The CARD Program: A Comprehensive Application of Behavior Analysis to the Treatment of Autism

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What is Autism?

- Pervasive Developmental Disorders
  - Impairments in two or more areas of development
    - Autism
      - Impaired Social Interaction,
      - Impaired Communication
      - Restricted, Repetitive Behaviors
      - 6 or more symptoms
    - Asperger’s Disorder
      - Impaired Social Interaction
      - No Language delay
      - No Cognitive delay
    - PDDNOS
      - Delays in all three areas (Social, Communication and Stereotypy)
      - Fewer than 6 symptoms
What is Autism?

- Communication:
  - My child is delayed in language
  - My child has no eye contact

- Social Behavior:
  - My child doesn’t interact with anyone
  - My child doesn’t play with others

- Stereotypy:
  - My child does repetitive behaviors (lining up objects, opening closing door, turning on and off the lights)
  - My child is inflexible and needs routines

- Anything else?
- Challenging Behaviors?
- Sensory Sensitivities?
- Medical Illnesses?
**AUTISM**

- Genetic Predisposition
- Minimize Exposure To Toxins

- Treat the Underlying Medical Disorders
  - Physical Conditions
    - Oxidative Stress
    - Decreased Methylation
    - Immune Dysfunction
    - GI Inflammation

- Teach New Learning Patterns
  - Brain Disorders
    - Hypoperfusion
    - Hypo and Hyper sensitivity to stimuli
    - Different Learning Patterns

- Reduce/Eliminate Symptoms
  - Behavioral Symptoms
    - Delayed Language
    - Delayed Social Skills
    - Stereotypy
What is Applied Behavior Analysis

ABA is based on the principles of Operant Conditioning Theory:

“Human Behavior is affected by events that precede it (antecedents) and events that follow it (consequences)”

Change these events…change Behavior!
What does that mean?

- In ABA, we manipulate antecedents and consequences in order to increase functional and adaptive behaviors, and decrease challenging behaviors.
- We give reinforcers when a good (adaptive) behavior occurs.
- We remove reinforcers when a bad (challenging) behavior occurs.
What behavior do we want to change?

**Deficits**
- Language
- Play
- Social Skills
- Theory of Mind
- Executive Functions

**Excesses**
- Self Stimulatory Behaviors
- Maladaptive Behaviors
  - Tantrums
  - Aggression
  - Noncompliance

**Skill Repertoire**

**Instruction:**
Manipulating Antecedents and Consequences in order to teach skills

**Behavior Management:**
Manipulating Antecedents and Consequences in order to manage challenging behaviors
THE CARD MODEL

Applied Behavior Analysis or The CARD Program

Skill Repertoire Building
  - Curriculum Assessment
  - Teaching Paradigm
    - DTT
    - NET
    - Fluency-Based
  - Teaching Procedures
    - Prompting/Fading
    - Discrimination Training
    - Shaping
    - Chaining

Behavior Management
  - Defining Problem Behavior
    - Functions of Behavior
    - Functional Behavioral Assessment
      - Indirect
      - Descriptive
      - Experimental
        - Function-Based Treatment
        - Emergency Interventions

Replacement Behavior
  - Antecedent Modifications
  - Consequence Manipulations

Evaluation of Tx Effectiveness (Data Collection & Analysis)

Generalization & Maintenance
Behavior Management

- ABA is a technique to change behavior!
- What is Behavior?
  - Behavior is anything we do, good bad or neutral

- Challenging behavior is anything that could hurt someone, or be maladaptive in any way.
- Challenging behaviors make life less fulfilling and more difficult for the child and his family

- Why do we do the behaviors we do?
Why does my child do these things?

- Everything we do is to
  - Get good stuff
  - Avoid bad stuff
- Challenging Behavior is your child’s way of telling you what he wants
- He may not care that his way of telling you is not the “appropriate way”
- He may not have the skills to tell you the appropriate way!
Some Good things kids want...

Attention
  good or bad

Tangibles
  our favorite foods
  fun activities
  toys
  playground
Some things kids want to avoid...

- Having to work
- Classroom
- Listening to people telling us what to do
- Giving up something we want to keep doing
- Taking a bath
- Getting ready in the morning
Most of the time...

- We have to give up something we really want AND do something we really don’t want
  
  - Stop Playing and come inside to eat dinner
  - Wake up and get ready for school
  - Come in and take a bath
  - Get off the phone and go clean up your room
  - Stop doing anything self stimulatory and interact!!!
What are some challenging behaviors my child does?

