed in a specific order.

Each behavior in the chain serves as the cue for the next response and the reinforcer for the previous response. The first response in the chain and the last response in the chain only serve one purpose.

How do you teach a behavior chain?

▶ Break the skill down into a series of teachable steps called a task analysis.

Behavior Chain Vs. Task Analysis- What's the difference?

▶ Behavior Chain- Is a technical term that implies that each step is a discriminative stimulus for the next step and a conditioned reinforcer for the previous step.

▶ Task Analysis- A complex skill is broken down into a series of teachable steps.

Example of a Task Analysis

Tie Shoes

(1) Pick up both laces between thumb and pointer fingers

(2) Cross both laces and make and X

(3) Make a loop

(4) Pull other lace around the loop

(5) Push through with pointer finger

(6) Grasp both loops between thumb and pointer fingers

(7) Pull through

Different Chaining Procedures

▶ Forward Chaining- The learner only receives instructions at the start of the task analysis. As each part is mastered, more steps are added.

▶ Backward Chaining- Initially the learner only receives instructions in the last step in the task analysis. When that is mastered more steps are added from the back of the behavior chain.

▶ Total Task Training- The learner receives instruction on every step of the task analysis every session.

Research on chaining does not show any procedure to be consistently more effective in all situations.

Deciding on a Chaining Procedure

▶ Although research doesn't clearly show one chaining procedure to be more effective than others, there are some logical reasons to choose one or another under different circumstances.

Total Task Chaining

▶ Probably best for relatively simple tasks
▶ Can already perform the tasks in the chain, but needs to learn the order
▶ Has a strong imitative repertoire

Forward Chaining

▶ For long and complex tasks
▶ For learners with more severe disabilities

Backward Chaining

- For long and complex tasks
- For learners with more severe disabilities
- If the end of the task is highly reinforcing to the learner

EASY AS 1, 2, 3

What could possibly go wrong?

(1) You prompt the learner to engage in a response

(2) Over successive trials the natural stimuli start to acquire control over the response

(3) The control is transferred from the prompt to the natural stimuli.

(4) You put all the behaviors that you taught together into a behavior chain.

(5) Provide reinforcement for success

Sure it might be time consuming and require patience. But it is so simple. What could possibly go wrong?

Shaping Game

(1) There is only 1 person teaching and 1 person learning.

(2) The learner goes out of the room, while the rest of the group decides on the task. No embarrassing tasks allowed.

(3) No one is allowed to talk during the session.

(4) The teacher can teach only by providing reinforcement (clapping) as the learner makes closer approximations to the target.

(5) Everyone in the room claps when the learner is successful.

Shaping Game Lessons

▶ Although it is done rarely, shaping can work in the absence of any prompting, fading, chaining, error correction, or punishment procedures. Usually other procedures are added, but it is not always essential.

▶ The differential reinforcement of successive approximations is what produces improvement.

Key Point!

It is very common for prompting, fading, and reinforcement to be unsuccessful in practice. *To use shaping the teacher must reinforce successive approximations towards the terminal behavior. This is the key to improvement*.

What if the task changes?

Consider Using Activity Schedules

▶ Involves giving the child supplemental stimuli in pictures, words, or on an electronic device like an IPAD

▶ It has the limitation that the child can become dependent on the supplemental stimuli? But don't you use a calendar?

▶ Can be extremely helpful when:

the tasks are long and complicated

if the order the tasks change

if different tasks need to be performed at different times

if the tasks change frequently

Specific Skills at Different Ages

Common Skills for Young Children

Toilet Training

Nothing frustrates parents more than toilet training

The secret reason that toilet training is so difficult for so many families and teachers:

They don't follow the instructions!
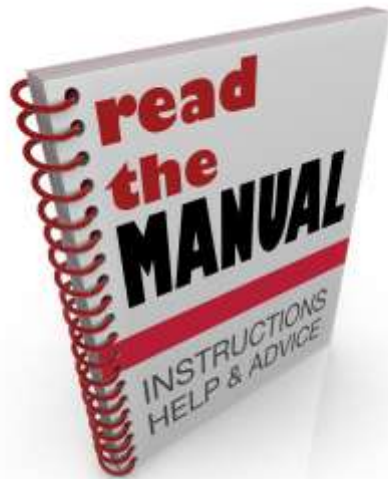
Why don't people read the instructions carefully?

