SIGN LANGUAGE

THE BENEFIT OF USING SIGN LANGUAGE TO TEACH MANDS AND OTHER VERBAL OPERANTS TO NON-VOCAL STUDENTS WITH AUTISM

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A brief overview of "Verbal Operants"
and why they are important.

SKINNER

(1957) DEFINED VERBAL BEHAVIOR AS:

"Behavior that is reinforced through the mediation of other persons"

Skinner's Analysis of Verbal Behavior

Skinner's behavioral approach analyzes language by its formal and functional properties.

FORMAL PROPERTIES	FUNCTIONAL PROPERTIES
Formal properties consist of the physical description of specific response topographies (forms) such as: nouns, verbs, adjectives, and pronouns.	Functional properties of verbal behavior consist of circumstances under which a response occurs.

Skinner distinguished between several different types of functional control.

SKINNER'S ANALYSIS OF VERBAL BEHAVIOR

This classification system allows for the identification of functionally different types of language.

It is the functional properties of language that are sometimes overlooked or downplayed in language programs.

By not taking the function of language into account, you often end up with a child who can receptively identify or label hundreds of objects and pictures but never uses them in a functional way or demonstrates the concept of the object or picture.

SKINNER'S ANALYSIS OF VERBAL BEHAVIOR

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One of the primary premises of verbal behavior is that the meaning of a word is found in its function, not in the word itself.

Therefore, it is not enough that a child can label or point to an item when asked.

It does not necessarily mean that he can use and react to the object in a functional way.

This is precisely why we want to teach each word/object across all functional relations.

SKINNER'S ANALYSIS OF VERBAL BEHAVIOR

Mand
Asking for reinforcers. Asking for "shoes" because you want your shoes.

Echoic
Repeating what is heard. Saying "shoes" after someone else says "shoes".

Intraverbal
Answering questions or having conversations where your words are controlled by other words. Saying "shoes" because someone else says, "what do you need to put on your feet?"

Tact
Naming or identifying objects, actions, events, etc. Saying "shoes" because you see your shoes

Imitation
Copying someone's motor movements (as they relate to sign language).

Textual
Reading words. Saying "shoes" because you see the written word "shoes."

Listener
Following instructions or complying with the mands of others. Touching a picture of shoes when asked "touch the shoes."

Copying-a-text
Writing "shoes" because someone else writes "shoes"

Transcription
Writing and spelling words spoken to you. Writing "shoes" because you hear "shoes" being spoken.

Augmentative Communication

We talk about the importance of teaching all of these relations. That is, teaching a word across all functions (receptive, tact, intraverbal, mand etc.).

Well, what if the child can't vocalize or echo?

There is no problem when you are looking at the receptive repertoire. But how do you teach mands, tacts, and intraverbals if you don't have a response form?

In many cases the echoic or vocal repertoire eventually develops and the kids start to speak. This usually takes a long time.

What to do in the meantime?

What happens if it doesn't develop?
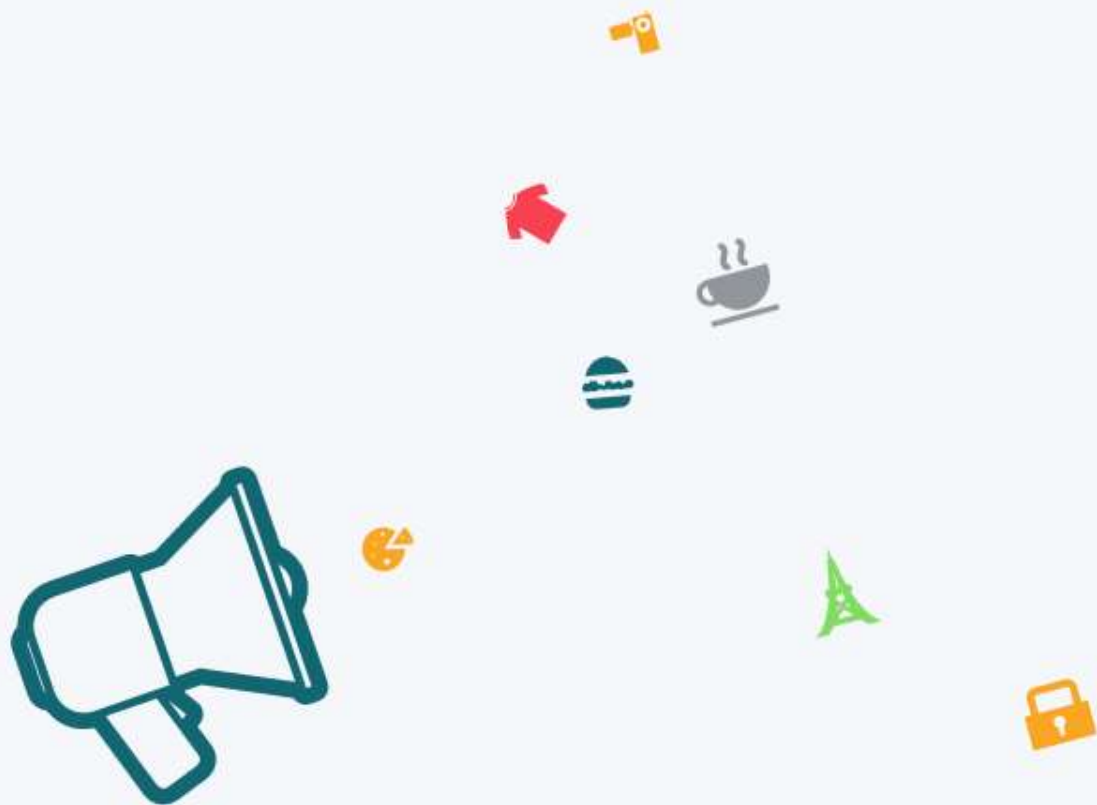
Augmentative Communication

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In many cases, you need to look at some type of augmentative communication system.

