

AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC) AND AUTISM

Implementing Evidence Based Strategies in the Classroom

*CSHA Conference, San Francisco
March 28, 2014*



DIAGNOSTIC CENTER
Northern California

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DIAGNOSTIC CENTER
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DIAGNOSTIC CENTER, NORTHERN CALIFORNIA

3 DIAGNOSTIC CENTERS

CALIFORNIA DEPARTMENT OF EDUCATION



DIAGNOSTIC CENTER
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DIAGNOSTIC CENTER, NORTHERN CALIFORNIA

○ **Assessments**

- special education students ages 3-22 *at no cost to the district/family*

○ **Trainings**

- UDL and the Common Core State Standards
- Implementing iCommunication in the Classroom
- Common Core State Standards and ASD
- Assessing students with ASD

○ **Ask A Specialist**

- www.askaspecialist.ca.gov

○ **Special Projects**

- AAC Assessment and Services Certification
- Classroom Assistance



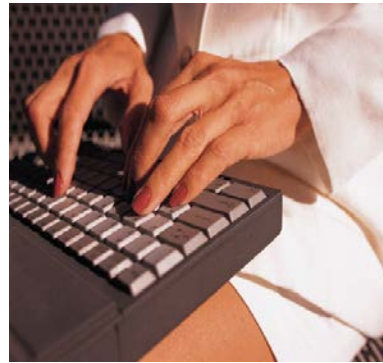
TODAY'S AGENDA

- **What is AAC?**
- **What is Autism???** (New DSM-5 Criteria)
- **Evidence Based Practice**
 - What does it mean?
 - Why is it important?
 - How does it apply to AAC?
- **Research Regarding AAC and Autism**
 - National Autism Center – National Standards Report
 - The National Professional Development Center on Autism Spectrum Disorders
 - Review of Current Research
- **Evidence Based Practice in the Classroom**
 - Assessment
 - Implementation
 - Videos
- **Directions for Future Research**
- **Questions?**



AAC IS:

Any tool or strategy used to
augment verbal speech

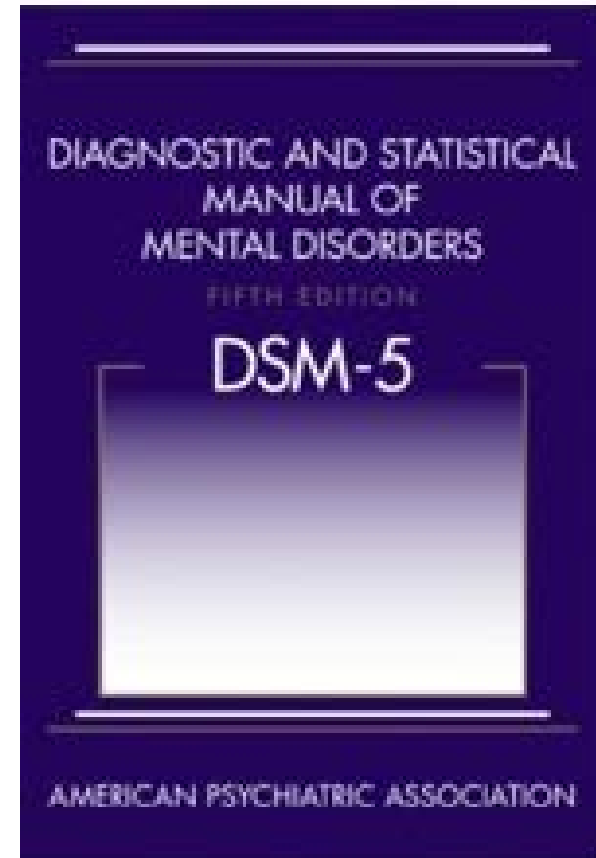
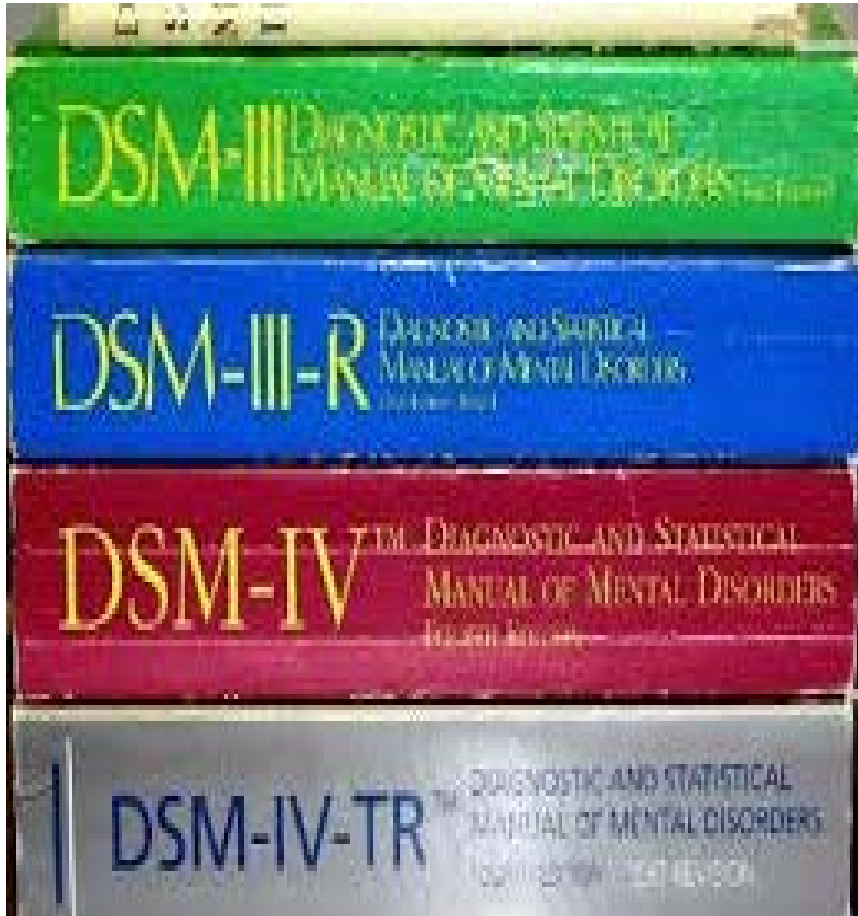


AAC INCLUDES:

- Signs and Gestures
- Pictures
- Visual Supports/Schedules
- Written Communication
- Voice Output Devices
- Speech Generating Devices
- Computer Aided Technology



AUTISM REDEFINED



Summary of New Diagnostic Criteria for ASD According to DSM-5



- The terms, '**Asperger's disorder**', '**childhood disintegrative disorder**' and '**PDD-NOS**' (pervasive developmental disorder not otherwise specified)' no longer exist in DSM-5, only ASD
- **Two main areas of impairment instead of three:**
 - social communication and interaction
 - restricted, repetitive patterns of behavior, interests, or activities.
- Sensory behaviors are included in the criteria (i.e., stereotyped motor movements, hypo or hyperactivity to sensory input).



- A Diagnostic Criteria has been added: **“social (pragmatic) communication disorder”** .
- The emphasis is not on providing a label, but rather on identifying specific needs of the individual.
- “Severity levels” have been identified which help determine level of support needed.



