Effective Interventions for Students with ASD: Practical Applications for Classroom Success

Seminar Two

Objectives

• Participants will learn how to use naturalistic interventions to improve social and communication skills
• Participants will learn the components of video modeling along with evidence-based implementation
• Participants will be able to describe the steps necessary to develop a self-management system for their student

Naturalistic Intervention
Naturalistic Interventions

• Strategies primarily involving child-directed interactions to teach real-life skills in natural environments
• Facilitate generalization across different settings, people, and materials

Naturalistic Interventions

• Who:
  – Effective for toddlers (0-2 years) to elementary school-age learners (6-11 years) with ASD
  – Effective for individuals with minimal communication and social skills

• When/Where:
  – Occurs within typical settings, activities, and/or routines in which the learner participates

Components of NI

• Occurs during routine daily activities
• Capitalizes on the child’s preferences, interests, needs, and abilities
• Child-initiated episodes for teaching
• Adults reinforce the child’s attempt to respond
• Adults provide inherent or natural consequences of the behavior as the reinforcer

Why use NI?
- Increases motivation by incorporating child’s interests
- Uses direct and natural consequences that are found within the environment
- Uses materials readily found in different environments
- Teaches skills in a variety of settings and/or situations

Naturalistic Interventions vs. Discrete Trial Training

<table>
<thead>
<tr>
<th>Naturalistic Interventions</th>
<th>Discrete Trial Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loosey structured sessions</td>
<td>Highly structured, pre-planned sessions</td>
</tr>
<tr>
<td>Initiated and paced by student</td>
<td>Initiated and paced by teacher</td>
</tr>
<tr>
<td>Occur in a variety of locations and positions</td>
<td>Occur in a controlled, one-to-one setting</td>
</tr>
<tr>
<td>Employ a variety of stimuli</td>
<td>Use same stimuli repeatedly and consecutively</td>
</tr>
<tr>
<td>No pre-determined order of responses; a variety of prompts may be used to elicit a desired response</td>
<td>A single acceptable response is targeted for multiple successive training episodes using same prompt repeatedly</td>
</tr>
<tr>
<td>Allow the desired object chosen by student and used as stimulus to serve as a natural reinforcer</td>
<td>Use of reinforcers that are not functionally related to the stimulus</td>
</tr>
</tbody>
</table>

Goals Addressed
- Communication skills
- Interpersonal skills
- Play skills
- Increase language behavior & decrease disruptive behavior

How to Implement NI
Step 1: Identify Target Behavior

• Choose target skill
• Collect baseline data
• Choose contexts for intervention
• Train other team members

Collecting Baseline Data
Example

<table>
<thead>
<tr>
<th>Student: Billy</th>
<th>Age: 5 years</th>
<th>Grade: Kindergarten</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity/Class Period</th>
<th>Environmental Modification</th>
<th>Behavioral Strategy Used</th>
<th>Target Behavior Tally</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>307</td>
<td>Free play</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>307</td>
<td>Snack</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>307</td>
<td>Art &amp; crafts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>309</td>
<td>End of the day</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>309</td>
<td>Snack</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example:

- Date: 307
- Activity/Class Period: Free play
- Environmental Modification: 
- Behavioral Strategy Used: 
- Target Behavior Tally: 
- Notes: Didn’t interact with teacher or other students, played with toys.

How to Implement NI
Step 2: Arrange the Environment

• Choose motivating materials
• Have adult manage materials
• Arrange the context and environment to encourage use of the target skill
Create an engaging setting

How to Implement NI
Step 3: Elicit Target Behavior

• Engage Child in Interaction
  – Follow child’s lead
  – Be at learner’s level
  – Respond to initiations
  – Provide feedback
  – Expand utterances

How to Implement NI
Step 3: Elicit Target Behavior

• Use Behavioral Interventions
  – Modeling
  – Mand-modeling
  – Modified time delay
  – Incidental teaching
### Mand-modeling