Criteria for deciding whether to stick with vocals or seek an alternative:

Unfamiliar Listener

Out of Context

With Back Turned

Once the decision is made, you still want to **always** work towards speech.
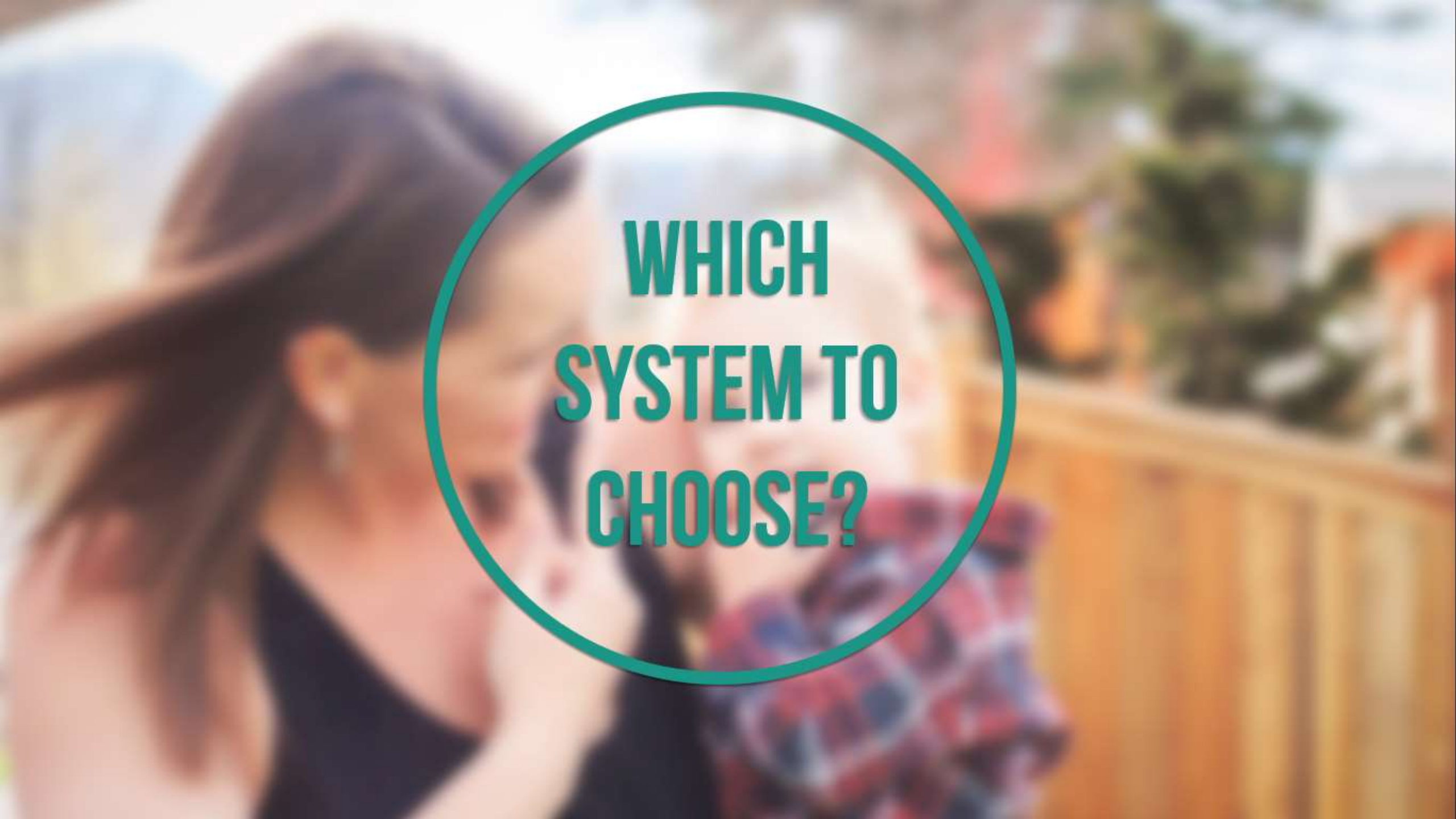
Augmentative Communication

The hope is that the system will allow you to teach a verbal repertoire and promote speech.
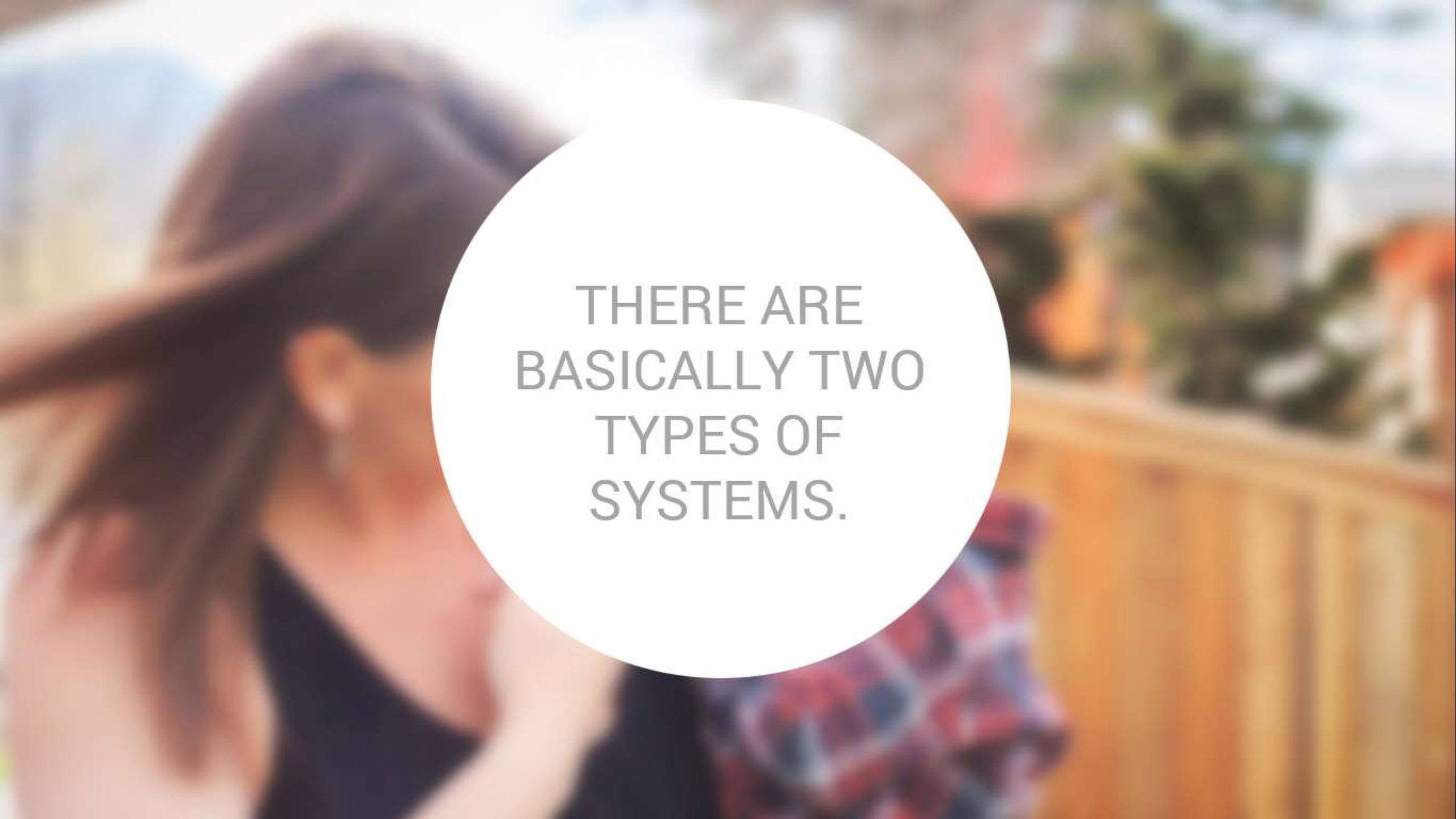
Eventually the system can be discarded.