SOCIAL (PRAGMATIC) COMMUNICATION DISORDER

DIAGNOSTIC AND ASSOCIATED FEATURES

- Primary difficulty is with social (pragmatic) communication
- Commonly associated with delayed language development
- Can impact social relationships, academic achievement and occupational performance.
- Rare among children under the age of 4.
- Symptoms not attributable to medical or neurological conditions, intellectual disability or low abilities in word structure or grammar.



EVIDENCE-BASED PRACTICE (EBP)

- What does it mean?
- How is it determined?

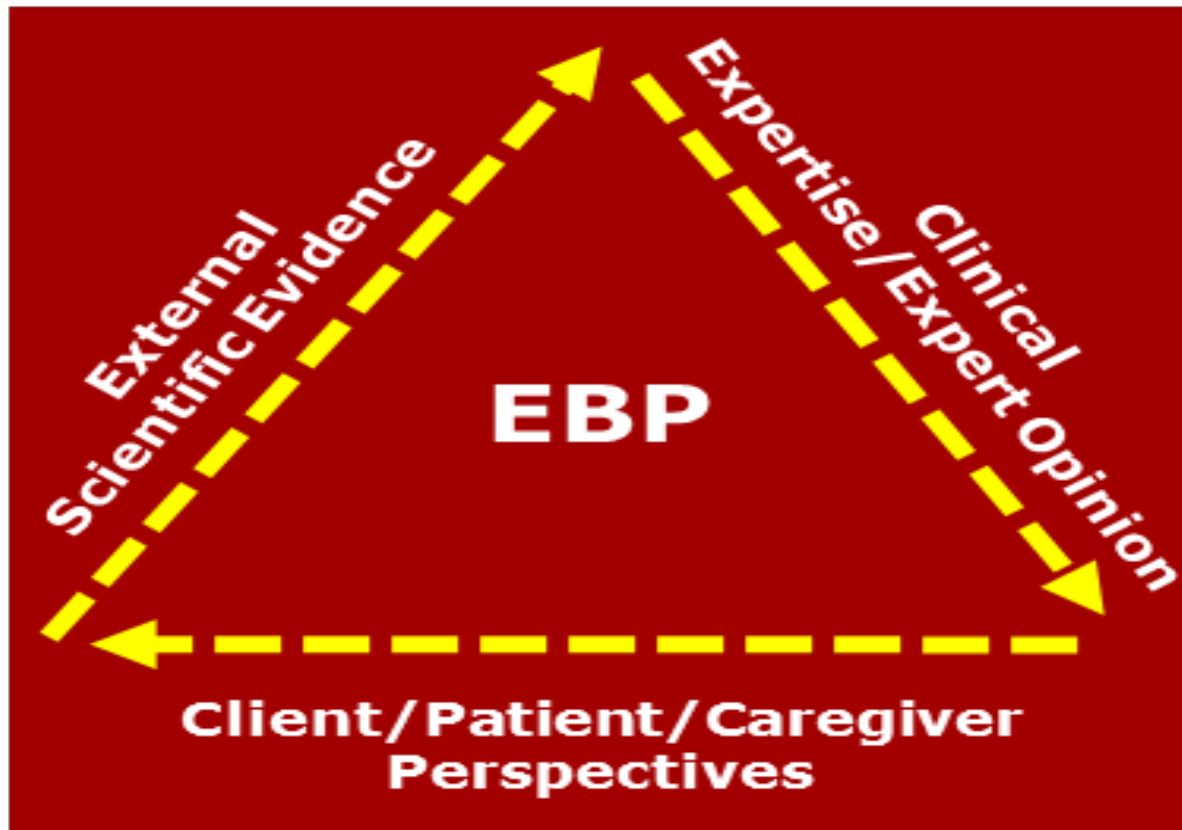


INITIALLY A TERM USED IN THE MEDICAL FIELD

- "Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values." (Sackett D et al. Evidence-Based Medicine: How to Practice and Teach EBM, 2nd edition. Churchill Livingstone, Edinburgh, 2000, p.1)



THE THREE COMPONENTS OF EVIDENCE-BASED PRACTICE (EBP), ACCORDING TO ASHA



WHERE DO WE GET OUR EVIDENCE BASED RESEARCH REGARDING AUTISM?

- **Two Sources:**
 - National Autism Center, National Standards Project (**NAC/NSP**)
 - National Professional Development Center on Autism Spectrum Disorders (**NPDC**)



NATIONAL AUTISM CENTER

- Located in Randolph, MA
- Serves children and adolescents with ASD
- Promotes best practices
- Offers comprehensive resources on ASD
- Publication: *Evidenced Based Practice and Autism in the Schools: a guide to providing appropriate interventions to students with autism spectrum disorders*
 - Reviewed studies conducted from 1983-2007 (24 yrs)



NATIONAL PROFESSIONAL DEVELOPMENT CENTER ON AUTISM SPECTRUM DISORDERS

- Multi-university center, including:
 - FPG Child Development Institute at the University of North Carolina at Chapel Hill
 - M.I.N.D. Institute at University of California at Davis Medical School
 - Waisman Center at the University of Wisconsin at Madison.
- Promotes the use of EBP for children and adolescents with ASD
- Developed EBP Briefs, identifying 27 EBPs
- Provided on their website:
 - Comparison Chart of Findings; NSP vs. NPDC
 - Overview of EBPs
 - Implementation Guidelines and Checklists
 - Training modules for established treatments
- Literature Review is ongoing



NATIONAL AUTISM CENTER

Identified 11 *Established Treatments* and
22 *Emerging Treatments*



DIAGNOSTIC CENTER
Northern California



ESTABLISHED

TREATMENTS

- There is compelling scientific evidence to show that these treatments are effective, however;
- Improvements cannot be expected to occur for all individuals with ASD



EMERGING TREATMENTS:

- Studies suggest these **interventions may produce favorable outcomes** in improving verbal communication.
- **Additional high quality studies are needed** before we can be confident that these treatments are effective.
- **The possibility that these treatments may be effective has not been ruled out.**
- **These treatments should be considered promising and warrant serious consideration if Established Treatments are deemed inappropriate** by the decision-making team.