- He hits people
- Throws himself on the floor
- Runs away
- Throws things at people
- Screams
- Bangs his head
- Spits at people
Why does my child do these things?

- Everything we do is to
  - Get good stuff
  - Avoid bad stuff

- Challenging Behavior is your child’s way of telling you what he wants

- Can we figure out what he/she is trying to communicate?
What is my child trying to communicate?

What is the “Function” of his behavior?

In ABA we study behavior by looking at:

- The behavior
- What happened right before it (Antecedents)
- What happened right after it (Consequences)

- This is called a behavioral contingency
- If we can change the behavioral contingency, we can change behavior!
Challenging Behavior

Example: getting good stuff

Jenny is playing with her favorite toy. Parent says “okay, time to put away the toy.”

Jenny starts whining

Jenny gets to have the toy a little longer

How is this like language? What is Jenny saying by whining? How about “I don’t want to put my toy away, can I play a little longer?”

Can we teach her to say that?
Challenging Behavior
Example: avoiding bad stuff

Jacob hates baths. Parent says “Time to take a bath”
Jacob cries and throws himself on the floor
Jacob gets to avoid the bath for five more minutes

How is this like language? What is Jacob saying by crying and throwing himself on the floor? How about “Can I have five more minutes Mom?” Can we teach him to ask for more time?
Challenging Behavior

Example: getting good stuff AND avoiding bad stuff

Johnny is playing outside. Parent says “Time to come inside and clean your room”

Johnny runs away

Johnny gets to play outside a little longer AND doesn’t have to clean his room yet

How is this like language? What is Johnny saying by running away? How about “I want to keep playing AND I don’t want to clean my room”

Can we teach him to say that instead?
Dealing with challenging behaviors

- If we teach appropriate communication skills, they will replace challenging behaviors in our kids.
- Challenging behaviors are NOT part of the Autism diagnosis! They are just a side effect!
I know from experience with my own children that it works the same way for us parents. The way that we interact with our kids either helps us get good stuff or avoid bad stuff too.

What can be good stuff for parents?

• Seeing your kid happy
• Some time to rest

What can be bad stuff for parents?

• Seeing your kid unhappy
• Dealing with problematic behavior (tantrums, etc.)

Let’s have another look at the examples, but from the parents’ point of view…
Example: getting good stuff

Jenny is playing with her favorite toy. Parent says “okay, time to put away the toy.” Jenny starts whining. Parent gets to see Jenny happy. And avoids seeing her whine.
Challenging Behavior
Example: avoiding bad stuff

Jacob hates baths. Parent says “Time to take a bath” → Jacob cries and throws himself on the floor → Parent gets to see Jacob happy
And Avoids having to deal With his tantrum
Challenging Behavior
Example: getting good stuff AND avoiding bad stuff

Johnny is playing outside. Parent says “Time to come inside and clean your room”

Johnny runs away

Johnny gets to play outside a little longer AND doesn’t have to clean his room yet

Parent gets to see Johnny happy And Avoids chasing After him
Let’s sum it all up…

- People do what they do because they get something good or avoid something bad.
- Sometimes what we do is inappropriate but as long as we get something good or avoid something bad, we do it anyway!
- Sometimes what we do makes life easier short term, but harder long term, so even though it seems ok for now, we still need to change it!
Can I change my child’s behavior?

- Would your child keep doing the problematic behavior if he/she didn’t get what they want out of it anymore?
- What if he/she was able to get what they want for doing something more appropriate?
- What if the appropriate behavior got them what they want, AND was easier than the problematic behavior?
How can I change problem behavior?

- What if it becomes easier to say ‘Break’ than to throw a tantrum?
- What if you get a toy **only** if you say “toy please” and **not** when you scream and cry?
- What if you realize you can’t leave the classroom every time you scream?
It Does Work!!!

- If you ignore problem behavior AND
- Reward good behavior

- You will get good behavior instead of problem behavior!!

Wow! That was easy!!
It’s not THAT easy!!