If the speech never really develops, then you have a system in place so that the child can communicate.

WHICH SYSTEM TO CHOOSE?

THERE ARE BASICALLY TWO TYPES OF SYSTEMS.

SELECTION-BASED
(SB)
Such as PECs

TOPOGRAPHY-BASED
(TB)
Such as ASL

ADVANTAGES OF SIGN LANGUAGE

Motor imitation may already be strong in the child's repertoire. If not it is easier to shape than vocals

Teachers can use, then fade, physical prompts to teach the sign.

The stimulus and the response often resemble each other (an iconic relation), providing a built in prompt.

Signs are free from environmental support. They are portable.

ADVANTAGES OF SIGN LANGUAGE

✓ Sign language constitutes a topography-based language, making it conceptually similar to speech.

✓ Signs may avoid a negative emotional history associated with speech.

✓ Sign language can be rapid. Signs can generally be formed much more quickly, especially in succession, than pictures can be selected.

✓ Signs can be used easily while participating in other activities (e.g., manding for a ball while in the pool).

ADVANTAGES OF SIGN LANGUAGE

It is much easier to carry on a conversation with signs than with picture selection.

Signs can be formed quickly. There is less tendency for a learner to stop communicating.

ADVANTAGES OF SELECTION-BASED SYSTEMS

The listener does not need special training because many of the pictures are easy to understand, and the English word typically accompanies the symbols or pictures.

May avoid negative emotional history involved with speech.

The response may already be strong in the person's repertoire (pointing or giving)

WHICH SYSTEM TO CHOOSE?

All things being equal, we prefer to teach sign language for a number of conceptual and practical reasons.

The main disadvantage of sign language is that staff, teachers, and parents have to learn it.

WHICH SYSTEM TO CHOOSE?

However, decisions on teaching methodology should not be based on what is easiest for the teacher. Decisions should be based on what is best for the learner.

All you have to do is learn the signs as fast as the child.
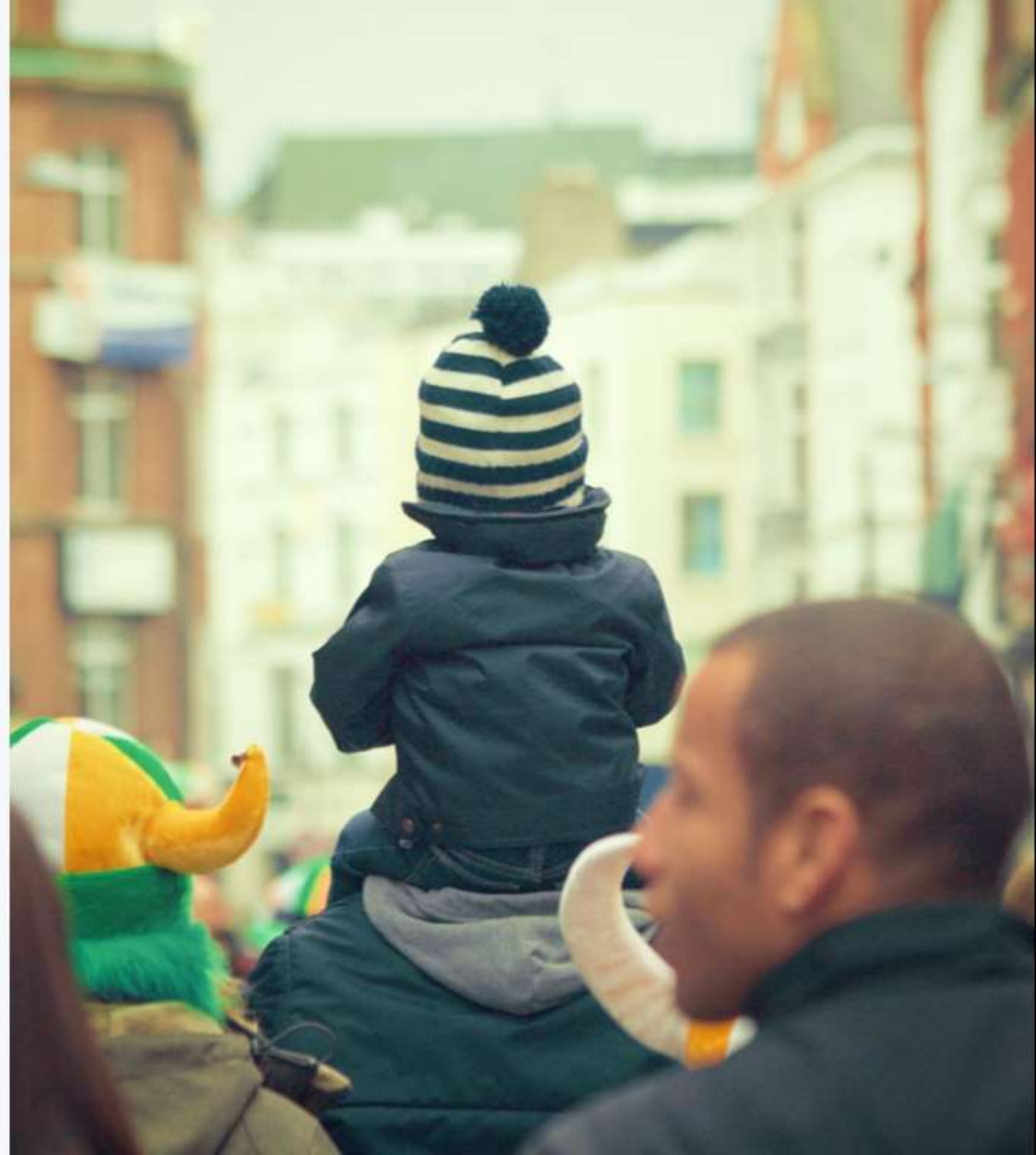
Why Sign Programs May FAIL