THE NATIONAL AUTISM CENTER'S 11 ESTABLISHED TREATMENTS: (AAC STRATEGIES IN RED)

1. Antecedent Package
2. Behavioral Package
3. Comprehensive Behavioral Treatment for Young Children
4. Joint Attention Intervention
5. Modeling



ESTABLISHED TREATMENTS, CONT'D:

6. Naturalistic Teaching Strategies
7. Peer Training Package
8. Pivotal Response Treatment
9. Schedules
10. Self-management
11. Story-based Intervention Package



THE NATIONAL AUTISM CENTER'S 22 EMERGING TREATMENTS:

1. **Augmentative and Alternative Communication Devices** {14 studies}
2. **Cognitive Behavioral Intervention Package** {3 studies}
3. **Developmental Relationship-based Treatment** {7 studies}
4. **Exercise** {4 studies}
5. **Exposure Package** {4 studies}
6. **Imitation-based Interaction** {6 studies}



7. **Initiation Training {7 studies}**
8. **Language Training (Production) {13 Studies}**
9. **Language Training (Production and Understanding) {7 studies}**
10. **Massage/Touch Therapy {2 studies}**
11. **Multi-Component Package {10 studies}**
12. **Music Therapy**
13. **Peer-mediated Instructional Arrangement {11 studies}**
14. **Picture Exchange Communication System {13 studies}**



15. Reductive Package {33 studies}
16. Scripting {6 studies}
17. **Sign Instruction** {11 studies}
18. Social Communication Intervention {5 studies}
19. Social Skills Package {16 studies}
20. Structured Teaching {4 studies}
21. **Technology-based Treatment** {19 studies}
22. Theory of Mind Training {4 studies}



ESTABLISHED AAC TREATMENTS

- **Schedules**
 - Visual strategies used to communicate a series of activities as well as required steps for a specific activity
 - Also used to aid in transitions
 - May include written words, pictures or photographs
 - Found to be effective in increasing self-management skills and independence
- **Story Based Intervention Package**
 - Written stories depicting specific situations or events, describing expected behaviors
 - May include pictures/photos



EMERGING AAC TREATMENTS

- **AAC Devices**

- Interventions included high and low tech strategies, including pictures, photos, symbols used to facilitate communication
- Based on evidence which supported *improvement in Verbal Communication*

- **PECS**

- AAC strategy based on behavioral principles
- Designed to teach functional communication skills
- Based on evidence which supported *improvement in Verbal Communication and Interpersonal Skills*



EMERGING AAC TREATMENTS

CONTINUED

- **Sign Instruction**
 - Direct teaching of sign language to improve functional communication skills. Based on evidence which supported *increase in communication.*
- **Technology Based Treatment**
 - Use of computers and related technologies for instruction, including PDAs. Based on evidence which supported *increase in academic skills, communication, personal responsibility and self-regulation.*



NPDC

- Originally identified 24 Evidence Based Practices
- Recently updated research review: now **27 EBPs**



NPDC'S 27 IDENTIFIED EVIDENCE BASED PRACTICES (AAC STRATEGIES IN RED)

- 1. Antecedent-Based Intervention**
- 2. Cognitive Behavioral Intervention**
- 3. Differential Reinforcement**
- 4. Discrete Trial Teaching**
- 5. Exercise**
- 6. Extinction**
- 7. Functional Behavior Assessment**



8. **Functional Communication Training (FCT)**
9. ***Modeling (MD)**
10. **Naturalistic Intervention**
11. **Parent Implemented Intervention**
12. **Peer-Mediated Instruction**
13. **Picture Exchange Communication System (PECS)**
14. **Pivotal Response Training**



15. Prompting
16. Reinforcement
17. Response
Interruption/Redirection
18. *Scripting (SC)
19. Self-Management (SM)
20. Social Narratives (SN)



21. Social Skills Training
22. Structured Play Group
23. Task Analysis
24. *Technology Aided Instruction and Intervention (TAII)
25. Time Delay
26. Video Modeling (VM)
27. Visual Supports (VS)



THE NATIONAL PROFESSIONAL DEVELOPMENT CENTER ON AUTISM SPECTRUM DISORDERS

- Identified the following **Nine AAC Strategies** as Separate **Evidence Based Practices**:



1. **Functional Communication Training** - (replacing unconventional communicative behaviors with conventional behaviors, including AAC strategies. Usually includes an FBA)
2. ***Modeling** (demonstration of a desired target behavior, including the use of AAC tools and strategies)



3. **PECS – Picture Exchange Communication System** (AAC system based on behavioral principles designed to teach functional communication)
4. **Self-Management** (promotes independence in behavior regulation using strategies such as video modeling and visual supports)
5. **Social Narratives** (describes social situations, behavioral expectations, routines in a story format using visual aids, including pictures and text)



6. ***Scripting** (provides verbal or visual models to assist student in participating in a specific activity)

7. ***Technology-Aided Instruction and Intervention** (includes SGDs, smart phones, computer assisted instruction)
 - ◆ Speech Generating Devices (SGDs) and Computer Based Instruction no longer separate EBPs – now subsumed under this category.



8. **Video Modeling** (uses video recording/display to model targeted behaviors or skills.)

9. **Visual Supports** (visual tools/strategies which assist students in transitioning and completing activities throughout the day. May include schedules, maps, organization systems containing text, photos, pictures or objects.)



NPDC CONCLUSIONS RELATED TO SGDS

- Looked for evidence to support an increase in *functional communication*, not solely verbal communication.
- Speech Generating Devices (SGDs) are effective in increasing expressive language for learners with ASD who struggle with verbal speech.



NPDCs POSITION ON USE OF SGDS

- For successful implementation of SGDS professionals must consider many factors, including:
 - Motivating vocabulary
 - Symbol size and number
 - Accessibility/ease of use across environments
 - Providing environments and opportunities that encourage communication
 - Training of communicative partners



Overview of National Professional Development Center ASD 2014 Report on Evidence Based Practices (Tables 7-8)*
 Full Report available at <http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/2014-EBP-Report.pdf>

Evidence Based Practice and Abbreviated Definition	Evidence by Developmental Domain and Age (years)																																			
	Social			Comm.			Beh.			Joint Attn.			Play			Cog.			School Ready			Acad.			Motor			Adapt.			Voc.			Mental Health		
	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22			
Antecedent Based Intervention (ABI): Arrangement of events preceding an interfering behavior to prevent or reduce occurrence	Green	Yellow	Blue	Green	Yellow	Blue	Green	Yellow	Blue					Yellow						Yellow	Blue		Yellow			Yellow										
Cognitive Behavioral Intervention (CBI): Instruction on cognitive processes leading to changes in behavior		Yellow			Yellow			Yellow	Blue								Yellow															Yellow				
Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DRA/I/O): Consequences provided for desired behaviors that reduce the occurrence of interfering behaviors	Green							Yellow	Blue		Yellow					Green	Yellow						Yellow			Blue										
Discrete Trial Teaching (DTT): Instructional process of repeated trials, consisting of instruction, response, and consequence	Green	Yellow		Green	Yellow			Yellow		Green	Yellow					Green	Yellow					Green	Yellow						Yellow							
Exercise (ECE): Antecedent based physical exertion to reduce interfering behaviors or increase appropriate behaviors																Green	Yellow						Yellow													
Extinction (EXT): Removal of existing reinforcement in order to reduce an interfering behavior		Yellow		Green	Yellow	Blue		Yellow	Blue		Yellow												Green	Yellow												
Functional Behavior Assessment (FBA): Systematic protocol designed to identify contingencies that maintain an interfering behavior					Yellow			Yellow	Blue																											
Function Communication Training (FCT): Replacement of an interfering behavior with communication that accomplishes the same function	Green	Yellow		Green	Yellow	Blue		Yellow	Blue					Yellow								Green	Yellow	Blue												
Modeling (MD): Demonstration of a desired behavior that results in skill acquisition through learner imitation		Yellow	Blue		Yellow	Blue								Yellow																		Blue				
Naturalistic Intervention (NI): Intervention strategies that occur with the learner's typical settings and routines	Green	Yellow					Green	Yellow					Green	Yellow																						
Parent-Implemented Intervention (PII): Parent delivered intervention learned through a structured parent training program	Green	Yellow					Green	Yellow						Green					Green	Yellow			Green	Yellow												
Peer-Mediated Instruction and Intervention (PMII): Typically developing peers are taught strategies that increase social learning opportunities in natural environments	Green	Yellow	Blue								Yellow		Green	Yellow						Yellow	Blue															
Picture Exchange Communication System (PECS): Systematic 6 phase protocol teaching the exchange of pictures between communicative partners	Green	Yellow		Green	Yellow						Yellow																									

* Adapted from: Wong, C., Odom, S. L., Hume, K. Cox, A. W., Fettig, A., Kucharczyk, S., ... Schultz, T. R. (2013). *Evidence-based practices for children, youth, and young adults with Autism Spectrum Disorder*. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group.