<table>
<thead>
<tr>
<th>Steps</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Establish shared attention</td>
<td>Billy and his teacher are reading a book on the rug where the books are.</td>
</tr>
<tr>
<td>b. Provide a verbal direction or question</td>
<td>Teacher says, “What book do you want to read Billy?”</td>
</tr>
<tr>
<td>c. If the learner responds correctly, expand the response and provide the requested material</td>
<td>When Billy says the target response (“Want this book”), his teacher provides the book and expands the utterance to “Want this book, please!”</td>
</tr>
<tr>
<td>d. If the learner does not respond, provide another directive or model</td>
<td>When Billy points to the book instead of verbalizing, his teacher prompts him, “Say, ‘Want book.’”</td>
</tr>
<tr>
<td>e. If the learner gives the target response, expand the response and provide requested material</td>
<td>When Billy repeats, “Want book,” the teacher provides the book and expands, “Want book please!”</td>
</tr>
<tr>
<td>f. If the learner still does not respond, say the target response and provide the material.</td>
<td>When Billy says, “Book,” which is not complete and at the target level, his teacher says, “Want book please,” and provides the book.</td>
</tr>
</tbody>
</table>

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### Lesson Plan

**October 12**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snack</td>
<td>Adult says, “Hi, Billy!” and puts out snack containers. Adult waits, looks for verbalization, prompt if needed. &lt;br&gt;Adult waits, looks for tool if possible; prompt if needed.</td>
</tr>
<tr>
<td>Fine Motor</td>
<td>Adult says, “Hi, Billy!” and puts out fine motor materials. Adult waits, looks for tool if possible; prompt if needed.</td>
</tr>
<tr>
<td>Social Skills</td>
<td>Help student to make a social response. Help identity object and social response. Help identity object and social response.</td>
</tr>
<tr>
<td>Time</td>
<td>Help student to make a time response. Help identity object and time response. Help identity object and time response.</td>
</tr>
</tbody>
</table>

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**Wait for the Child to Initiate**

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**NYS**
How to Evaluate

• Monitor the child’s progress by tracking the use of the target skill

Collecting Data

<table>
<thead>
<tr>
<th>Student: Billy</th>
<th>Date: 10/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade: Kindergarten</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Environment/ Condition</th>
<th>Reinforcement Used</th>
<th>Target Behavior Tally</th>
<th>Raters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/5/3</td>
<td>Free play</td>
<td>&quot;To come&quot;</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1/5/3</td>
<td>Snack</td>
<td>&quot;To use&quot;</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1/5/3</td>
<td>End of the day</td>
<td>&quot;To use&quot;</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1/5/4</td>
<td>Snack</td>
<td>&quot;To use&quot;</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Another Data Sample

<table>
<thead>
<tr>
<th>Student: Billy</th>
<th>Date: 10/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade: Kindergarten</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To make a verbal request of two or more words when he wants something</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2. To correctly use the pronouns he, she, and it</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3. To use a verbal request of at least two words when asked a question</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Questions to Consider

- Does the student perform the skill?
- Does the student perform the skill without prompts?
- Does the student perform the skill in different settings? With different people?
- Does the student perform the skill consistently?
- Was the intervention implemented with fidelity?

Examples

Scenario 1

Student: Jane
Instructor: Paraprofessional
Interests: Cars
Teaching goals: Color identification, counting

Paraprofessional plans to use cars in free play area to work on goals. However, Jane shows an interest in balls. Para follows Jane’s interest, waiting for her to reach for one of the balls. He holds the ball slightly out of reach, asking Jane to identify its color, prompting her by telling her the name of the color. Then, he gives Jane the ball. He repeats with each ball. At the end of the session, the para asks Jane to count each ball using a 1:1 correspondence.
Scenario 2
Student: Jorge
Instructor: Teacher
Interests: n/a
Teaching goals: Tie shoes

The teacher wants to teach Jorge to tie his shoes. She observes his day and assesses when naturally occurring opportunities to tie his shoes occur. She decides to create more opportunities for Jorge in a natural setting. She develops a daily activity of doing relaxation training for the entire class. The activity involves removing shoes and wiggling toes.

Scenario 3
Video Modeling

Video Modeling is a mode of teaching that uses video recording and display equipment to provide a visual model of the target behavior or skill.

Why Use Video Modeling?