- **First signs are not mands**

- **First signs are too complex**
  - Please
  - Yes
  - No
  - Help
  - Thank you
  - More
  - Toilet

Why Sign Programs May Fail

• *Specific problems with "more" and "please"*

They are too general and it is difficult to move beyond them.

Why Sign Programs May Fail

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○ *Specific problems with "more" and "please"*

They often become a generic sign for "I want something but I am not going to tell you what it is."

Why Sign Programs May Fail

• *Specific problems with "more" and "please"*

The child can get frustrated because the sign does not get the item that matches the motivation.

Why Sign Programs May Fail

- *First signs may resemble each other too closely*

Eat

Drink

Why Sign Programs May Fail

FIRST SIGNS MAY INVOLVE A COMPLEX RESPONSE FORM

TRAINING IS CONDUCTED UNDER MULTIPLE SOURCES OF CONTROL AND PROMPTS ARE NOT FADED SO SPONTANEOUS RESPONSES CAN OCCUR

Motivation

Picture or object

Physical prompt

Imitation prompt

Verbal prompt

Why Sign Programs May Fail

○ Individual verbal operants are never established (i.e., mands, tacts, intraverbals), responses remain multiply controlled

○ Stuck at one level too long, not a progressive curriculum in place

○ Sign verbal operant focused on almost extensively (e.g., tacts, but limited intraverbal or mand training)

Why Sign Programs May Fail

- FAILURE TO ESTABLISH A SIGNING VERBAL COMMUNITY

- FAILURE TO TEACH SIGNS TO EVERYONE INVOLVED WITH THE CHILD

- FAILURE TO REQUIRE SIGNS OUTSIDE OF THE TRAINING SESSION

- FAILURE TO GENERALIZE TO NOVEL STIMULI, STAFF, SETTINGS, TIMES, ETC.

Why Sign Programs May Fail

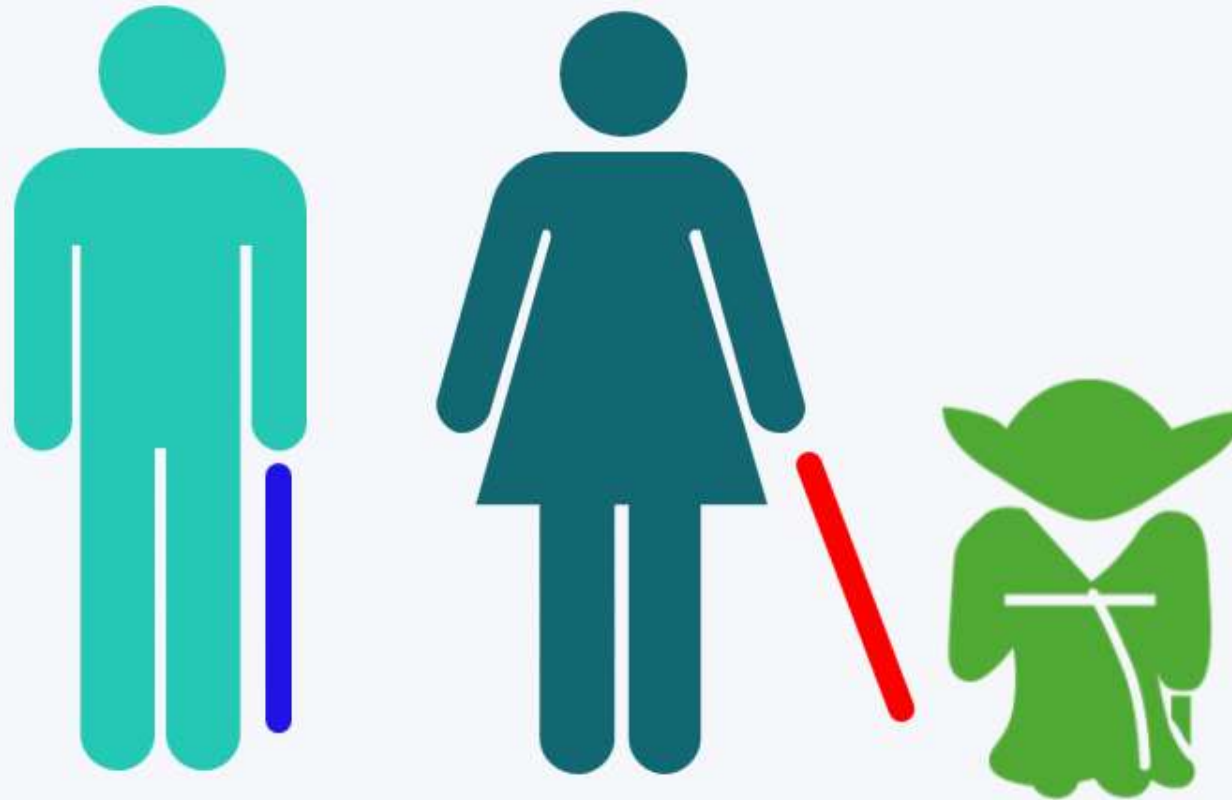**NOT ENOUGH TRAINING TRIALS ARE PROVIDED**