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	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22			
Pivotal Response Training (PRT): Pivotal learning variables guide intervention implemented in settings that build on learner interests and initiative	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Prompting (PP): Verbal, gestural, or physical assistance that supports skill acquisition	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Reinforcement (R+): A response occurring after a behavior resulting in an increased likelihood of future reoccurrence of the behavior	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Response Interruption/Redirection (RIR): Use of prompts or distracters during an interfering behavior that diverts attention and reduces the behavior	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Scripting (SC): A verbal or written model of a skill or situation that is practiced before use in context	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Self Management (SM): Instruction on discrimination between appropriate and inappropriate behaviors and accurate self-monitoring and rewarding of behaviors	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Social Narratives (SN): Descriptions of social situations with examples of appropriate responding	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Social Skills Training (SST): Direct instruction on social skills with rehearsal and feedback to increase positive peer interaction.	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Structured Play Group (SPG): Adult lead small group activities that include typically developing peers and use prompting to support performance	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Task Analysis (TA): The process of breaking a skill into small steps that are systematically chained together	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Technology-Aided Instruction and Intervention (TAII): Intervention using technology as a critical feature	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Time Delay (TD): Delaying a prompt during a practice opportunity in order to fade the use of prompts	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Video Modeling (VM): A video recording of a targeted skill that is viewed to assist in learning	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			
Visual Support (VS): Visual display that supports independent skill use.	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green			

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UNESTABLISHED TREATMENTS AND PRACTICES

- **Academic Interventions**
 - Use of traditional teaching methods to improve academic performance
- **Auditory Integration therapy**
 - Retraining auditory system to improve hearing and/or reduce sound sensitivity
- **Facilitated Communication**
 - Providing support of hand or arm of an individual to assist them in communicating using keyboard or symbol board
- **Gluten and Casein Free Diets**
 - Restricting these proteins from the diet
- **Sensory Integrative Package**
 - Using sensory based techniques to reduce overstimulation or understimulation caused by environmental factors



Overlap Between Evidence-Based Practices Identified by the National Professional Development Center (NPDC) on ASD and the National Standards Project (NSP)

Evidence-Based Practices Identified by the National Professional Development Center (NPDC) on ASD	Established Treatments Identified by the National Standards Project (NSP)										
	Antecedent Package	Behavioral Package	Story-based Intervention Package	Modeling	Naturalistic Teaching Strategies	Peer Training Package	Pivotal Response Treatment	Schedules	Self-Management	Comprehensive Behavioral Treatment for Young Children	Joint Attention Intervention
Prompting	X			X						The NPDC on ASD did not review comprehensive treatment models. Components of The Comprehensive Behavioral Treatment of Young Children overlap with many NPDC-identified practices.	The NPDC on ASD considers joint attention to be an outcome rather than an intervention. Components of joint attention interventions overlap with many NPDC-identified practices.
Antecedent-Based Intervention	X										
Time delay	X										
Reinforcement		X									
Task analysis		X									
Discrete Trial Training		X									
Functional Behavior Analysis		X									
Functional Communication Training		X									
Response Interruption/Redirection		X									
Differential Reinforcement		X									
Social Narratives			X								
Video Modeling				X							
Naturalistic Interventions					X						
Peer Mediated Intervention						X					
Pivotal Response Training							X				
Visual Supports								X			
Structured Work Systems								X			
Self-Management									X		
Parent Implemented Intervention	The NSP did not consider parent-implemented intervention as a category of evidence-based practice. However, 24 of the studies reviewed by the NSP under other intervention categories involve parents implementing the intervention.										
Social Skills Training Groups	Social Skills Training Groups (Social Skills Package) was identified as an emerging practice by the NSP.										
Speech Generating Devices	Speech Generating Devices (Augmentative and Alternative Communication Device) was identified as an emerging practice by the NSP.										
Computer Aided Instruction	Computer Aided Instruction (Technology-based Treatment) was identified as an emerging practice by the NSP.										
Picture Exchange Communication	Picture Exchange Communication System was identified as an emerging practice by the NSP.										
Extinction	Extinction (Reductive Package) was identified as an emerging practice by the NSP.										

CURRENT RESEARCH



- **Schlosser and Wendt (2008)** Effects of Augmentative and Alternative Communication Intervention on Speech Production in Children With Autism: A Systematic Review. *American Journal of Speech-Language Pathology, Vol. 17*
 - Reviewed studies written between 1975-2007
 - A total of 76 studies were used
 - AAC interventions included:
 - SGDs
 - PECS
 - Manual Sign
 - None of the studies reported a decline in speech production as a result of AAC intervention.
 - Most studies reported an increase in speech production with AAC intervention.
 - Concluded that AAC interventions do not impede speech production.



- **Calculator & Black (2009)** Validation of an Inventory of Best Practices in the Provision of Augmentative and Alternative Communication Services to Students with Severe Disabilities in the General Education Classrooms *American Journal of Speech Language Pathology, Vol. 18*
 - Severe disabilities defined as severe-profound ID and associated challenges with adaptive behavior
 - Comprehensive review of literature from 1976-2009
 - Included one study which specifically looked at AAC and autism
 - Resulted in an inventory of possible Best Practices
 - Practices were reviewed by a panel of 8 experts (*members had 15-30 years of experience in the field of AAC*)
 - Developed inventory of 91 Best Practices within 8 categories



CALCULATOR AND BLACK (2009)

**A review of their “Best
Practices Inventory”**

To Summarize:



1. PROMOTING POSITIVE VALUES

- Foster friendships
- Train teachers and staff
- Allot time for IEP team meeting/planning
- Be sensitive to cultural values and beliefs



2. COLLABORATION BETWEEN GENERAL AND SPECIAL EDUCATORS

- Allow time for routine meetings to discuss curriculum.
- Clearly define role of general education staff.
- Develop a clear understanding of what the child is expected to learn.



3. COLLABORATION BETWEEN EDUCATORS AND RELATED SERVICE PROVIDERS

- SLP may play primary role in AAC program, but implementation is shared by many
- SLP consults with teacher and staff regarding instructional and related communication goals and objectives
- Consultative role of SLP is supported by administrators, teachers and parents



4. FAMILY INVOLVEMENT

- Ideas, concerns and priorities of family are incorporated in the AAC program.
- AAC instruction is coordinated between home and school
- Family plays important and active role in assessment process



5. CHOOSING AND PLANNING WHAT TO TEACH

- Implementation and content of AAC program is motivating and reinforcing for student.
- Teachers, staff and peers understand the relationship between communication and behavior.
- AAC program attempts to replace problematic behaviors.
- AAC goals address functional communication needs in a variety of environments.
- Future communication needs are considered.
- Program targets both receptive and expressive language skills.