Some procedures we use…

- Noncontingent Reinforcement
- Extinction
- Differential Reinforcement
  - DRO
  - DRA
  - DRI
- Nonexclusionary Time-Out
- Response Cost

Knowing which procedure to use, depends on what your child is trying to communicate…that’s the “Function” of the behavior!
Functional Behavior Assessment

- Why is my child behaving that way... what is he trying to communicate? what is the function of my child’s behavior?
  - Is he having a tantrum because he wants an object?
  - Is he throwing himself on the floor because he wants to avoid a situation?
  - Is he hitting someone because he wants attention and doesn’t know how to ask for it?
- The function of the behavior (the reason it occurs) tells you what to do!
Functions of Behavior

Andy wants toy  →  Andy hits sibling  →  Andy gets toy
Dan hates school  →  Dan screams  →  Dan is sent home
Jeff wants attention  →  Jeff tantrums  →  Jeff gets attention

Now we know the functions of the behaviors…if you know why a behavior happens, you can change it!
ABA tells us we can…

Change any behavior if we change the

Antecedent

or

Consequence

or

Both!
How do we change behavior?

- Change behavior by changing the antecedent or the consequence or both!

**Andy**

- Teach Andy to ask when he wants toy
- Andy will not hit sibling
- Andy does not get toy

**Jeff**

- Teach Jeff to do something appropriate
- Jeff does something appropriate
- Jeff gets attention
# Changing Behavior

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<tr>
<th>Good Stuff</th>
<th>Give</th>
<th>Remove</th>
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<td>+ Reinforcement</td>
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<td>Behavior</td>
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<td>Punishment</td>
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<td>Behavior</td>
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</table>

| Bad Stuff           |      |        |
| Punishment          |      |        |
| Behavior            |      |        |
| - Reinforcement     |      |        |
| Behavior            |      |        |

*Response Cost*  
*Extinction*
Let's look at some techniques

- **Extinction:**
  - Preventing access to the good stuff when an inappropriate behavior happens
    - Child tantrums but gets NO attention
    - Child screams to get a toy but doesn’t get toy
    - Child throws object to get out of class but doesn’t get out of class
    - Child spits to get you to leave him alone, but you don’t leave him alone
Extinction for Attention

- Extinction is a procedure you use when your child is trying to get attention by doing a problematic behavior
- Ignore the behavior that is problematic
- Do not provide eye contact or interact vocally with the child
- Do not provide redirection that involves providing attention
- Do not talk about the child’s behavior in front of him/her to another person
Extinction for Attention Function

The Wrong Way

A
Therapist is not paying attention to Adam

B
Adam screams

C
The therapist is quiet

Reinforcement

The Right Way

A
Therapist is not paying attention to Adam

B
Adam screams

C
Therapist is paying attention to Adam

Extinction
Extinction for Tangible

- Extinction is also a procedure you use when a child is doing problematic behaviors to get a tangible such as a toy.

- If this is the case, don’t provide access to the tangible item or activity your child is trying to get by engaging in the problematic behavior.
Extinction for Tangible Function

**The Wrong Way**

A

Steven given piece of cracker

→

B

Steven cries

→

C

Steven given piece of cracker

Reinforcement

**The Right Way**

A

Steven given piece of cracker

→

B

Steven cries

→

C

Steven given piece of cracker

Extinction
Extinction for Escape

You can also use extinction if your child is doing a problematic behavior in order to get out of doing a task.

Escape extinction

- In escape extinction we continue to give our instruction while ignoring the problematic behavior.
- It involves no longer allowing the child to escape or “get out of” demands when they do the problem behavior.
- Remember that your reaction to a child’s problem behavior can affect his/her behavior.
  - Body language
  - Sighing, cursing, rolling your eyes
  - Talking about the child’s behavior to others, especially in front of the child.
Extinction for Escape Function

**The Wrong Way**

A  
Julia prompted to do puzzle

B  
Julia hits

C  
Julia prompted to do puzzle

Reinforcement

**The Right Way**

A  
Julia prompted to do puzzle

B  
Julia hits

C  
Julia no longer prompted to do puzzle

Extinction
Extinction Example for Behavior Maintained by Escape from Demands

Fill in the Consequence to make this an example of extinction...

A
Mom says, “put on your shoes”

B
Steven hits mom

C
Mom says, “put on your shoes”
An Extinction burst is what happens when you first start to ignore the problem behavior

- It's an initial increase in the problem behavior, before it decreases

Example:

- In the past, people gave Jacob tangible reinforcers such as candy when he cried
- When therapists & parents begin to implement extinction, initially, Jacob cries louder as well as begins to throw tantrums, falling on the floor & kicking
- If we continue to consistently use extinction, Jacob will stop crying in these kinds of situations
Differential Reinforcement

- Reinforce desired behavior (A)  
  AND

- Don’t reinforce (extinguish) undesired behavior (B)

Differential Reinforcement Procedures

- ✓ DRO: Differential Reinforcement of Other Behavior
- ✓ DRA: Differential Reinforcement of Alternative Behavior
- ✓ DRI: Differential Reinforcement of Incompatible Behavior
Differential Reinforcement

- **DRO**: Reinforce the child when he is not doing the problem behavior
- **DRA**: Reinforce the child for doing a more appropriate replacement behavior
- **DRI**: Reinforce the child for doing a replacement behavior that is incompatible with the problem behavior
Steven says, “I want peanut butter.”