Toilet Training Instructions

▶ A lot of research has gone into toilet training. The procedures are very effective if used properly. The problem is that people tend to underestimate the difficulty of the task. Many of the manuals have hundreds of pages of instructions on how to do it. It is about as interesting as it sounds!

▶ Realize that toilet training will be a project. It can often be done very quickly- even as short as a couple of days- but you will NOT have a normal life during that time.

You don't have to reinvent the wheel.

How do you pick up your pants?

Behavior analysts often fail to give parents adequate warning as to the difficulties they will face during toilet training.

Individual Needs

- The same toilet training procedure is not appropriate for all individuals.
- Individuals who are severely disabled or older will likely need more intense procedures.
- Some individuals who have a lot of problem behavior around toileting will need that problem treated first.
- Sometimes for young children it is appropriate to partially train.
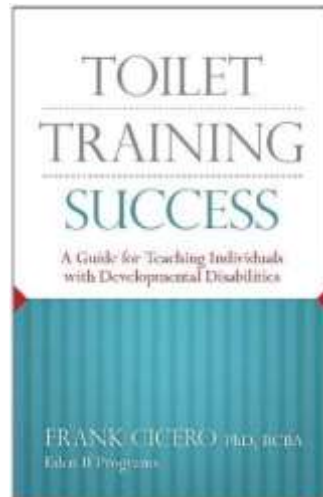
Boys- Sit or Stand?

Common mistake:
Not mastering wiping at a young age

Using Public Restrooms

Suggested Book- Toilet Training Success

What to do when accidents happen?

Ritualistic Problems with Bowel Training

Trip Training vs. Intensive Toilet Training

- ▶ Trip Training- Teach the child to use the toilet independently when the adult reminds the child to go to the toilet
- ▶ Intensive Toilet Training- Teach the complete toileting routine including self-initiating for the toilet

Trip Training

Advantages

- Does not require disruption of the child's regular schedule
- Much easier for parents and teachers to implement
- Typically developing children often do not self-initiate initially

Disadvantages

- Child does not learn to self-initiate and will have to learn that at another time
- Typically takes much longer than intensive training

Intensive Training

Advantages

- Often much faster than trip training
- Child learns to self initiate as part of the program
- It is likely that some people with severe impairments may not be able to learn with other methods

Disadvantages

- It is usually necessary to temporarily discontinue other programming during the training
- It can be very stressful / emotional for parents and teacher
- Requires staff / parents to dedicate a lot of time to sitting in the bathroom. Sometimes several days up to 10-days.

Feeding is a critical skill area

Problems with Eating Very Limited Foods

Health Implications

Independent Feeding is Critical for Independence

Feeding Problems Limit Social Opportunities

Common Mistake-
Chasing the Child to Eat

Common Mistake-
Making special meals after refusal

Common Mistake:
Not getting assistance from a qualified BCBA

Dressing

Dressing Can Be Surprisingly Difficult

- ▶ Dressing involves difficult discrimination (front / back) (inside out)
- ▶ Dressing involves difficult fine motor skills (buttons, zippers)
- ▶ Dressing commonly involves sensitivity to different materials

Common Skills for the Middle Years

Problems with teaching Cooking

Is the food safe to eat?

Will the person eat what was cooked?