6. SCHEDULING, COORDINATING AND DELIVERING INCLUSIVE SERVICES

- Classmates/peers are taught how to communicate effectively with AAC user.
- AAC instruction is integrated into relevant activities throughout the day.
- Communication objectives are integrated into the general ed curriculum, rather than working on communication in isolation.



7. ASSESSING AND REPORTING STUDENT PROGRESS

- AAC progress is examined in relation to:
 - IEP Goals and Objectives
 - development of friends and social acquaintances
 - development of functional life skills.
 - meaningful participation in general ed curriculum
- Communication needs are monitored and reassessed regularly since they may change over time.



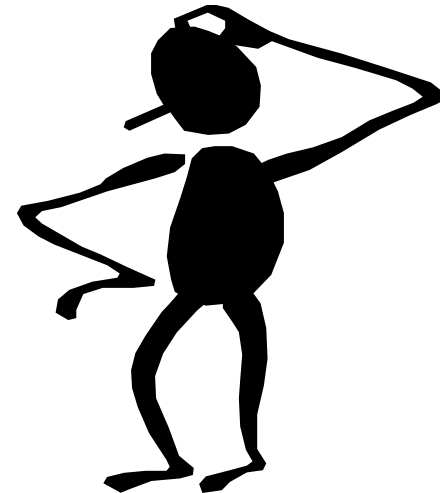
8. INSTRUCTIONAL STRATEGIES

- Service providers and teacher work collaboratively to address multiple skills concurrently.
- Peers, teacher and staff receive direct instruction on how to use AAC effectively.
- AAC user learns to communicate through multiple means, utilizing a combination of no-tech, low-tech and high-tech strategies.
- IEP team understands that AAC needs will change over time, as well as available technology.
- Teachers and staff make appropriate modifications to increase communication opportunities.
- Classmates/peers provide modeling of AAC systems.
- There is little evidence of rejection/abandonment of AAC system by user.



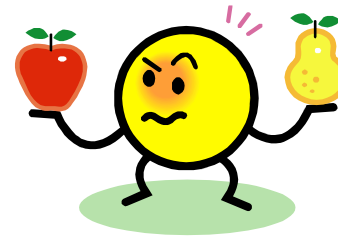
BEST PRACTICES GUIDELINES PRESENTED TODAY ARE BASED ON:

- NPDC and NAC Research Reviews
- Review of Current Literature
- Betsy's Clinical Expertise and Professional Judgement
- *Common Sense!!*



WE WILL DISCUSS AAC BEST PRACTICES RELATED TO:

- 1. Assessment
- 2. Selection of AAC Tools/Strategies
- 3. Vocabulary/activity selection
- 4. Implementation



1. BEST PRACTICES FOR AAC ASSESSMENT

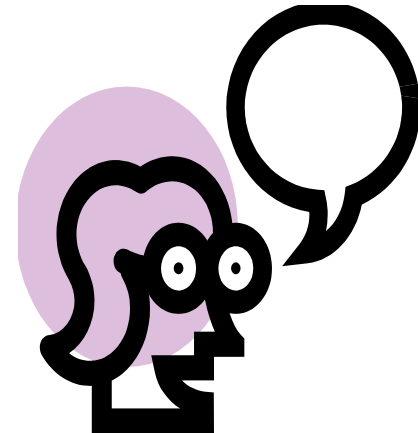
- Assessment should always include:
 - Interviews
 - Observations
 - File Review
 - Formal and Informal Assessment
 - Trials with a variety of tools and strategies
 - Collaborative, team approach!!



ASSESSMENT TEAM MEMBERS MAY INCLUDE:

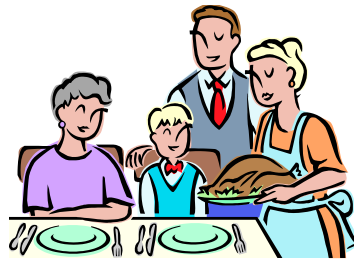
○ IEP Team:

- SLP (key player!)
- Teacher
- OT
- PT
- APE
- VI
- OM
- Parent
- Para-educators



○ Other Assessment Team Members:

- Family
- Friends
- Peers
- Physician
- Nurse
- DHH Teacher
- Behaviorist



BETSY'S HIERARCHY OF SKILL SETS FOR BEGINNING AAC USERS

- Does student realize that an action has a consequence? (i.e., cause/effect)
- Does student show an understanding of symbols (that they represent objects or actions –also known as *iconicity*)?
- Can student discriminate between two or more symbols? (i.e., choice-making)
- Does student use symbols meaningfully to communicate (e.g., requesting)?
- Can student identify basic categories (search for symbols by category)?
- Can student combine symbols to generate phrases/sentences?



KEY ASSESSMENT CONSIDERATIONS:

- AAC ASSESSMENT IS AN ONGOING, DYNAMIC PROCESS!!
- BEST WHEN DONE WITHIN NATURAL CONTEXTS ACROSS A VARIETY OF SETTINGS (*NO “DRIVE-BYS”*)
- ASSESSMENT SHOULD ALWAYS INCLUDE:
 - Interviews
 - Observations
 - File Review
 - Formal and Informal Assessment
 - Trials with a variety of tools and strategies
 - Collaborative, team approach!!
- MOST OFTEN RELY ON “INFORMAL” or “ALTERNATIVE” METHODS



ALTERNATIVE/INFORMAL ASSESSMENT STRATEGIES:

- Choice Making Activities
- Picture Books
- Adapted Toys and Switches
- Matching Games/Activities
- Communication Boards/Books
- Adapted Computer Software
- Observation Checklists
- **Assessment process should never start with Device Trials!!**



2. SELECTION OF AAC TOOLS AND STRATEGIES

○ Consider:

- Skill Sets (those that are acquired and those that need to be taught)
- Mobility (consult with OT/PT)
- Fine and gross motor skills (consult with OT)
- Visual Impairments (consult with VI Specialist)
- Access mode (direct select/scanning)
- Accessibility across environments
- Motivation of student
- Family support



- Conduct trials with a variety of tools/strategies
- Determine a Feature Match
- Offer student options:
 - Color
 - Size
 - Voice
 - Symbol Set/Pictures



3. VOCABULARY/ACTIVITY SELECTION

- Provide vocabulary and activities that are:
 - Highly motivating (*“bathroom” and “break” do not meet this criteria!*)
 - Age appropriate (*“bubbles” = preschool*)
 - Functional
 - Meaningful
 - Relevant to the environment/activity
- Involve family, friends, peers and user in selection of vocabulary and preferred activities



4. IMPLEMENTATION

- Provide frequent practice and training opportunities.
- Plan motivating activities where highly predictable vocabulary can be pre-determined.
- Allow opportunity for independent exploration and use of a device.
- Don't expect too much too soon! Learning to communicate using a new tool or device takes practice and patience.
- Train family, friends, staff, peers how to be an efficient communicative partner.



