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**Topics in Autism Spectrum Disorders
and Asperger Syndrome**

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**A Problem Solving Process for
Teams Serving Children with
Autism Spectrum Disorders**

Presented By:
Sylvia Diehl, Ph.D., CCC-SLP

Moderated By:
**Amy Hansen, M.A.,CCC-SLP, Managing Editor,
SpeechPathology.com**

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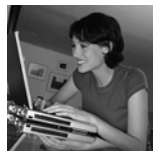www.uwec.edu/ce/programs/education/slpcredit.htm

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Peer Review Process

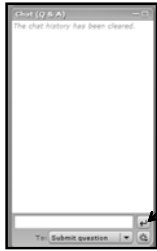**Interested in Becoming a Peer Reviewer?**

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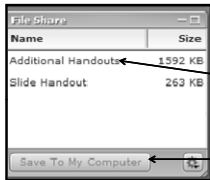anatho@speechpathology.com

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Type question or comment
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A Problem Solving Process
for Teams Serving Children
with Autism Spectrum
Disorders

Sylvia F. Diehl, Ph.D., CCC-SLP
University of South Florida
sdiehl@usf.edu
Diehl, 2010

Objectives

- **Identify established interventions defined by the National Standards Project**

- **Describe characteristics of children with Autism Spectrum Disorders that influence communication and learning success in the school context**

- **Apply a process that aligns learning priorities with evidence based practice**
- :
  - Identify established interventions as defined by the National Standards Project (2009)
  - Describe a six-stage team problem-solving process to select intervention strategies in school settings
  - Apply principles of evidence-based practice in the teaching process Diehl, 2010
  - Locate resources for continued learning

NATIONAL STANDARDS PROJECT

Diehl, 2010

National Standards Project

- **Review of treatment literature that targets one of the core characteristics of ASD published between 1957 and the fall of 2007.**
  - **Includes both group and single case studies**
  - **http://www.nationalautismcenter.org/affiliates/reports.php**
  - **Established, emerging, unestablished, ineffective/harmful**
  - **Important to know the study and the literature to interpret categories correctly**

Diehl, 2010

Established

- **Several published, peer reviewed studies**
- **Scores of 3,4,5 on Scientific Merit Rating Scale (SMRS; design, IV/ DV, Dx, generalization)**
- **Beneficial treatment effects or a specific target**

Diehl, 2010

Established

- **Behavioral packages (includes PBS, FCT, ABA, priming)**
- **Augmentative Alternative Communication**
- **Joint attention**
- **Modeling (In Vivo and Video)**
- **Naturalistic teaching strategies**
- **Peer training packages**
- **Pivotal response treatment**
- **Visual schedules**
- **Self management**
- **Story based packages**

Diehl, 2010

Emerging

- **A few published, peer-reviewed studies**
- **SMRS scores of 2**
- **Beneficial treatment effects reported for one dependent variable for a specific target**

Diehl, 2010

1/6/2011

Emerging

- Cognitive Behavioral Intervention Package
- Developmental Relationship-based
- Exercise
- Imitation-based Interaction (imitating child)
- Language Training (Production)
- Language Training (Production & Understanding)
- Massage/Touch Therapy

- Music Therapy
- Picture Exchange Communication System
- Scripting
- Sign Instruction
- Social Communication Intervention
- Social Skills Package
- Structured Teaching
- Technology-based Treatment
- Theory of Mind Training

Diehl, 2010

Not Established

- May or may not be based on research
- Beneficial treatment effects reported based on very poorly controlled studies (scores of 0 or 1 on the SMRS)
- Interventions
  - Academic Interventions
  - Auditory Integration Training
  - Facilitated Communication
  - Gluten- and Casein-Free Diet
  - Sensory Integrative Packages

Diehl, 2010

Non-effective or Harmful

- Several published, peer reviewed studies
- SMRS scores of 3
- No beneficial treatment effects reported for one dependent measure for a specific target OR
- Adverse treatment effects reported for one dependent variable for a specific target
- None because researchers rarely continue nonproductive lines of research to meet this criteria

Diehl, 2010

CHARACTERISTICS THAT INFLUENCE ACADEMIC LEARNING

Diehl, 2010

Exciting neurobiological information in last 10 years

- **Don't have time for extensive review in this venue but will very briefly highlight**