Teaching Kids to Tie Shoes

- ▶ There is a lot of superstitious behaviors around teaching kids to tie shoes
- ▶ Don't teach bunny ears! It is easier, but leads to problems of having to untie the knots it creates
- ▶ Mastery can be difficult to define – shoot for both speed and quality

Teaching Tooth brushing

- ▶ It is very hard to measure the quality of tooth brushing. One easy way to dramatically help with this problem is to use an electric tooth brush.

Teaching Older Children and Adults

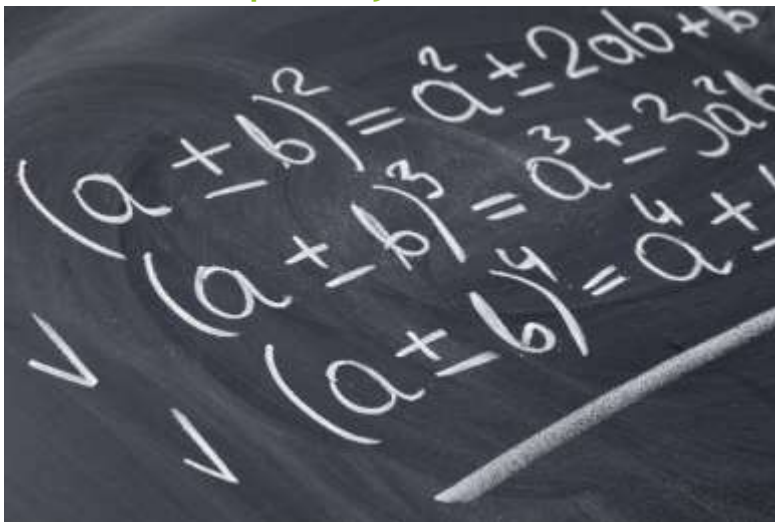# How much independence should you give the person?

"Son, there's a world out there ripe for the taking.
You better stay home with me."

Stranger Danger

What happens to skills that aren't practiced frequently?

Avoiding Stranger Danger Involves Very Subtle Social Skills

Shopping

The Importance of Teaching Pre-Requisite Skills

Street Crossing

Problems with defining mastery

But does anyone walk where you live?

Using Public Transportation

How do you check if they are doing everything correctly?

A lot of things can happen

Employment Sites

SOCIAL SKILLS

Encourage Variety

What is good enough?

Setting the Criteria

▶ For any behavior change it is possible to set expectations too low and not get the benefits that you should get. But it also always possible to set the expectations too high which will also lead to negative effects. It is critical that team members discuss what is good enough and plan accordingly.
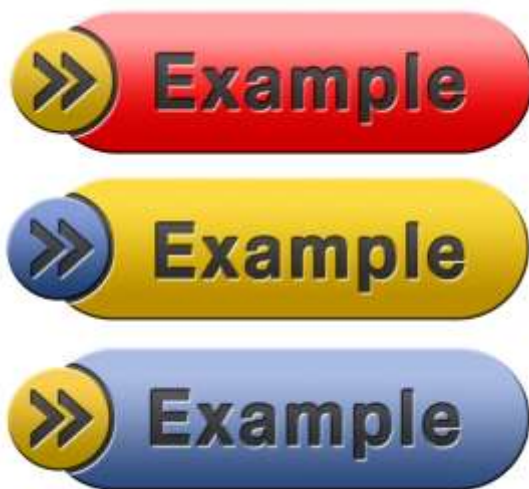
▶ Thanks to Dr. Alan Barnard for this tip.

The Importance of the Details

If this skill is mastered why doesn't he do it at home?

General Case Programming

How to Select the Examples

- Specifying the set of stimulus situations the skill will be used after training
- Defining the range of relevant stimulus variation across these situations
- Defining the range of response variation across this set of stimulus situations
- Selecting and sequencing teaching examples that sample the range of stimulus variation and response demands

Research Based Example-
Vending Machines- Sprague and Horner 1984

Research Based Example-
Bus Tables- Horner et. al (1986)

Teach Self-Management

"Maybe we are micro-managing a bit too much."