IMPLEMENTATION CONT'D

- Keep in mind that AAC will never replace natural verbal speech.
- Develop a roles and responsibilities matrix (*I like the Bridge School Matrix*)
http://bridgeschool.org/transition/docs/collab_teaming.pdf
- Develop a detailed implementation plan collaboratively with teacher and service providers
- **Use a multi-modality approach – do not rely on one tool or strategy!!**





Collaborative Teaming for Support of Students Using AAC in Inclusion *Roles & Responsibilities*

Support Team for: _____

Term & School Year: _____

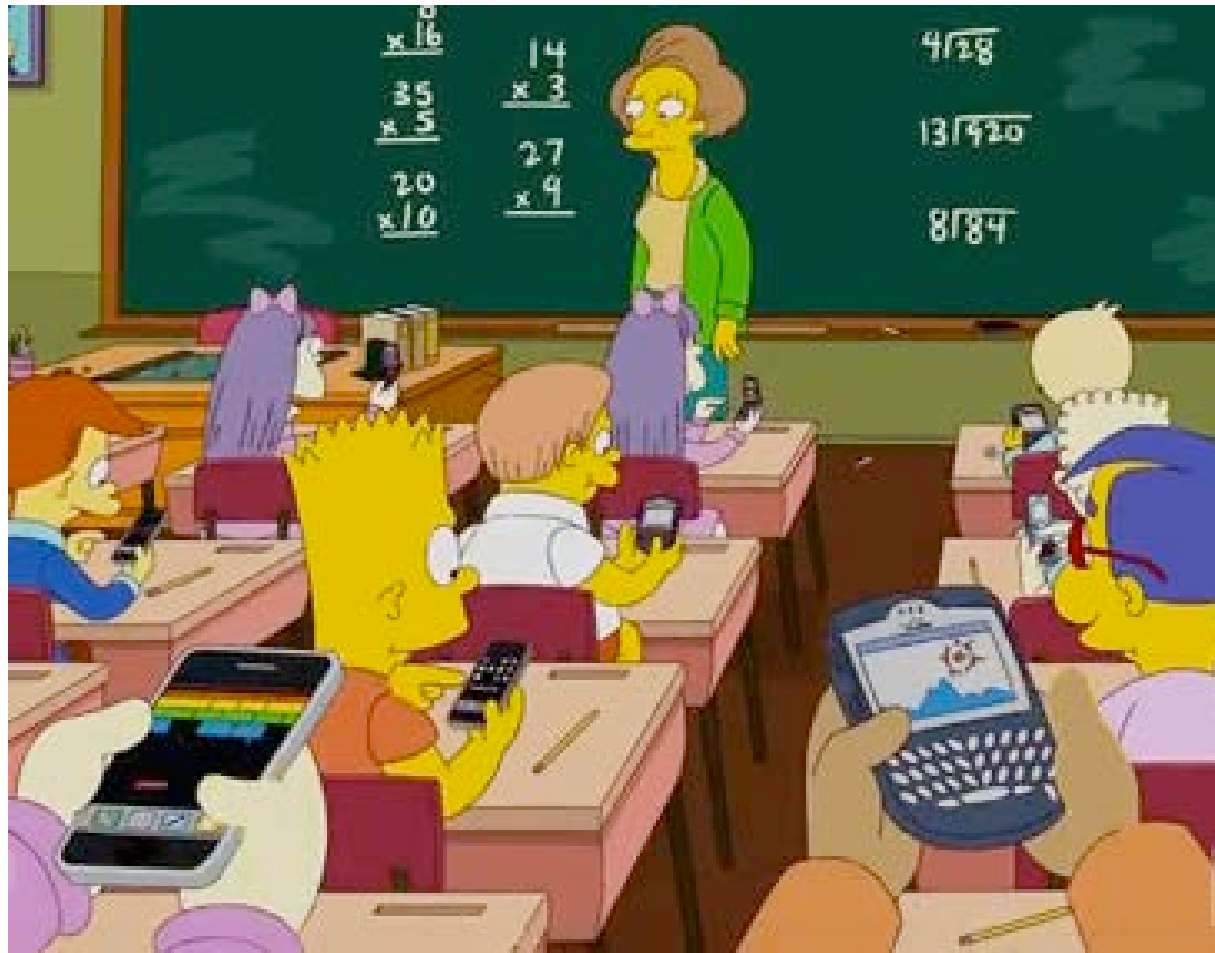
ACTIONS TO BE TAKEN RE: THE AAC DEVICE	IST	SLP	GET	TVI	OT/ PT	Para	AAC	AT	Fam	Stu
Device use in the classroom										
• Who will program the device for participation in classroom activities?										
• Who will teach peers how to interact with the student who uses the device?										
• Who will define classroom opportunities for device use?										
• Who will design/develop participation plans for classroom activities?										
Device Content										
• Who will manage the organization of the system content to ensure continuity?										
• Who will identify the language that needs to be added to the device?										
• Who will teach the student where/how new system content is stored?										
• Who will teach the user how to use the new system content?										
• Who will teach other team members about the new device content?										
• Who will maintain updated documentation of system content?										
Device support and Documentation										
• Who will make changes to the overlay?										
• Who will make changes/adjustments when necessary to the positioning of the device and the mounting system?										
• Who will fabricate and/or acquire supplementary tools for access to the device?										
• Who will evaluate the student's acquisition of new skills related to device use?										
• Who will record data relative to goals and objectives targeting device use?										
Device Maintenance										
• Who will clean device on a scheduled basis?										
• Who will charge the device on a scheduled basis?										
• Who will charge the device on an as needed basis?										
• Who will troubleshoot mechanical problems with the device?										
• Who will contact the manufacturer regarding problems with the device?										
• Who will send the device out for repair?										
• Who will obtain a back-up system while the device is in for repair?										
• Other:										
• Other:										
• Other:										

Legend: IST = Inclusion Support Teacher
OT/PT = Occupational/Physical Therapist
AT = Assistive Technology Support

SLP = Speech & Language Pathologist
Para = Paraprofessional
Fam = Family

GET = General Education Teacher
AAC = Alternative/Augmentative Communication Specialist
Stu = Student
TVI = Teacher for the Visually Impaired

IMPLEMENTING AAC IN THE CLASSROOM



VISUAL SCHEDULES/SUPPORTS

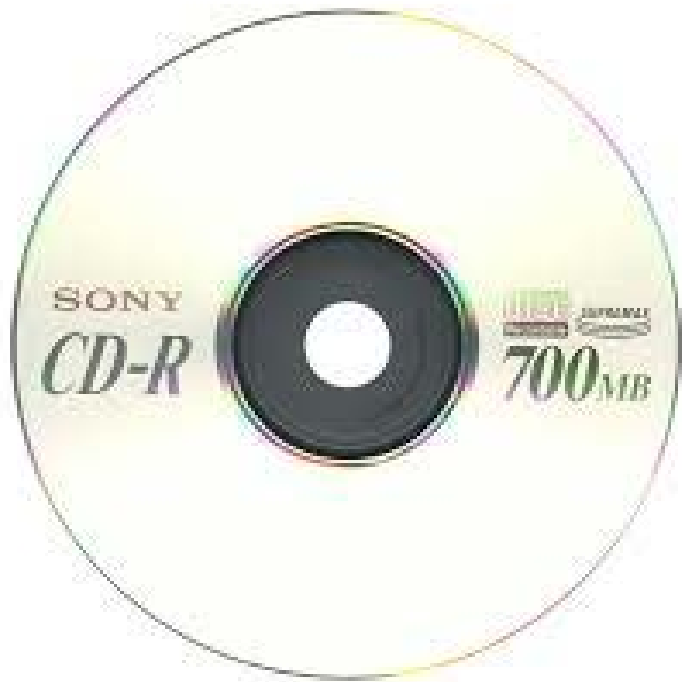
- Aid in transitions
- Reduce anxiety - student knows what to expect
- Can be used for choice-making across environments
- Give students a sense of control
- Lead to independence!!!