Steven whines & cries

The Right Way

Reinforcement of Desired Behavior

Steven has no crackers & no peanut butter

Extinction of Undesired Behavior
Challenging Behavior

Recap

Whenever a child wants something, he/she has two choices:

1. Try to get it in an appropriate way
2. Try to get it in an inappropriate way

Helping your child have appropriate behavior means making that choice easy for them by:

1. Give them what they want for good behavior
2. Don’t give them what they want for destructive behavior
3. Make it EASY for them to do the good behavior (take baby steps)
1987: Behavioral Treatment and Normal Educational and Intellectual Functioning in Young Autistic Children

Experimental Group: N=19

47% Recovered!
3 yrs

10 hours/wk
3 yrs

32% Recovered
10 hours/wk
UCLA/NPI
3 yrs

Control Group 1: N=20

Control Group 2: N=20
Pre-Post 3-year CARD Intervention

- N=13 (12 boys, 1 girl)
- Mean age at enrollment
  - 42 months (3.4 years)
  - Range: 37-48 months

- Method
  - All children were given WPPSI or WISC at Pre- and Post- 3 year ABA early intervention
Normal Cognitive Functioning

WPPSI: Pre- & Post-ABA Early Intervention

Average Therapy Hours Per Week

Intelligence Quotient

Pre-Test
Post-Test
CARD Post-Intervention Results

- 7 of 13 (53.8%) no longer had ASD diagnosis
- 6 of 13 (46.2%) went from Autism to PDD or Aspergers
- Average IQ score gain of 20.5 points
  - 7-28 points in the literature (Smith, 1999)
- “Recovered” children received an average of 34 hours of therapy
  - Gained an average of 27.7 points on Wechsler
- ASD children received an average of 26 hours of therapy
  - Gained an average of 12.2 points on Wechsler
Retrospective Analysis of Clinical Records in 39 Cases of Recovery from Autism

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Introduction

- 20 years of research on early intensive applied behavior analytic (ABA) treatment for children with autism has consistently produced robust treatment effects (Elkind, 2008; Myers, 2007).
- A subset of children respond best to intensive ABA treatments, including achieving a level of functioning that is indistinguishable from typically developing peers.
- Little previous research has attempted to describe the characteristics of the children who achieve developmentally average functioning following ABA treatment.

Purpose

- To describe the characteristics, duration and intensity of treatment, and outcome for a group of children previously diagnosed with an ASD, who received ABA treatment and subsequently achieved a level of functioning indistinguishable from typically developing peers.

Method

Initial Participant Selection
- All participants were past clients of CARD.
- We asked senior clinical staff to identify every client whom, in their opinion, between 1990 and 2007, achieved age-appropriate functioning and no longer required supports of any kind after discharge.

Chart Review
- All available clinical records were obtained for all clients identified in the Participant Selection phase of the study.
- All records were searched for the following information:
  - Intake and discharge evaluation reports
  - All standardized testing results
  - Billing data for all clients were retrieved, in order to identify the following:
    - Start and stop date of treatment
    - Monthly hours of therapy for entire duration of treatment

Final Clinician Interview
- All clients whose charts contained pretest and posttest were included for the final clinician interview.
- Clinicians who treated each child at the time of discharge were asked to recall any indication of a residual ASD, thereby excluding participants.

Results

- The Participant Selection phase of the study yielded 204 names.
- The Chart Review phase of the study yielded 39 participants with both pretest and posttest IQ scores present in their charts.
- Figure 1 depicts pre and post scores, with IQ score depicted on the vertical axis and individual participants on the horizontal axis.
- Figure 2 depicts the IQ at intake and IQ change scores for each participant.
- Figure 3 depicts pre and post adaptive scores.
- Figure 4 depicts the average number of treatment hours per participant, from the first month of treatment to the 60th.
- Figure 5 depicts the distribution of IQ change scores.
- Table 1 depicts statistics for the age at intake, pre and post IQ scores, pre and post VABS scores, and change in IQ and VABS scores.