POOR SHAPING SKILLS ON THE PART OF TRAINER

The Motivating Operation (MO)

The motivating operation is one of the most critical principals to consider.

If you can master the concept of the MO, you will become a master of taking advantage of and creating motivational situations for your students.

A reinforcer is only a reinforcer if it's related to what the person wants at any given time.

Most things that can serve as reinforcers are not always serving as reinforcers.

A motivating operation increases the reinforcing effectiveness of a given stimulus, and increases the likelihood you will behave in ways which resulted in you getting that stimulus in the past.

THE MOTIVATING OPERATION

In simpler terms, an MO makes you:

🍕 Want something

🍕 Behave in ways to get it.

Is pizza reinforcing?

🍕 What would you do if you wanted pizza?

🍕 What would you do if you just had 6 pieces?

Example

MO→ You eat salty pretzels

Reinforcer (What is now valuable that was not valuable before)

- Water
- Juice
- Beer
- Etc.

Behavior Evoked:

Go to the refrigerator

Go to the sink

Flag down the waitress

Example

MO→ You get out of the shower

Reinforcer (What is now valuable that was
not valuable before)

- A towel

Behavior Evoked:

Reach for a
towel

Look in the
cabinet

Call for
someone

Example

MO→ You go to your car and it is covered with snow

Reinforcer (What is now valuable that was not valuable before)

- A snow brush

Behavior Evoked:

Look in your back seat

Look in your trunk

Look in the garage, closet, etc.

Example

MO→ A waiter brings you black coffee

Reinforcer (What is now valuable that was
not valuable before)

- Sugar
- Cream

Behavior Evoked:

Look around
the table

Look at the
next table

Ask the waiter

Example

MO→ Somebody tells you about a website that you are really interested in.

Reinforcer (What is now valuable that was not valuable before)

- Paper
- Pencil
- Pen

Behavior Evoked:

www.

Look in your pocket

Look in your purse

Ask someone

What is critical here is that all of these items are only reinforcing under certain conditions.

Would you work now for a towel?

A pack of sugar?

The Motivating Operation (MO)

The MO is really just a more technical, specific and useful way to talk about motivation.

If you look at motivation as an internal process it is easy to get lost.

If you look at the environmental factors you can capture and manipulate them to your advantage (to the student's advantage)

Contriving and Capturing MO's to Teach the Mand

Not only is the notion of the MO relevant to all teaching, it is particularly relevant to the mand.

By definition the mand is a type of verbal relation where the form of the response is controlled by a motivational variable (MO) and the consequence for the mand is specific reinforcement related to the motivation.

MO
You have not had anything to drink for 6 hours

Response
You say "water please"

Specific Reinforcement
You get water

We like to start with mand training because it is the only form of language that directly benefits the speaker (the child).

The mand is the first type of communication that humans naturally acquire.

Most of an infant's first forms of language are mands for reinforcers that are caused by different types of motivation.

By developing a mand repertoire first, it will be easier to develop all of the other types of verbal behavior such as tacts, receptive responding, and intraverbals.

In addition, teaching the mand repertoire teaches the learner that verbal behavior is valuable.

When the child sees the teacher he will be more likely to approach this person because it results in an opportunity to mand.

Mand training is likely to replace many problem behaviors.

Teaching the Mand

Sources of control for a sign mand

- MO (Motivation)
- The presence of the item (e.g. hold up candy)
- Imitation (demonstration)
- Physical (physical prompt to make the sign)
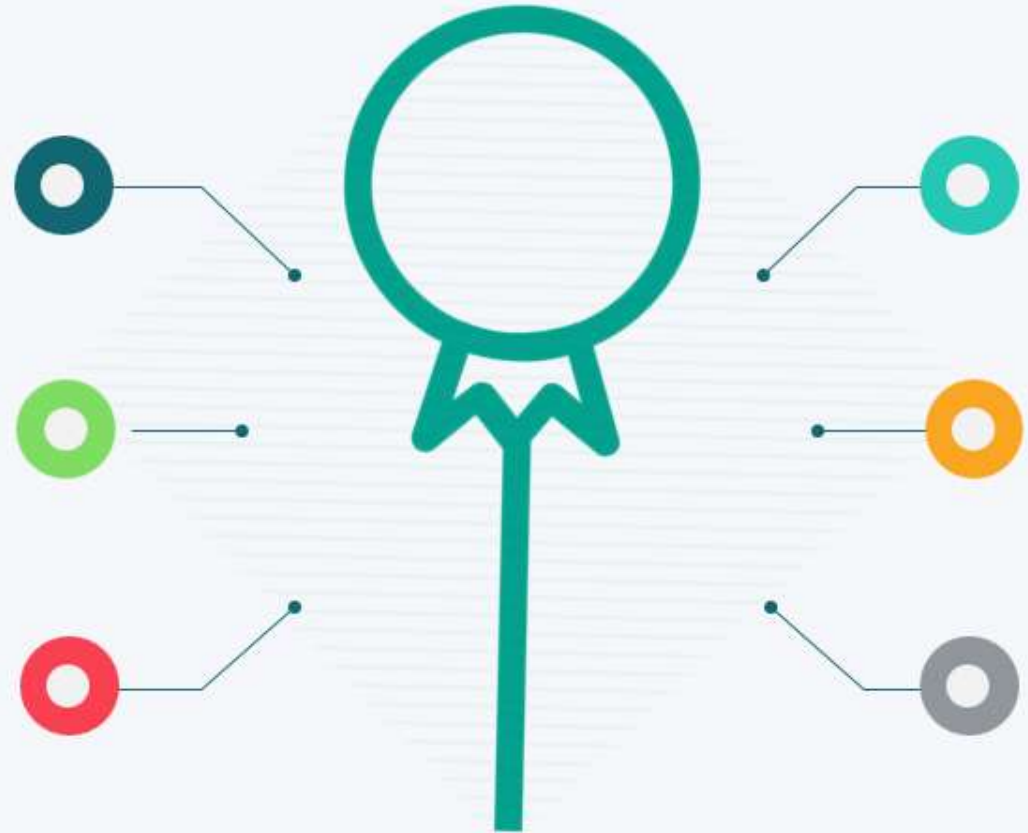- Echoic ("candy")
- Intraverbal ("What do you want?")