WHAT'S WRONG WITH THIS PICTURE?



OBJECT SCHEDULE
























FIRST/THEN SCHEDULE



DAILY SCHEDULE FOR HIGH SCHOOL STUDENT

Andrew schedule - Monday-Tuesday-Thursday-Friday

8:00-8:10	Check in 
8:10 - 8:40	Walk Track 
8:45-9:00	Sensory break 
9:00-9:30	Math 
9:30 -10:00	Reading 
10:00-10:10	Check in 
10:10-10:20	Brunch 
10:20 -10:30	Sensory Break 
10:30-11:00	Math 
11:00-11:30	Walk Track 
11:30-12:00	Typing 
12:00-12:10	Check In 
12:10-12:30	Lunch 

12:30-12:50	Bathroom 
1:00- 1:10	Check In 
1:10-1:15	Sensory Break 
1:15-1:30	Math 
1:30-1:50	Shredding and Life Skills 
1:50-2:15	Walk Track 
2:20-2:40	Check In  LIBRARY COMPUTER
2:40	Time to go home 



TASK (EMBEDDED) SCHEDULE



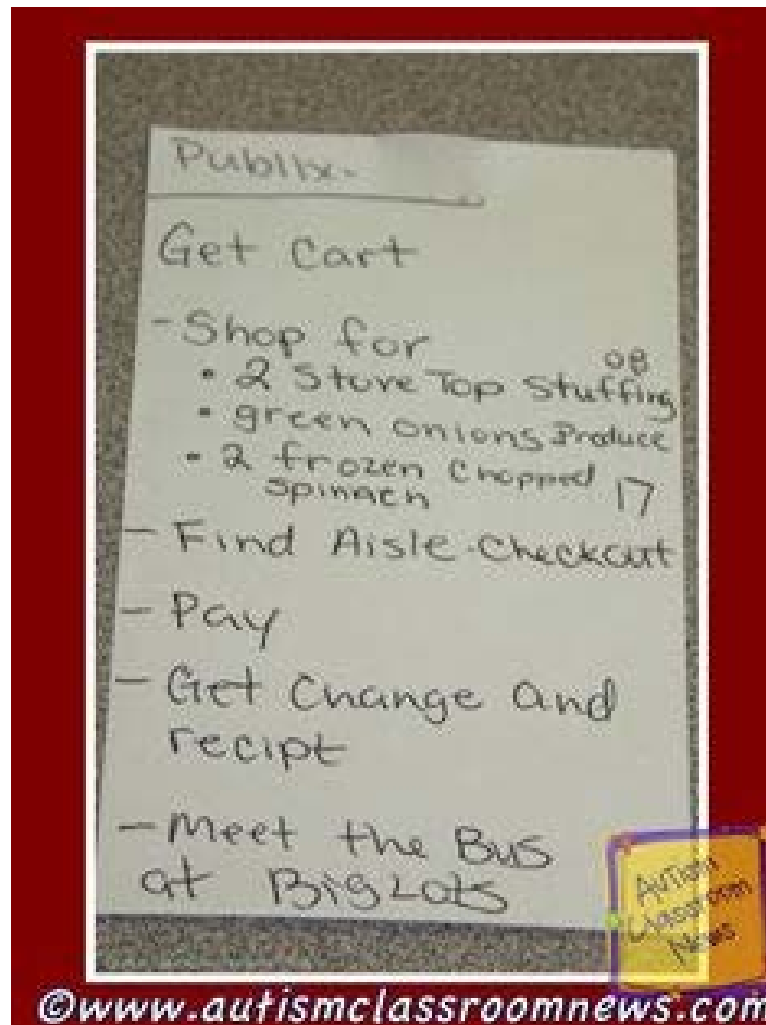
www.autismclassroomnews.com



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TASK SCHEDULE FOR COMMUNITY BASED OUTING



HOW ELSE CAN VISUAL SUPPORTS/ SYMBOLS BE USED TO HELP STUDENTS WITH ASD?

- ◆ Vocabulary enhancement
- ◆ Word retrieval
- ◆ Sentence formulation
- ◆ Conceptual knowledge
- ◆ Social skills
- ◆ Literacy development
- ◆ Encourage verbal speech!!



TIME FOR A QUIZ!!



1. A symbol based communication system can be as simple as two objects.
2. PECS means picture communication system.
3. Students with ASD should always start with PECS if they are not functional verbal communicators.
4. PECS employs a standard protocol which should be overseen by a Certified PECS Implementer.
5. Picture communication systems should always be velcroed, laminated and stored in 3 ring binders.
6. Using PECS Schedules with ASD students is an evidence-based practice.



1. A symbol based communication system can be as simple as two objects. **TRUE**
2. PECS means picture communication system. **FALSE**
3. Students with ASD should always start with PECS if they are not functional verbal communicators. **FALSE**
4. PECS employs a standard protocol which should be overseen by a Certified PECS Implementer. **TRUE**
5. Picture communication systems should always be velcroed, laminated and stored in 3 ring binders. **FALSE**
6. Using PECS Schedules with ASD students is an evidence-based practice. **FALSE**



YES SHE HAS A PECS BOOK BUT SHE NEVER USES IT!!!