Discussion

Implications
- Our findings appear to corroborate the general finding from previous literature that some children with an ASD who receive early intensive ABA treatment achieve typical functioning.
- Participants in this study began treatment with relatively high IQ (i.e., 84) and it is possible that this fact contributed to recovery.
- However, Figure 2 demonstrates a negative relation between the magnitude of IQ gain and IQ at intake.
- Similarly, participants in this study began treatment at a relatively young age and this may have contributed to the optimal outcomes obtained.
- Our data provide the first relatively large scale description of the characteristics of individuals who achieve an optimal outcome.
- Our data provide a description of recovery from autism produced by ABA treatment provided in a community-based setting, not a university-based center.

Limitations
- Retrospective chart review is perhaps the least rigorous form of treatment research.
- Because our study lacks an experimental design, it is possible that the participants in this study would have recovered from autism without ABA treatment. This seems unlikely, however, given that no previous study has reported the spontaneous recovery of a substantial number of children with autism.
- Future research should include more rigorous measurement of client functioning level, including language, social skills, and rigorous diagnostic instruments (e.g., ADOS, etc.)
Nick

- **Diagnosis:** Autism
- **Intake:**
  - Age: 4.2 years
  - Pre-test: IQ 83 Borderline MR
  - Deficits: no eye contact, no response to name, had minimal speech such as labeling colors, letters, and about 30 objects, frequent tantrums with aggression toward mom
- **Treatment:**
  - 10 years of ABA
  - Average intensity of 31 hours/week in first 4 years, then faded to 4 hours in last years
  - Focus on Distractibility
- **Exit:**
  - Age: 14 years
  - Post test: IQ 109 (normal is 85-115)
  - Normal classroom placement, A student, has many friends, plays several musical instruments, voted most likely to succeed in class!
Skill Teaching

- **Same Principles**
  - Reward good behavior so it increases
  - Ignore or redirect problem behavior so it decreases

- **Many different protocols and models of teaching**
  - DTT (Discrete Trial Training)
  - VBA (Verbal Behavior Analysis)
  - NET (Natural Environment Training)
  - PRT (Pivotal Response Training)

- **Different techniques, but all based on the same principles!**
Applications of Behavior Analysis

- Discrete Trial Training
  - Lovaas (1960’s): Applied Principles to teaching Children with Autism
  - Developed strategy for teaching
    - ABC $\rightarrow$ Discrete Trial ($S_d \rightarrow R \leftarrow Sr$)
    - Do intensive teaching (40 hours)
    - Teach at a table (table time)
    - Teach one target at a time, then rotate
    - Make sure the child succeeds 30% of the time (NNP)
    - Developed a basic Curriculum

- 1987: Behavioral Treatment and Normal Educational and Intellectual Functioning in Young Autistic Children
Verbal Behavior

- B.F. Skinner: Verbal Behavior (1957): Applied principles of Behavior Analysis to Language

- Separates language (verbal behavior) into categories by their function

- Careful analysis of stimulus control:
  - Echoic: you hear, you say same
  - Mand: you want, you say, you get
  - Tact: you see (or smell, taste, touch), you say
  - Intraverbal: you hear, you say different

- Skinner’s analysis first applied to language training with children with autism – 1980’s
Contributions from Verbal Behavior

- Let’s consider the child’s motivation (EO) in teaching language: teach Mands first!
- Let’s teach the child the different functions of language (“cookie” to imitate, request, label or recall)
- Let’s teach spontaneous language (pure vs. impure operants)
Koegel, O’Dell, & Koegel (1987): Teaching should take place in the child’s natural environment.

Difficulty in controlling child outside of table time setting….

- therapist must pair himself with reinforcer
- program must be 80% easy so that child does not want to leave the task
Contributions from NET

- Provide more opportunities for teaching in child’s Natural Environment
- Choose Targets based on child’s interest and mix the Targets as they come up in child’s environment
- Therapist plays with child initially so that he takes on properties of reinforcer
- Teaching in Natural Environment aides in generalization of skills
Errorless Learning

- Skinner (1968), Terrace (1963)
- A prompt should occur on every trial & be carefully faded to minimize errors

Prompt dependence?
- Fade Prompts
- Experience is more positive for the child
- Learning occurs more rapidly
Contributions from Errorless Learning

- New and difficult programs are prompted more frequently...as the program is mastered, prompt frequency is reduced
Fluency Based Instruction

O.R. Lindsley (1990): Being able to respond accurately and rapidly (fluency) results in better retention and generalization