- **For more information, good overviews are found:**
  - **Minshew N. & Keller, T. (2010). The nature of brain dysfunction in autism: Functional brain imaging studies. *Current Opinions in Neurology, 23*, 124-130.**
  - **Shafati, S., Jeste, S., & Nelson, C. (2009). Event related potentials in the understanding of autism spectrum disorders: An analytical review. Journal of Autism and Developmental Disorders, 39, 3, 495-510.**

Diehl, 2010

Summary of Findings

- **Highlight functional connectivity differences**
- **Developmental neuronal organizational differences**
- **Increased cerebral white matter volume in young children with autism**
- **Some pathways may have increased connections, while other pathways are under-connected**

Diehl, 2010

Neurobiological Differences

- **These findings may result in these behavioral characteristics that influence academic learning**
  - **Social Perspective Taking Challenges**
  - **Issues with Executive Functioning**
  - **Central Coherence Deficits**

Diehl, 2010

Social Perspective Taking

- **Also called Theory of Mind or Mentalizing**
  - **The ability to take other people's perspectives**
  - **Inferring the full range of mental states from behavior**
  - **In other words, the ability to predict relationships between external states of affairs and internal states of mind (Frith, 1989)**

Diehl, 2010

Some Effects of Social Perspective Challenges

- **People seem to act randomly**
- **Sharing and taking turns difficult**
- **Can't keep secrets**
- **Lack remorse**
- **Don't embarrass**
- **May appear self-centered, egocentric, and uncaring**

Diehl, 2010

Social Perspective Taking and Academic Learning

- **Difficulty with certain text genre because of inferencing and social understanding requirements**
  - Narratives may be harder than more factual expository genres
  - Trouble with persuasive arguments, debating, genre requiring multiple perspectives
  - Some suggestion that comprehension differs according to content perspective (White, Hill, Happé, & Frith, 2009)

Diehl, 2010

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Executive Function

(Perner & Lang, 2000)

- **Processes in control of behavior (Self-control)**
  - Forward planning
  - Coordinating actions
  - Controlling sequences of action
  - Cognitive flexibility
- **"Executive functions are needed to maintain a mentally specified goal and to bring it to fruition against distracting alternatives."**

Diehl, 2010

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Some Effects of Executive Function Challenges

- **Prevent oneself from making a response**
- **Difficulty changing responses**
- **Directing attention to a goal**
- **Setting goal priorities**
- **Difficulty with transient cues**
- **Difficulty with novel situations**

Diehl, 2010

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Executive Function Challenges and Academic Learning

- **May focus on the act of decoding and not connect reading with meaning (Meltzer, 2007)**
- **Flexibility in connecting meaning**
- **Self monitoring and self correction**
- **Repair**

Diehl, 2010

Central Coherence

- **Draw together diverse information to construct higher-level meaning in context**
  - **"Tasks using local information would be easier than tasks requiring the recognition of global meaning or integration of stimuli in context" (Happe, 2000)**

Diehl, 2010

Central Coherence Challenges

- **Understanding ambiguous words**
- **Getting the gist of information**
- **Focus on pieces rather than whole**
- **Integrate information from very sources to form a whole**
  - **Good rote memory but poor integration**
- **Generalization**

Diehl, 2010

Anxiety

- **Most children with ASD have very high levels of anxiety**
  - **Physical comfort is threatened in unusual ways**
  - **Hard to handle unknown plans and expectations**
  - **Do not know how to use social support**

Diehl, 2010

PROBLEM SOLVING PROCESS

Diehl, 2010

Problem Solving Process

- **Shortened Adaptation of Positive Behavior Support Model**
- **Used in school teaming process**
- **Builds on data that is taken in classroom**
- **Vehicle to apply EBP in problem solving**
- **Time needed shortens with practice**

Diehl, 2010

Problem Solving Process: Step 1

- **Each team member takes 2 minutes to write down primary challenges that the child is facing**
- **These are discussed in a round robin fashion by team members**
- **The target(s) of problem solving are chosen**

Diehl, 2010

Problem Solving Process: Step 2

- **Data related to targeted problems are shared**
  - **Frequency**
  - **Influencing variables**
  - **Things that may be maintaining behavior**