TEACHING THE MAND

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In the beginning,

the response most likely will be multiply controlled. That is, the child signs candy because of any one of or a combination of the following:

- He is physically guided (and/or)

- He is imitating the therapists sign

- He sees the candy

- He hears the vocal "candy" by the therapist

- He hears "what do you want?"

- He is motivated for candy

TEACHING THE MAND

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These are all good sources of control or prompts to **initially** get the response to occur.

However, eventually all but one need to be faded until the child is signing only because he "**wants**" the item (or action).

- He doesn't **need** to be asked what he wants (although that can be useful)

- He doesn't **need** to see the item (although that is ok)

- He doesn't **need** to be told or shown what to sign (this is a **must** fade)

- He doesn't **need** physical guidance to sign (a **must** fade)

Ask yourself: "Why is my student signing candy?"

1. Because he imitated the sign?

2. Because you guided his hands?

3. Because you said "candy"?

4. Because you held up candy

5. Because you said "What do you want?"

These are all additional sources of control that need to be faded until the response occurs as a result of the MO alone.

CONTRIVING & CAPTURING
MO'S TO TEACH THE MAND

Regardless of where you are with your child or the students you are working with, if the child is not manding hundreds of times per day under various motivational conditions with various response forms, then mand training will most likely need to be a primary target.

MAND ANALYSIS
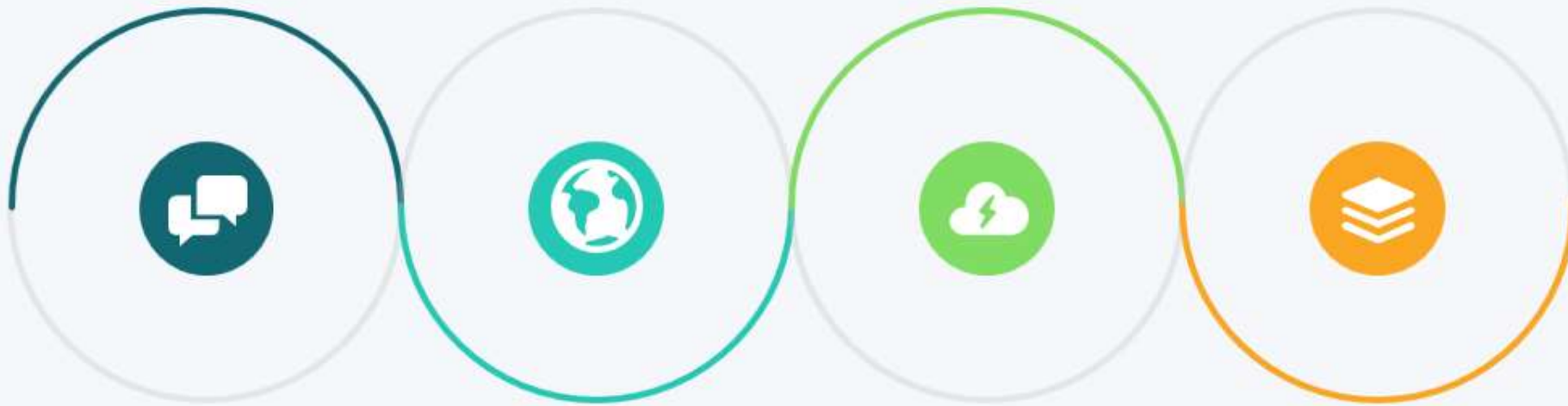
If you do an analysis of mands you will find that they comprise a large part of our **verbal behavior**. They occur across many settings and conditions and are of various types.

Types of Mands

● **MANDS FOR ACTION:**
Jump, stand, open, push, stop, go

● **GENERAL MANDS FOR HUMAN CONTACT OR TO INTERVENE FOR A SPECIFIC PURPOSE:**
Look...tap arm...raise hand...state name ("Mom", "Bob") look at me...watch me... listen to me

● **MANDS FOR THE REMOVAL OF AN AVERSIVE:**
Go away...don't...stop...give that back...leave me alone...take it...help

● **MANDS FOR MOVING PHYSICAL OBJECTS TO OR FROM SPECIFIC LOCATIONS (PREPOSITIONS):**
"I want the one on top of the shelf:..."put it in the car"...."give me the one behind the door"..."put it under the tray"

Types of Mands

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MANDS FOR ADVERBS:
"Run faster"... "jump high"... "hit it harder"

MANDS FOR PRONOUNS:
"my turn"..."you do it".... "give it to me"

MANDS FOR INFORMATION:
"what is that?"..."who is that?"..."where are my shoes?"..."what's in the box?"..."when are we going?"..."How did you do that?"..."Why did you do that?

MANDS FOR PERMISSION
"can I?"..."may I?"...

Once you have several mands it is important to set up the environment to promote mand usage.

Where is my Motivation?

- Much mand training can be conducted by manipulating or capturing the MO.

- There are two ways to use the MO to make the child motivated to engage in a language trial.