- Retention: the child remembers better
- Endurance: child has sustained performance
- Stability: child can persevere despite distractions
- Application: child generalizes more readily
- Adduction: child can create new skills by joining the component skills that he is fluent in
Contributions from FBI

- Take composite skills and break them into components
- Teach the components to fluency by providing reinforcement for rapid, accurate responding
Recent Advances in ABA

- **DTT:** Identify the Sd→R←Sr
- **VB:** Use child’s motivation (EO), Teach various functions of language
- **EL:** prompt more frequently then fade
- **NET:** reduce table time...go to natural environment, rotate targets, pair self with reinforcement
- **Fluency:** practice to increase speed and accuracy
Summary

Setting

Prompting Strategies

“No, No, Prompt”

Errorless

Table time

Natural Setting

ABA: Applications to Autism

Approach to Language Training

By Form (Linguistic)

By Function (Verbal Behavior)

Teaching Techniques

DTT

NET
Now I know “How” to teach!”
Now I need “What to teach!”

- If I want my child to play more with his friends, what elements of “play” do I teach?
- If I want my child to speak appropriately, what do I teach?
- If I want my child to tell me how he feels, how do I do that?
- I want to teach him everything he needs to function “normally”!

But what is “Normal”? 
Shaping Knowledge Through Individualized Life Learning Systems (SKILLS)

1. Assess exact skills each child has
   - Use these strengths to teach
2. Assess exact deficit areas
   - Break down and teach in a way that builds upon each other
What is the “Norm” and how far off is my child?

- CARD I Skills Index (Ages 0-7.11)
  - A detailed index of skills in the areas of
    - Language
    - Play
    - Social Skills
    - Adaptive Skills
    - Cognition
    - Executive Functions
    - School Skills
    - Motor Skills
  - Several hundred skills evaluated
  - Correlated to CARD I curriculum programs
From assessment to instruction

- SKILLS INDEX
- Adaptive Skills Index
- Motor Skills Index
- Language Skills Index
- Sample Program
The CARD Curriculum

- Executive Functions
- Cognition
- Social Skills
- Language
- Play
- Adaptive Skills
- Motor Skills
- School Skills
The CARD Curriculum

By Emerging Age and Verbal Operant:

**0-11 mos.**
- Body Parts
- Following Instructions
- Gestures
- Making Requests
- People
- Sound Discrimination
- Verbal Imitation
- Yes/No

**1:0 – 1:11 yrs.**
- Actions
- Asking for Information
- Categories

**2:0-2:11 yrs.**
- Choices
- Fast Mapping Functions
- Objects
- Opposites
- Prepositions
- Pronouns

**3:0-3:11 yrs.**
- Adverbs
- Attribute-Object
- Conditionality
- Deliver a Message
- Features
- Gender
- I Have/ISee

**4:0-4:11 yrs.**
- Listen to/Tell a Story
- Locations
- Negation
- Plurals
- Recalling Events
- Sound Speed & Duration
- Syllable Segmentation
- Wh-Discrimination
- Statement-Question

**5:0-5:11 yrs.**
- Observational Learning
- Syntax
The CARD Curriculum

Features of a Comprehensive Play Skills Program

- Modeled after the development of play skills in typically developing children
- Breaks down each type of play into its own systematic and comprehensive program
- Sequential format
- Programs may be used individually, concurrently, or cumulatively
Play Curriculum

Sections:

- Electronic Play
- Pretend Play
- Constructive Play
- Sensorimotor Play
- Task Completion Play
- Initiating and Sustaining Play
- Early Social Games
- Read-to-Me Books & Nursery Rhymes
- Music and Movement
- Treasure Hunt
- Card and Board Games
- Locomotor Play
- Peer Play
- Functional Pretend Play
- Symbolic Play
- Imaginary Play
- Sociodramatic Play

Activities:

- Blocks Imitation
- Structure Building
- Sand and Water Constructions
- Clay Constructions
- Arts and Crafts
- Audio and Video Play
- Computer Play
- Video Games
Adaptive Curriculum

**Personal**
- Feeding
- Toileting
- Undressing
- Unfastening
- Dressing
- Preventing Spread of Germs
- Bathing
- Fastening
- Teeth Care
- Hair Care
- Nail Care
- Health Care

**Domestic**
- Pet Care
- Setting & Clearing Table
- Telephone Skills
- Tidying
- Meal Preparation
- Cleaning
- Gardening
- Laundry
- School Backpack Prep
- Making a Bed