Diehl, 2010

Problem Solving Process: Step 3

- **What has been done to address the problem in the past?**
  - **Interventions tried**
  - **Continuity of intervention(s) used**
  - **Results**

Diehl, 2010

Problem Solving Process: Step 4

- **Prevention or Environmental Adaptations**
  - **People involved**
  - **Affect used**
  - **Language level**
  - **Visuals needed**
  - **Structure of environment**

Diehl, 2010

Problem Solving Process: Step 5

- **Skills to teach (First choice established strategies)**
  - **Communication systems**
  - **Social strategies**
  - **Transition strategies**
  - **Calming strategies**
  - **Self monitoring**
  - **Educational supports**

Diehl, 2010

Problem Solving Process: Step 6

- **Making action plan**
  - **Who's responsible for teaching**
  - **Making materials**
  - **Taking data**
  - **Talking to other team members**

Diehl, 2010

Applying the Process

- **Patrick**
  - **6th grader new to middle school**
- **Challenges**
  - **Interrupting the teacher**
  - **Transitions both in and out of class**
  - **Walking in the halls**
  - **Working on writing assignments**

Diehl, 2010

Applying the Process

Challenge	Current Level	Tried	Results
Interrupting the teacher	Average greater than 4 times a class period	-Verbal reprimands -Defining interrupting -Giving rules	-No change -No change -Mildly effective if rules were written
Transitions	Always very slow; refusal appx. 4 times a week	-Verbal prompting	-No change
Walking in hall	Tantrum appx. 3 times a week	Let go 10 minutes early	-Helpful
Writing	Rarely writes more than a few words w/o prompting	-Pencil grip -Computer	-Helped with quality -Writes 2/3 sentences

Diehl, 2010

Applying the Process

Challenge	Prevention	Strategies
Interrupting the teacher	Visual Cue	Social Story (Established strategy)
Transitions	Visual Schedule	Safety signal with visual schedule (Established strategy)
Walking in hall	Early dismissal	Video modeling (Established strategy)
Writing	Specifically delineating length of expectation	Graphic organizer (Visual support but not specifically established on this population) Computer (Emerging) Peer supports (Established)

Diehl, 2010

Action Plan

Challenge	Materials (See handout)	Teaching	Data
Interrupting the teacher	SLP write social story	SLP –Initially Teacher-In class	Teacher
Transitions	Special Ed teacher make schedules	Special Ed Teacher/Teacher	Teacher
Walking in hall	Special Ed teacher takes video	Special Ed Teacher	Parapro-fessional
Writing	Teacher makes up organizer	SLP/Teacher/Special Ed Teacher	Peer

Diehl, 2010

FOCUS ON STRATEGIES USED

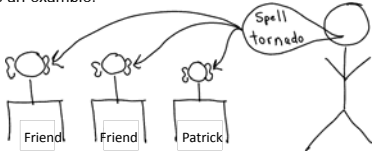Diehl, 2010

Interrupting the teacher

- **Social Story (Established Strategy)**
  - **Originated with Carol Gray in the Michigan Public schools (Gray, 1993)**
  - **Short stories written in a special style and format whose goal is to share accurate information**
  - **Can address many different situations including aggression, fears, obsessions, questions and answers, confusing media stories.**
  - **Important to know how to write them correctly**
  - **More information at http://www.thegraycenter.org/**

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Social Story with
Comic Strip Conversation Symbols

At school, my teachers talk to me to give me new information and give me directions. My teachers talk to my friends to give them new information and to give them directions.
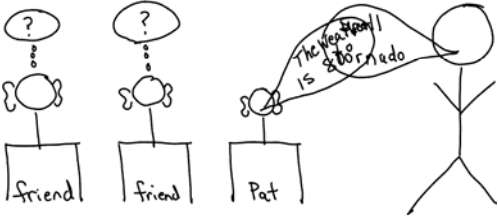
It is important for me to hear my teacher's words. It is important for my friends to hear my teacher's words. Here is an example:

Diehl, 2010

Social Stories with
Comic Strip Conversation Symbols

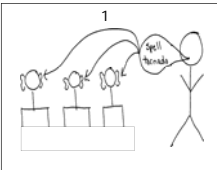If I interrupt, the words bump into each other and get confused. Here is and example:
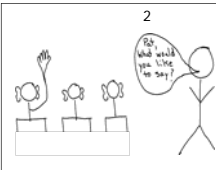

Diehl, 2010

Social Stories with
Comic Strip Conversation Symbols

If I raise my hand in class, my teachers will know I want to say something. They will finish talking and then call my name so I can tell them what I was thinking.