- Video modeling has several advantages over in vivo modeling, including:
  - Time and cost efficient
  - Depicting a variety of naturalistic settings
  - Having more control over the model
  - Presenting the model repeatedly
  - Reusing videos for other individuals
Autism Spectrum Difficulties Addressed with VM

<table>
<thead>
<tr>
<th>Difficult Area</th>
<th>VM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stimulus over selectivity</td>
<td>Assists students to focus and maintain attention to relevant stimuli</td>
</tr>
<tr>
<td>Complex or unfamiliar directions</td>
<td>Condenses content to only essential information</td>
</tr>
<tr>
<td>Executive Functions: Shifting</td>
<td>Makes abstract concepts more concrete</td>
</tr>
<tr>
<td>Remembering auditory information</td>
<td>Uses strength of learning through visual means</td>
</tr>
</tbody>
</table>

VM and Individual Goals

- Increase appropriate social interactions
  - Conversational skills
  - Play skills
- Improve daily living skills
- Reduce problem behaviors
- Improve academic and task oriented behaviors

Basic Video Modeling

- Procedure in which learner is shown a videotape of a model performing a target behavior or completing a desired task
- After viewing entire video, learner is then given the opportunity to perform the modeled behavior or complete the task
Basic Video Modeling

Components of Video Modeling

1. Identify the Target Skill
2. Produce the Videos
3. Implement the Video Modeling Intervention

Step 1: Identify the Target Skill

- Assessment
  - Ecological Assessment
- Prioritizing Skills/Behaviors
- Defining the Skill/Behavior
- Collecting Baseline Data
1. The behavior of most concern to the individual/teacher/parent
2. The easiest behavior to change
3. The behavior most likely to affect other problem behaviors/skills
4. The behavior most likely to generalize to other behaviors/skills
5. The earliest behavior in a behavior chain
6. The behavior that, if changed, leads to the most opportunities for new behaviors and more reinforcement
Step 2: Produce the Videos

- Have the correct equipment
  - Video recording device
  - Determine how the video will be played back
  - Be familiar with how to use equipment
- Planning for recording
  - Script writing/task analysis


Applications for Video Production

- Video Tote
  - www.videotote.com
  - $2.99
- iModeling
  - http://imodelingproject.com/
  - $11.99

Step 2: Produce the Videos

- Making the Video
  - Identify the type of video modeling (4 types)
  - Questions to ask:
    - Do you want to show the target behavior from the learner’s point of view or from a third person?
    - If video modeling, who will be the model?
    - If video self-modeling, how will you prepare the learner to be videotaped?
  - Record a video that is satisfactory in quality and accurately reflects the steps of the task analysis

NYS
Video Modeling Techniques

- 4 Types of Video Modeling Techniques
  - Basic Video Modeling
  - Video Self-Modeling
  - Video Prompting
  - Point-of-View Video Modeling

http://autismpdc.fpg.unc.edu/content/video-modeling

Video Self-Modeling (VSM)

- Specific application of VM that allows the individual to imitate targeted behaviors by observing him or herself successfully performing a behavior

Video Self-Modeling

I can take deep breaths or relax in a beanbag to feel better.

https://sites.google.com/a/bacod.u.org/video modeling/home
Video Self-Modeling

Video Prompting (VP)
- Variation of VM
- Learner is shown a series of video clips in sequence
  - First, a video clip depicting only the first target behavior or only the first step in a task
  - Then the learner is given the opportunity to perform the behavior/complete task
  - After that opportunity, the learner is shown the next video clip in the sequence and so on until all target behaviors have been shown

Video Prompting

http://www.youtube.com/watch?v=ZEHPRWmXRMM
**Point-of-View Video Modeling**

- Placing the camera at an angle that illustrates the target skill from the point of view of the target student


https://www.youtube.com/watch?v=hzYFBZPaaac

**Adapted from:** [http://www.ahdha.org/pdf/Convention2014/sessions/1344reflec_Brookert.pdf](http://www.ahdha.org/pdf/Convention2014/sessions/1344reflec_Brookert.pdf)
Step 3: Implement the Video Modeling Intervention

- Prepare for teaching
- View the videos
- Engage in the Target Skill
- Collect Intervention Data
- Program for generalization


Prepare for Teaching

- Arranging the environment for watching the video
  - Consider how and when it will be used in natural routines
  - How often and when will it be shown?
  - Where will the learning take place?
- Showing the video
  - Allow learner to watch video an appropriate number of times before expecting the learner to use target skill

Engaging in Target Skill

- Immediately after viewing video, provide student with opportunity to practice the skill in the natural setting
- If practice in natural setting is not possible, arrange situations within the setting where the student is required to use target behavior
Collect Intervention Data

• Collect data on the performance of the target behavior, noting specific steps of task learner is able to do independently
• Note how often and when learner watches the video when using the target behavior
• If, after collecting data on 3-5 occasions, learner is not making progress, begin troubleshooting

Troubleshooting

• Adjust intervention tactics to help learner make progress by considering the following:
  1. Is the learner watching the video enough times per week?
  2. Is the learner watching the video, but not attending to the most relevant parts?
  3. Are enough prompts to use target behavior being given?
  4. Amount/type of reinforcement for performing, attempting to perform target behavior
  5. Is the video too complex?
  6. Task Analysis to ensure video includes correct steps?