**Community**
- Shopping
- Restaurant Readiness

**Safety**
- Safety Awareness
- Safety Equipment
Motor Curriculum

- Gross Motor Skills:
  - Sitting
  - Standing
  - Walking
  - Running
  - Jumping
  - Hopping
  - Riding Foot-Propelled Vehicles
  - Rolling Over
  - Stairs and Climbing
  - Balance Beam
  - Kicking
  - Catching

- Fine Motor Skills:
  - Hand Skills
  - Coloring
  - Drawing
  - Cutting with Scissors
  - Pre-Handwriting

- Visual Skills:
  - Ocular Motility
  - Binocular Vision Skills
  - Visual Perception

- Oral Motor Skills:
  - Oral
**Visual Form Constancy**

Match the picture on top with one of the four choices.

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Motor
# Visual Form Constancy

What is added to the first picture to make the second picture?

1. **First Picture**
   
   ![First Picture](image1)

   to

   **Second Picture**
   
   ![Second Picture](image2)

   **A**  

2. **First Picture**
   
   ![First Picture](image3)

   to

   **Second Picture**
   
   ![Second Picture](image4)

   **A**  

3. **First Picture**
   
   ![First Picture](image5)

   to

   **Second Picture**
   
   ![Second Picture](image6)

   **A**
1. How many times is the number 8 in the above picture?
   - A 10 times
   - B 7 times
   - C 8 times
   - D 5 times

2. How many times is the number 6 in the above picture?
   - A 10 times
   - B 4 times
   - C 5 times
   - D 1 time

3. How many times is the number 9 in the above picture?
   - A 9 times
   - B 3 times
   - C 15 times
   - D 2 times
Draw the missing parts of the picture on the right. Color the picture on the left.

27. Left

28. Left

Motor
The CARD Curriculum

Math
- Number Concepts
- Rote Counting
- Reading Numerals
- Numeral Comprehension
- Ordinal Position
- Numerals in Sequence
- Addition
- Subtraction
- Advanced Counting
- Money
- Time

Language Arts 1
- Visual Discrimination of Symbols
- Reciting Alphabet
- Uppercase Letters
- Lowercase Letters
- Word Recognition
- Reading Orally
- Reading Comprehension
- Book Topography
- Story Comprehension
- Story Summarizing
- Text Comprehension

Language Arts 2
- Manuscript Writing
- Printing Symbols
- Personal Data
- Lowercase Letters
- Uppercase Letters
- Letters in Sequence
- Letters Dictated
- Simple Sentences
- Quality of Printing

Physical Education

Science

History

Social Studies

NonAcademic Skills
The CARD Curriculum

**Cognition:**
- **Meta-cognition:** Identifying your own...
- **Social Cognition:** Inferring others’...

**Emotions**

**Thoughts**

**Knowledge**

**Desires**

**Beliefs**

**Intentions**
Classic Test of Social Cognition

“Sally-Anne” or False-Belief Task

Where will Sally look for her ball?
Where does she think her ball is?
“Typical” Meta and Social Cognitive Development

First few months: Sense of Self

9 months: Joint Attention / Social Referencing

15 months: Pretence

18 months: Desire / Intention

2 years: Emotion

3 years: Knowing / Thinking

4 years: Belief / False-Belief

5 years: Intention – Accident vs. Purpose
Cognition Curriculum

13 Lessons

- Physical States
- Emotions
- Cause & Effect
- Senses
- Sensory Perspective
- Taking
- Desires
- Preferences
- Knowing
- Thinking
- Beliefs
- Deception
- Intentions
- Detecting Sarcasm
Social Skills Curriculum

- **Non-Vocal Social Behavior**
  - Eye Contact
  - Non-Vocal Imitation & Facial Expressions

Absurdities
- Figures of Speech
- Humor and Jokes
- What's Wrong?

**Group Related Skills**
- Responding in Unison
- Group Discussion

**Social Rules**
- Compliance
- Following Rules
- Community Rules
- Politeness & Manners

**Social Context**
- Responding to Social Cues
- Learning Through Observation

**Social Language**
- Greetings and Salutations
- Social ID Questions
- Prosody
- Regulating Others
- Conversational Audience

**Social Interaction**
- Physical
- Listening
- Assertiveness
- Compliments
- Cooperation & Negotiation
- Gaining Attention
- Introductions
- Levels of Friendship
- Sharing & Turn Taking

**Self Esteem**
- Dealing with Conflict
- Positive Self-Statements & Losing

**Learning Through Observation**
The CARD Curriculum

What is Executive Function?