TECHNOLOGY-AIDED INSTRUCTION AND INTERVENTION

- Allows for access to curriculum related activities at the student's instructional level
- Provides independent practice and learning of skills
- Increases engagement for students with ASD
- Decreases reliance on adult support (i.e., hand over hand assist, verbal prompting)



AAC IMPLEMENTATION PLAN

- Designed to assist the IEP team in implementing AAC tools and strategies across the school day
 - Emphasizes a multi-modality approach
 - Encourages collaboration among staff
 - Designates who will help facilitate implementation, when and where



IMPLEMENTING AAC TOOLS/ STRATEGIES FOR STUDENT A

- Has an SGD but does not access or use independently
- Doesn't understand picture icons or photos
- Is learning to make a choice from a field of 2 objects



AAC IMPLEMENTATION PLAN

ACTIVITY	COMMUNICATION STRATEGY	LOCATION	FACILITATOR	WHEN
Arrival	VS –put backpack away S/G/V - greeting	Classroom	Staff, peers	a.m.
Work station/lesson time	VS-transition to activity CB/SGD- choose an activity, choose materials	Classroom	Staff, peers	a.m./p.m.
Walk	VS- transition to activity S/G/V	Outside	Staff, peers	
Breakfast/Snack/ Lunch	CB/SGD/SG– choose a food item	Table	Staff, peers	
Meal Preparation	VS-assist in completing activity	Kitchen area	Staff	
Free Choice Time	CB/SGD – choose a preferred activity (i.e., outside, movie)	Classroom	Staff/peers	
Computer Time	CB/SGD-choose a computer activity	classroom	Staff/peers	
Departure	S/G/V			

(VS- visual supports, V- vocalizations, S- signs/gestures, CB-communication board, SGD-speech generating device)



IMPLEMENTING AAC TOOLS/STRATEGIES FOR STUDENT B

- Understands photo and picture icons
- Good categorization skills
- Independently navigates communication book with 24 categories, 36 icons per page
- Enjoys looking at pictures and naming them
- Verbal speech is enhanced with use of pictures
- Navigates iPad/Proloquo2Go with little or no prompting



AAC IMPLEMENTATION PLAN AND GOAL MATRIX-LUIS

ACTIVITY	AAC	GOALS ADDRESSED	LOCATION	FACILITATOR	WHEN
ARRIVAL	VS, V, SGD, CB Review schedule Greet peers, share about events	Preparing independently for activities of the day, Greeting peers Participating in conversation with peers/adults	Campus, classroom	Peers	
WORLD HISTORY	VS, V, SGD, C Share information, complete curricular activity	Aligned to Common Core	Classroom	Staff	
APE	VS Follow instructions	Integrating with typical peers	Gym/field	Staff/peers	
LUNCH	V, CB Socializing with peers	Integrating/socializing with typical peers, sharing, commenting, engaging in conversation	Cafeteria/ Off campus	Staff/peers	
READING	VS, V, SGD, C Complete reading activity, answer comp. questions	Aligned to Common Core	Classroom	Staff	
SCIENCE	VS, V, SGD, C Complete curricular activity	Aligned to Common Core	Classroom	Staff	
DEPARTURE	V, CB, SGD Say good-bye, talk about evening/wcc-end plans	Socializing with peers	Classroom, Campus	staff	

(SGD- speech generating device, CB-communication book or board, -V-verbalizations, C-computer, VS-visual supports/schedules)

Created by Betsy Caporale, M.S., CCC-SLP



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THINK OF A STUDENT YOU KNOW WHO HAS ASD AND COULD BENEFIT FROM AAC

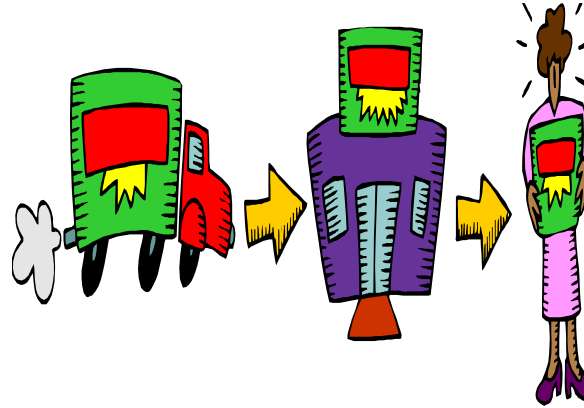
○ Jot down

- at least two AAC EBPs you learned about today that could easily be implemented with that student
- at least two activities in which these tools/strategies could be implemented
- the names of at least two people (besides yourself) who could help implement these tools or strategies
- who will be the key players in helping to develop and facilitate the student's Implementation Plan

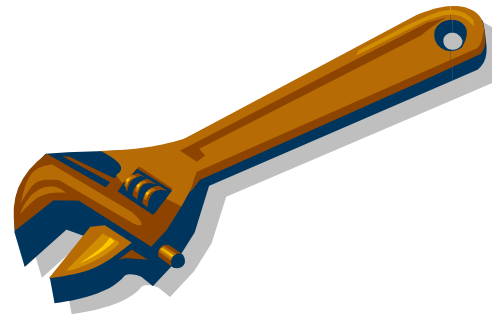


AAC IS...

A Process!



Not a Tool!!!



FOCUS

On The Student



Not the Technology!



DIRECTIONS FOR FURTHER RESEARCH



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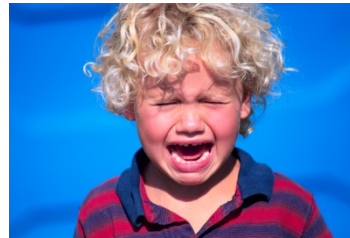
- More research needed to support evidence of AAC use and the increase/decrease of:



- Functional communication skills (verbal and nonverbal)



- Problem Behaviors



- Personal Responsibility/Independence



- Self-Regulation



AS WELL AS:



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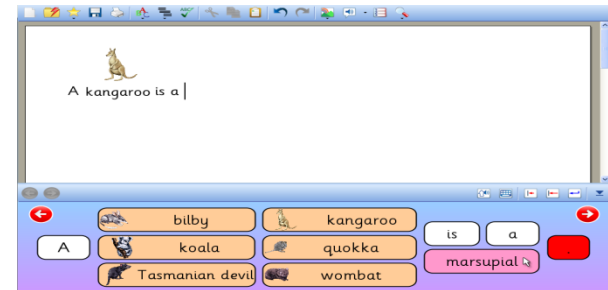
- Enhancing Social Skills



- Vocabulary Expansion



- Sentence Formulation Skills



- Academic Performance



WHERE WILL THIS RESEARCH COME FROM?

- High quality research typically requires:
 - Extensive funding
 - Subjects who are followed over a lengthy period of time
 - Frequent interaction with subjects
 - Careful data analysis



PRACTICAL, REALISTIC SOLUTION PROVIDED BY MARILYN A. NIPPOLD

- Combine efforts of school-based SLPs and University Faculty/Graduate Students:
 - SLPs/School Staff provide intervention and keep data
 - Graduate students and university faculty collect and analyze data
 - Finished document submitted for publication in professional journal
- Everyone benefits!
 - Graduate students expand knowledge
 - Faculty members conduct valuable research
 - SLPs directly contribute to research process
 - EBPs are established with the support of an abundance of research



FINAL THOUGHTS AND CONSIDERATIONS:

- AAC is not an exact science:
 - Strive to implement interventions that are “**established treatments**” according to the National Standards Report and/or “**evidence-based practices**” according to the National Professional Development Center on Autism.
 - Consider “emerging” treatments and practices also if appropriate.
 - Rely on your clinical judgment, and the individual needs/preferences of the AAC user.
 - Encourage all forms of functional communication - whatever is most efficient for the situation/environment



QUESTIONS?



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REFERENCES

- American Speech-Language Hearing Association
www.asha.org
- CAPTAIN (California Autism Professional Training and Information Network)
<http://www.captain.ca.gov/resources.htm>
- Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)
- National Autism Center
<http://www.nationalautismcenter.org/>
- National Professional Development Center on Autism Spectrum Disorders
<http://autismpdc.fpg.unc.edu/>



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