Program for Generalization

• Varying settings
• Peers
• Scripts
• Self-monitoring

http://autismpdc.fpg.unc.edu/content/video-modeling

NYS
The Big Picture

How do our students with ASD fare after they leave high school?

Mailick Keynote Address IMFAR 2014
Waisman Center, University of Wisconsin-Madison
Large grant-funded center studying life course of individuals with ASD

The Big Picture

- 397 individuals with ASD
- Community Sample
- Time 1: 1998
- Examining trajectories of change over 10 years
- Assessed approximately every 18 months
Self-Management Systems

Self-management approaches are appropriate for individuals of all ages on the autism spectrum.

Self-management systems are an important part of building independence in students with ASD.

Teach students with ASD to:
1) Monitor their own behavior
2) Record their performance
3) Obtain reinforcement when their performance meets a pre-established behavior criterion

**Self-Management: Steps for Implementation**

1) Prepare the system to be implemented
2) Teach the learner to use the system
3) Implement the system with adult support
4) Promote learner independence with the system


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**Preparing Self-Management System**

- Identify target behavior
- Clearly define!!!

---

**Preparing Self-Management System**

**Identifying Target Behaviors**
- Are there behaviors that are interfering with the student’s ability to communicate, engage socially, participate in academic work?
- What are the new skills that would increase the student’s independence later in life?
- What skills have been identified as areas of need in recent assessments (e.g., adaptive behavior assessments, functional behavioral assessments?)
Preparing Self-Management System

• Defining Behavior
  – What does it look like, sound like
  – Have student model behavior for you
  – Does it look different in different settings?

I will answer my teacher’s questions respectfully

Preparing Self-Management System

• I will answer my teacher’s questions respectfully
• I will stay on-task
• I will talk to peers more
• I will be safe

What do these behaviors look like for your student?
Do these behaviors look the same in different environments (e.g., math, PE, lunch)?
Preparing Self-Management

- Identify reinforcers
  - Variety
  - Motivating
  - Using student input

Example of Rules Poster

I will stay in my seat for 5 minutes without talking during English class.

Classroom Rules

1. I will stay seated in my chair during English class.
2. I will not talk while the teacher is talking.
3. Whenever there is a stop,

Name

Date

Reading  Math  Centers

Writing  Lunch  SS/Science

Notes

NYS
### FORCED-CHOICE REINFORCEMENT MENU

Name: ________________________________

In order to identify possible classroom reinforcers, it is important to go directly to the source, namely, you the student. Below is a paragraph that provides instructions for completing a series of “targeted choice” survey items about individual reinforcement preferences. Please read the following paragraph carefully:

“Let’s suppose that you have worked hard on an assignment and you think that you have done a super job on it. Thinking about a reward for your effort, which one of the ten things below would you most like to happen? Please choose the one from each pair that you would like best and mark an “X” in the blank that comes in front of it. Remember, mark only one blank for each pair.”

1. Teacher writes “100” on your paper. (A)
   - Be free to finish your work. (B)
2. Be free to do what you like. (C)
   - A bag of chips. (D)
3. Teacher asks you to be on their team. (E)
   - Be free to do what you like. (F)
4. Be free to do what you like. (A)
   - Teacher writes “100” on your paper. (B)
5. Be free to do what you like. (G)
   - A bag of chips. (H)
6. Teacher writes “100” on your paper. (A)
   - Be free to do what you like. (B)

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### Use Your Points to Buy Treats:

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candy</td>
<td>5</td>
</tr>
<tr>
<td>IPod Break</td>
<td>8</td>
</tr>
<tr>
<td>Break Area</td>
<td>5</td>
</tr>
<tr>
<td>IPod Pencil</td>
<td>10</td>
</tr>
<tr>
<td>Computer Break Area</td>
<td>10</td>
</tr>
<tr>
<td>Coloring Break Area</td>
<td>8</td>
</tr>
</tbody>
</table>

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### Want Today’s Wifi Password?