- Process that underlies goal directed behavior

Goal Directed Behavior Involves...

- Visualizing situation
- Identifying desired objective
- Determining plan to meet objective
- Monitoring progress to goal
- Inhibiting distractions
Executive Functions Curriculum

Executive Functions

- Inhibition
  - Waiting, Physical / Motor, Vocal, Pencil / Paper

- Flexibility/Set-Shifting
  - Non-Social, Social, Social – Cognitively, Situational

- Planning
  - Task / Social
  - Goal Setting, Previewing, Task Initiation, Monitoring Progress, Time Management, Organizing Materials, Using a Planner, Self-Organization

- Attention
  - Social Orienting, Joint Attention, Sustained, Divided, & Alternating Attention, Determining Saliency, Depth of Processing, Paraphrasing, Task Persistence

- Meta-Cognition
  - Meta-cognitive Planning, Self-Evaluation, Meta-memory, Self-Monitoring of Attention, Emotions, Reinforcement Control, Study Skills, & Flexibility

- Problem Solving
  - Non-Social, Social

- Memory
  - Associative, Visual, Spatial, Auditory, Episodic, Working

EF
Children’s Color Trail Test
Stroop Activities

red blue orange purple
orange blue green red
blue purple green red
orange blue red green
purple orange red blue
green red blue purple
orange blue red green
green purple orange red
Summary

- A good ABA program requires good assessment to determine exactly what your child needs to learn!
- A good ABA program needs a lot of hours!
- Don’t do 5 hours of ABA when 40 hours are recommended! This is like taking 5 mgs of a drug that has shown to be effective at 40 mgs! It won't work!
A 4 year progression

- **Year 1:**
  - Child entering at age 2-3
  - 25 hours per week building to 40 hours
  - Emphasis on
    - Building a relationship with child
    - Replacing challenging behaviors with functional communication
      - Mands (Requests)
      - Tacts (labels)
    - Receptive identification (objects, actions, body parts, colors, shapes)
    - Receptive instructions
    - Verbal and Non-verbal Imitation
    - Identical Matching
    - Play Skills (toy play)
    - Adaptive Skills (toilet training)
    - Fine and Gross Motor
    - Dietary restrictions/medical compliance

![Allocation of Hours](chart.png)
A 4 year progression

● Year 2:

- Child age 3-4
- 40 hours (in home with partial transition to school)
- Emphasis on
  - Building Expressive Language
    - Objects, Actions, Attributes, Prepositions, Pronouns
    - Categories, Functions, Occupations, Locations
  - Beginning Conversation
    - Intraverbals
    - Reciprocal Statements
    - Asking Questions
  - Developing Observational Learning
    - I See
    - Sequences
    - Tell me about/Describe
  - Emotion Recognition
  - Inferring others desires
  - Play Skills (functional pretend, symbolic, imaginary)
  - Adaptive Skills (dressing, grooming, feeding)
  - Fine and Gross Motor
  - Sharing and Turn taking
  - Attention (dual and divided)
A 4 year progression

• Year 3:
  ▪ Child age 4-5
  ▪ 40 hours (20 hours at home; 20 hours at school)
  ▪ Sample Programs
    • Advanced Language Concepts
      ▪ Pragmatic Language
      ▪ Maintaining Conversation (topic initiation, repair, maintenance)
    • Meta and Social Cognition
      ▪ Identifying and Managing own emotions
      ▪ Understanding other’s Perspectives, Knowledge and Beliefs
      ▪ Inferences
    • Executive Function
      ▪ Attention Saliency
      ▪ Flexibility with Routines
      ▪ Inhibition and Self Monitoring
      ▪ Planning
    • Social Skills
      ▪ Levels of Friendship
      ▪ Recognizing Social Cues
    • Problem Solving
    • Play Skills (peer play dates)
    • Adaptive Skills
    • Fine and Gross Motor
A 4 year progression

- **Year 4:**
  - Child age 5-6
  - 40 hours (10 hours at home; 30 hours in school and fading services)
  - Emphasis on
    - Teacher and Parent training
    - School Skills
      - Listening and Reading comprehension
      - Math and Problem Solving
    - Advanced Social Skills
      - Detecting Sarcasm
      - Understanding Deception
      - Group Skills
    - Continued Self Regulation
      - Self Esteem and Confidence
      - Task and Social Planning

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**Allocation of Hours**

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