Self-Management starts with Self-Awareness

Fading Adult Supervision

What happens when no one is looking?
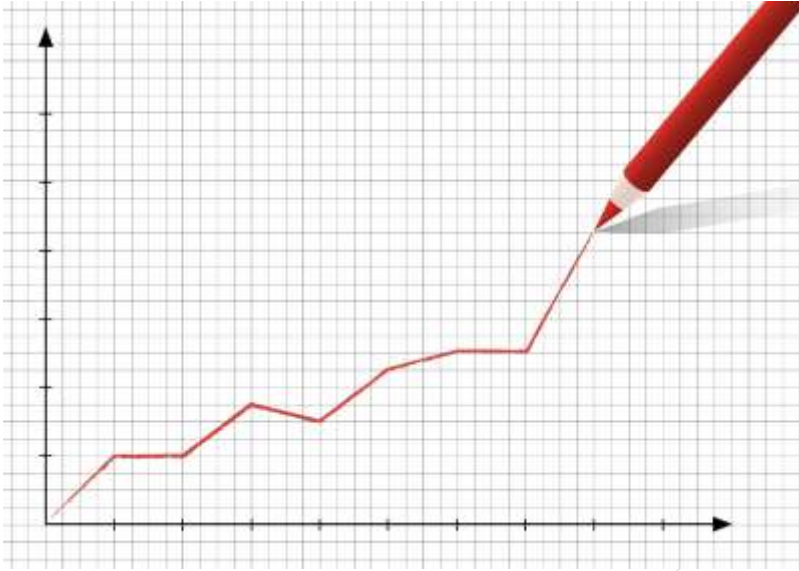
Use Natural Contingencies

How to Create a Natural Contingency?

Flexibility and Routines

Is it working?

If not, why not?

"That's usually not a good sign."

Before you do anything the 3 most common problems- The Yes, BUT check

When you are first starting an intervention, a few minutes of planning can make a huge difference.

Thanks to Dr. Alan Barnard for this tip.

Yes, it is a good idea BUT the plan is not sufficient to meet the objective.

Examples of Insufficient to Meet the Objective

- Not teaching prerequisite skills
- Not having enough examples
- Not providing sufficient training to staff or parents
- Not having an effective form of reinforcement
- Not having an effective way to prompt and fade

Yes, it is a good idea BUT the plan will cause other negatives to happen.

Examples of Plans Causing Other Negatives

▶ You teach the person to shop independently and they go to the store and buy nothing but candy and soda

▶ You teach the person to handle stranger danger and now they are afraid of new staff people

▶ You teach the person to do tasks independently and now they refuse even on tasks where they need assistance which leads to serious problem behaviors

Yes, it is a good idea but there are obstacles that will prevent us from implementing.

Examples of Not Overcoming Obstacles before starting a plan

- ▶ Are the materials prepared?
- ▶ Did the staff get the necessary training?
- ▶ Do you have a place to practice?

Troubleshooting- What to do when things go wrong. Ask the 5 Questions…

Question 1-Does the person understand the expectations?

Question 2- Is the motivation system working?

Question 3- Is the effort or risk too big?

Question 4- Are the contingencies upside down?

Question 5- Is the error correction procedure effective?

Summary

- ▶ Functional Skills are critical and often overlooked part of effective programming
- ▶ It is important to learn the basics of how to teach based on the principles of applied behavior analysis
- ▶ Even if you know the basic principles, learning the "tricks" for individual skill areas is very helpful
- ▶ Use General Case Programming
- ▶ Try to get the behavior under the control of a natural contingency
- ▶ Ask the 3 yes, but questions before starting your intervention
- ▶ If things are not going well, use the 5 troubleshooting questions

Thanks! Feel free to email me with questions or comments.

Dr. Barry D. Morgenstern
barrymorgenstern@gmail.com