Capturing the MO

Capturing

o Once you master the concept of the MO you will learn to be an effective observer of your child. You will learn to recognize that situations occur throughout the day where the child has an EO for something.

o For example, you see the child reaching for or pointing to the cupboard, the toy closet, the video shelf. Right there, the child is telling you that he is motivated for something (there is an MO).

o This is the perfect chance to conduct a mand trial.

Contriving the MO

Contrive

o Capturing MOs offer great opportunities but they don't occur frequent enough to really get in enough mand trials.

o Contriving MOs may allow for more frequent training trials, as well as provide opportunities for a greater variety of mands.

o This takes a little thought, but once you get the hang of it and practice it the idea will flow.

Contrived Mand Examples

- Stopping a child when swinging

- Giving the child DVD player without a DVD

- Giving the child Mr. Potato head with no eyes

- Giving the child a juice box with no straw

- Ask the child to draw a picture with no crayon

- Give hotdog with no condiments

Contrived Mand Examples

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○ Give the child a puzzle with a piece missing

● Tell child to brush teeth but toothbrush is missing

○ Bed has pillow missing

○ Give the child an un-inflated balloon

MAND CHAINS

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Start as a backwards chain

Require shoes before outside	Inside behind door	A few feet from swing	Child in front of swing

| Child mands "shoes" and gets shoes | Child mands "open" and the door is opened | Child mands "walk" and walks to swing | Child mands "swing" and gets swing |

MAND CHAINS

Example 2

| Open Refrigerator | Pop | Cup | Pour | Drink |

MANDING DURING NATURAL EVENTS

Making a hotdog

What do we need to do (open)

What do we need? (hotdogs)

What do we put the hotdog in (pan)

Where do we get the pan (cupboard)

Now what do we put in the pan? (water)

Repeat with utensils, drink, condiments, etc.

More Contrived EO Examples

Give child a straw but no juice box

Give the child a juice box but don't open it.

Give paper with no marker (ask him to draw)

Marker with no paper

Bowl of ice cream with no spoon

Bowl with no ice cream (give him one spoonful at a time & repeat)

More Contrived EO Examples

Give him a toothbrush but no toothpaste

Set the table with missing plate (cup, fork, spoon, etc.)

Bed has a pillow, missing blanket or sheet

Give cereal without milk

Put needed items out of reach in bedroom or bath

Put desired items in closed see through container

More Contrived EO Examples

More Contrived EO Examples

Peanut butter and jelly with no bread

Bread...no peanut butter and jelly

Chip, no drink

Computer with no mouse

TV with no remote control

Game gear with no batteries

MOs for Action

Stand in front of the door without opening it

Sit in the car without starting it

Tickle and stop

In store (or anywhere reinforcing) pause from time to time while walking

Turn off the water periodically when filling the tub

Push child in a swing, wagon, etc.... And stop

Play jump games then stop....jump

Socks are wet....off

Mud on hands....water, towel

Friends outside.... Shoes, coat

Issues to Consider when Picking the First Words as Mands

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Select words that are for reinforcers (existing motivation). Especially for those reinforcers that adults can easily control the access to and have the ability to use the items as reinforcers.

- Reinforcers that are consumable (food or drink)

- Reinforcers that easily allow for short duration of contact (bubbles or tickles)

- Reinforcers that are relatively easy to remove from the student (music or video)

- Reinforcers that can be delivered on multiple occasions (e.g., small candies, sips of juice, a small piece of cookie)

- Reinforcers that always seem strong (stim toy or outside)

Issues to Consider when Picking the First Words as Mands

For vocal children, start with words that involve a relatively short and easy response.

For signing children, start with words that are iconic, that is the signs look like the object (ball or book)

Select words that are salient and relevant to the child in his daily life and are heard many times (ball may be heard more often than elephant).

Select items that all trainers can agree upon naming.

Issues to Consider when Picking the First Words as Mands

Avoid selecting words or signs that sound or look alike (e.g. the sign for eat and drink are very similar).

Avoid words and signs that might have a negative or aversive history (bed, toilet, no)

Select a set of words that will eventually be associated with a variety of motivators. For example, don't select all foods as the first set of mands or progress will stop when the child is not hungry.

FOCUSING ON ONE CATEGORY

- Be careful about teaching too many signs in one category.

- If a child has 50 signs and 30 of them are animals, that likely won't be very useful. Don't teach signs that are not likely to be used.

- How important is it for a child with 20 signs or words to be able to tact goat?

- I see kids who can label 30 animals but can't ask for shoes, socks, toys, tickles, fun activities, etc.

TEACHING THE TACT

Using a sign to teach a tact is done the same way you would teach a mand except the controlling stimulus is the item or picture rather than an MO to receive the item.

TEACHING THE TACT

Using sign to teach a tact is done the same way as with a vocal tact. However, you have the added advantage of a physical prompt.

Prompts Include:

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- The nonverbal stimulus (the object or event)
- Physical
- Imitation
- Intraverbal ("what is it?" or "sign cat")

TEACHING THE INTRAVERBAL

- Using a sign to teach an intraverbal is also similar to teaching a sign tact or a vocal intraverbal

- With intraverbals you have the added advantage of a tact prompt

- Teaching intraverbal. The sign is equivalent to the vocal.

- You can say "you sleep in a ____" and the child can sign bed.

Prompts Include:

- The verbal stimulus (e.g., You sleep in a _____")
- Physical
- Imitation
- Tact

Can children with autism sign?