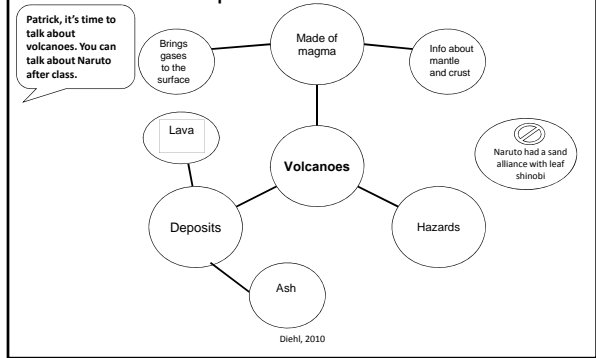I will try to raise my hand and wait for my teacher to call on me when I want to say something in class.

Diehl, 2010

Interrupting

- **Working on topic maintenance**
  - **Semantic Mapping during discussion**
    - **Can be used with preparation by classroom teachers**
    - **Makes topic maintenance visual**
    - **Teaches that there are times to talk about special interests but also trains them to focus on topic at hand**
    - **Can serve as a jumping off point for written work**

Diehl, 2010

Semantic Map used for Topic Maintenance

Patrick, it's time to talk about volcanoes. You can talk about Naruto after class.

Brings gases to the surface

Made of magma

Info about mantle and crust

Lava

Volcanoes

Naruto had a sand alliance with leaf shinobi

Deposits

Hazards

Ash

Diehl, 2010

Transitions

- **Visual Schedule (Established Strategy)**
  - **Very effective for transitions (Dettmer, Simpson, Myles, & Ganz, 2000)**
  - **Make sure to use appropriate symbol**
  - **Child should own and manage their schedules**
  - **Mass class schedule usually not enough support to teach flexibility**
  - **Use schedule to teach how to think about change**
    - **Begin with schedule changes that are pleasurable**
    - **Move neutral changes**
    - **Changes as they come up**

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Within Activity Schedule Example

1	Get Earth Science book and folder from backpack (Green covers)
2	Look on board for the reading assignment. Read pages listed on board.
3	When chime sounds, go to learning group at Table 7.
4	Mrs. Sanders will give you papers that tell you what your role is in the group and some things to say to help you.
5	Do group assignment with friends.
6	Go back to seat.
7	Write 1 paragraph summary on laptop. Print out. Give to Mrs. Sanders.
8	Put book and folders in backpack and wait for bell to ring.

Diehl, 2010

Within Activity Schedule Example
Showing Change

1	Get Earth Science book and folder from backpack (Green covers)
2	Look on board for the reading assignment. Read pages listed on board.
3	When chime sounds, go to learning group at Table 7.
4	Mrs. Sanders will give you papers that tell you what your role is in the group and some things to say to help you.
5	Do group assignment with friends.
6	Go back to seat.
7	~~Write 1 paragraph summary on laptop. Print out. Give to Mrs. Sanders.~~ COMPUTER TIME
8	Put book and folders in backpack and wait for bell to ring.

Diehl, 2010

Walking in the hall

- **Video Modeling (Established Strategy)**
  - **Watch a video of adults or children modeling particular target behaviors (e.g., conversational scripts, self help skills, greeting, labeling, etc.)**
  - **Even children who don't readily imitate models will often reproduce verbalizations from TV and video (Charlop-Christy, Le, & Freeman, 2000)**
  - **Helps focus the attention of the child with ASD on the relevant stimuli in the video**
  - **With practice and rehearsal the child begins to retain and display the targeted language and behavior that is modeled**
  - **Repeated viewings support the child's ability to learn the specific vocabulary associated with targeted situations** Diehl, 2010

Walking in the Hall

- **Video Modeling Considerations**
  - **Talk about possible variations of events so the child has opportunities for flexible learning and thinking**
  - **Encourage and reinforce attempts to demonstrate the modeled behavior**
  - **Rewind to review important parts**
  - **Communicate to team so that they can reinforce attempts at modeled behavior**

Diehl, 2010

Writing is a challenge!