1. Make your beds
2. Vacuum downstairs
3. Walk the dog
Preparing Self-Management

• Data collection system
  – Set up for success!!
  – Interval or Frequency

Preparing Self-Management

• Interval Systems
  – Student must demonstrate (or not demonstrate) the behavior for __ number of __ second/minute intervals
  – Always start with interval goals that are at least equal to or slightly less than the amount of time they are currently exhibiting the behavior
  – Get an idea of how long a peer can engage in the behavior
  – Good for behaviors like: staying on task, conversing with peers, not engaging in a challenging/stereotyped behavior for a length of time

Self Management Form

Student Name: __________________ Date: __________________

When you hear the beep put a smiley face in the box if you are working on your assignment.

How many times was I working on my assignment when I heard the bell?

My goal is: __________

The number of times I was working on my assignment: __________

My goal is to be working on my assignment: __________

I met my goal (yes or no): __________

I will reinforce myself when I meet my goal by: scheduling 30 minutes extra time on the computer.
Preparing Self-Management

- **Frequency Systems**
  - Student must demonstrate ___ number of times or demonstrate no more than ___ number of times
  - Always start with frequency goals initially that are low (e.g., if new behavior may only have to exhibit once)
  - Get an idea of how often peers exhibit the behavior
  - Good for behaviors like: raising hand in class, taking bites of food, asking peers questions

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**Module: Self-Management**

Sample Recording Sheet

Figure 1. Sample interval recording sheet

Instructions: This recording sheet is designed to be used with the time intervals. At the end of each interval, the teacher/carer checks if the student has demonstrated the behavior. After the set interval, the teacher determines if the student has met the criterion to receive a reinforcer, which in this case is to blow all the toy tubes.

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**Did I stay and play with my friends?**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

**Did I get 3 Smiley?**

- Get a REWARD!
- Try Again

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**Figure 2. Sample recording sheet for a frequency criterion**

Instructions: Each time the student raises her hand to ask a question, she strikes the picture of the girl raising her hand. She starts at a and counts down to 3 (for a total of 3 hand raises). When she gets to 1, she earns a reinforcer.
Preparing Self-Management

- Select recording device
  - Make it clear and easy to use
  - Consider Intrusiveness
    - Paper/Pen
    - Clickers
    - Token Boards
    - Paperclips/rubber bands
    - Timers, stopwatches, wristwatches

Teaching Self-Management System

- **Demonstrate** target behavior
  - Did it occur/not occur
    - Discriminate teaching
    - Modeling
  - Accurately record
  - Manage Reinforcers
    - Discriminate teaching
    - Modeling
Implementing Self-Management

• Provide materials or teach them to get motivation (physical guidance)
• Provide cues
• Teach self-record – prompt/reinforce (prompt faded until independent 80% accuracy)
• Teach to gain access to reinforcer


Gurpreet Kaur, MA, BCBA, UC Davis MIND Institute - Self-monitoring and Self-management

Patty Schetter, MA, BCBA, UC Davis MIND Institute - Self-monitoring and Self-management
Promoting Independence

- Intervention checks – accuracy, collect reinforcement
  - Frequent
  - 20% all sessions
- Increase criterion once using consistently
- Increase session length while increasing criterion (hand raising example)
- Increase interval length as session length increases (with interval based systems)


Self-Management Implementation Checklist:
A tool for staff to evaluate program
Can you think of a student who would benefit from a self-management intervention?

Are there students who would not benefit from a self-management intervention?

Last Thoughts

• It is important to look at individual strengths, difficulties, and goals before choosing an evidence-based model
• In order to know if an intervention is effective and/or if it’s time for maintenance and generalization, data collection needs to be completed

CARD Albany is now on Facebook
https://www.facebook.com/cardalbany

Required Coursework for Special Education Professionals now online – “Responding to the Needs of Students with ASD”
http://www.albany.edu/autism/nysed_autism_training.php

Online Distance Learning Training
http://www.albany.edu/autism/33452.php
New York State Regional Centers for Autism Spectrum Disorders
http://www.albany.edu/autism/nysrcasd.php

Questions?

Center for Autism and Related Disabilities
Phone: (518) 442-2574 or toll free 1+(866) 442-2574
Email: card@albany.edu
Website: www.albany.edu/autism