- What about poor motor coordination?
- Poor hand eye coordination?
- Auditory processing delay?
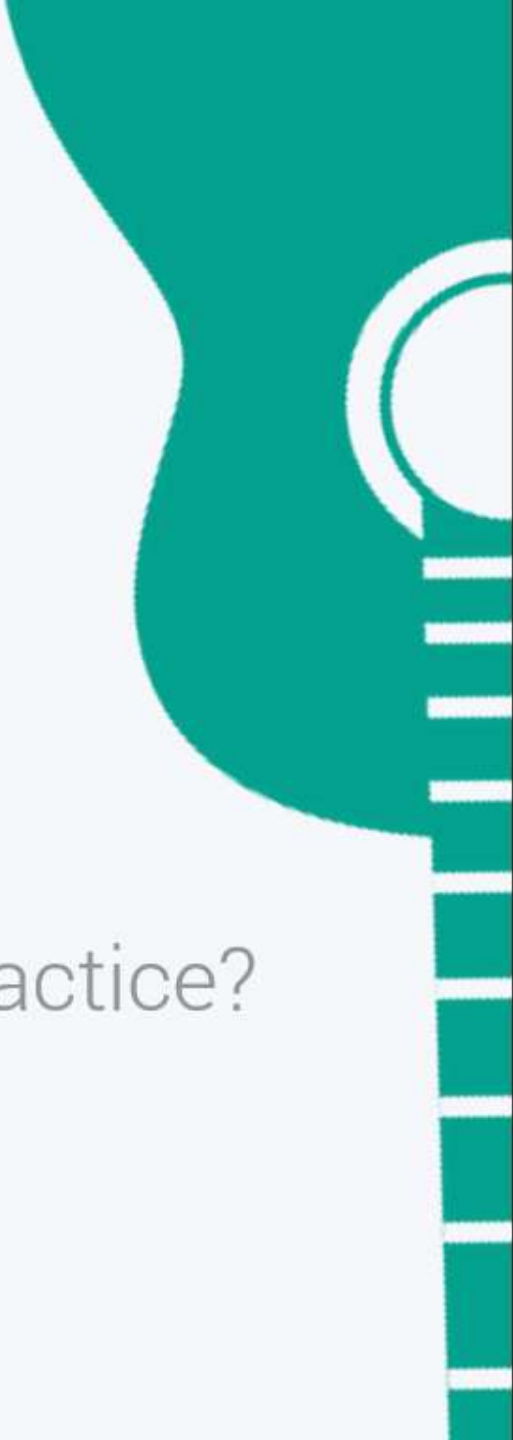- Problems with fine motor?
- Etc.
  We say it is hard for our kids to move their muscles in a way to make signs.

But isn't it also hard for adults or typical kids to learn how to play guitar or piano?

- How do you get your fingers to move that way?

- It takes a lot of practice.

With some kids, teaching them how to work their muscles to make signs and to perform other gross and fine motor activities may be like teaching a typical child to play piano or violin.

- Is it easy?
    - Not really

- Is it possible?
    - In many cases it is.

- Does it take a lot of work and practice?
    - Absolutely.

- How many hours per day does it take to be good?
  - Many
- How many hours did it take Eric Clapton to learn how to play like he does?
- How many hours a day do our kids get to practice fine and gross motor skills (in a systematic fashion like one would learn how to play piano)?
  - Probably not enough.

Why?

Because it is often thought that they can't do it.

Further,

Since they "don't have what it takes", alternative, less useful ways of teaching are substituted.

Often the strengths of the child are emphasized to the point where the weaknesses are abandoned prematurely.

Getting Better Motor Responding

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Practice

Break it down

- Teach the components
- Strengthen the foundation

Practice with physical prompts

- The student may benefit from more physical guidance to help teach the muscles how to move the right way.

Getting Better Motor Responding

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Find other ways to get the response you are looking for then transfer/fade.

- E.g. putting a cylinder shaped block in the student's hand may help him close his fist
- Taping two fingers on the table is easier than holding two fingers in the air.
- Grabbing a broom stick to get the students arms up/out

Prompt from behind

Video Modeling

OT exercises

- Pulling tokens out of play dough
- Picking up chips
- Stringing beads
- Clothespins
- Etc.

Fine motor activities

- Puzzles
- Form boxes
- Cutting
- Keyboard
- Mouse click

Getting Better Motor Responding

Getting Better Motor Responding

Many different ways to prompt.
- Some mass trials are ok

Shaping

Demonstrate shaping exercise

Can you combine systems?

- Some suggest you can't or shouldn't.

- However, you can if it is done systematically and one system is the main system.

- We all use both systems. Primarily we are talkers (topography based system) but often we look at menus.

Can you combine systems?

- You can teach some signs that will lead to specific choice options much like teaching to ask for a menu.

- For example, there may be a particular box that contains many items that the child finds reinforcing.

○ The items are not yet taught as specific mands.

- Either because there are too many to teach at once or they change too frequently.

- By the time you teach the mand, the toy is no longer a favorite and is replaced by another one.

- In this case, we might teach the child to sign something like "box" as a way to gain access to the grab bag of items.
  - At least one of which is most likely going to currently be reinforcing.

- We may also teach a sign for a specific shelf or closet that contains a variety of items that have not yet been taught specifically.

- If one is repeatedly selected, we would teach a sign for it.

- We would also say and sign the item (if we have the sign) and perhaps do an echoic or sign prompt while we are delivering the choice.

The child could also sign for a menu of activities that are not yet learned as signs.

This way, the kids learn that if they have the specific sign, they will use it. If not, they can sign for some choice options.

Once the child learns the specific sign, then the sign for the choice options (e.g. box of toys, dessert menu) they will most likely discard the general sign.

Why would we go through the trouble of asking for a menu if we know we want the filet, loaded mashed potatoes, green beans and house salad with ranch?

Do you need to look at the menu in order to select Pepsi or Tea?

SIGNS FOR STUDENTS WHO ARE FLUENT AT PECS

- Why not?

- Don't take away the PECS

- Simply try teaching a few mand signs for most preferred reinforcers

- Typically once the students learns a sign he will use the sign rather than flip through the PECS book.

- If they don't have a sign they will use the PECS

- If I know what I want, I am going to ask for it before I will ask for a menu.

- If I am not sure what is offered, I will look at a menu.

- If I can't pronounce the food I think I want, I will ask for a menu and point to the selection (to save embarrassment).

Why stand in the ticket line if you can get on the ride for free?

THANK YOU

For a copy of this presentation contact Jessica Linneweber @ jlinneweber@thebaca.com