- **Actual motor planning difficult**
  - **Forming and spacing letters**
  - **Tactile properties of holding writing instrument**
- **Writing is thinking on paper.**
  - **Manipulating and organizing language in the mind can be daunting for a visual thinker.**
- **Must consider audience in writing.**
  - **Theory of mind**

Diehl, 2010

Writing

- **Used several strategies to support writing**
- **Worked with occupational therapist**
- **Suggest Handwriting without Tears (Carlson, McLaughlin, Derby, & Blecher, 2009) http://www.hwtears.com/**
- **Used alternative writing instruments**
  - **Tripod**
  - **Marker**
  - **Slanted Surface**
  - **Keyboard /Laptop**

Diehl, 2010

Writing

- **Graphic organizer (Visual support but not specifically established with ASD population)**
    - **Start with semantic mapping for brainstorming for expository**
    - **Have set of graphic organizers for each genre**
    - **Taught each section separately and then put them together. Later worked on making it less formulaic.**
    - **Have them recreate by themselves for use on standardized tests**

Diehl, 2010

Example of Graphic Organizer (Five paragraph persuasive essay)

In my opinion, (state your opinion of the question) for three reasons. First, _____. Second, _____.. Last, _____.
First, (give your first reason) For example, (give example of your first reason)
Second, (give your second reason) For example, (give example of your first reason)
Last, (give your last reason) For example, (give example of your first reason)
In conclusion, I think that _____ for these three reasons. First, ---- . Second-----. Finally-----. (Review and emphasize main points)

Writing

- **Computer Instruction (Emerging intervention)**
    - **Use of computer for handwriting considered Assistive Device**
    - **Typing Websites**
        - **http://www.superkids.com/aweb/pages/reviews/typing/**
        - **http://www.wacona.com/keyboardinggames/keyboardinggames.html (a cool website set up by an elementary school)**
        - **http://www.learninggamesforkids.com/keyboarding_games.html (Online typing games)**
        - **http://funschool.kaboose.com/fun-blaster/games/game_type_me.html**
        - **http://www.computerlabkids.com/keyboarding.htm**
        - **http://www.gamequarium.com/keyboarding3.htm (Online typing games from BBC)**

Diehl, 2010

Writing

- **Peer supports (Established) used with Self-Regulated Strategy Development**
  - SRSD strong research background for children with language impairment (Graham & Harris, 2005)
  - Use of SRSD with Asperger's Syndrome (Delano, 2007)
    - **Instructions in strategy, rationale, model with self talk**
    - **Child memorized strategy**
    - **Practice with self instruction**
    - **Feedback**
    - **Independent Use**

Diehl, 2010

Conclusions

- **Functional connectivity issues may impact academic learning in children with ASD**
- **EBP can guide problem solving in children with Autism Spectrum Disorder**
- **Vital to know what underlies EBP classifications**
- **Standard problem solving process streamlines collaborative support**
- **Because not EBP for all issues should adapt emerging strategies while documenting progress**

Diehl, 2010

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Diehl, 2010

Thanks for all you do for children with ASD!

Diehl, 2010

Conference Schedule

Monday:	*12:00pm EST* Temple Grandin, Ph.D; Linda Schreiber, M.S., CCC-SLP; Kristine Retherford, Ph.D., CCC-SLP
Tuesday:	*12:00pm EST* Carol Westby, Ph.D., CCC-SLP
	3:00pm EST Michelle Garcia Winner, M.A., CCC-SLP
Wednesday:	*12:00pm EST* Sylvia Diehl, Ph.D., CCC-SLP
	3:00pm EST Rhea Paul, Ph.D., CCC-SLP
Thursday:	*12:00pm EST* Emily Rubin, M.S., CCC-SLP
	3:00pm EST Elisabeth Wiig, Ph.D., CCC-SLP
Friday:	*12:00pm EST* Round Table with Sylvia Diehl, Emily Rubin, Carol Westby, and Elisabeth Wiig