



VISUAL ENVIRONMENTAL SUPPORTS

CHARACTERISTICS OVERVIEW CHART

Verbal Skills	Grade Levels	Cognitive Level	Areas Addressed
<input checked="" type="checkbox"/> Nonverbal	<input checked="" type="checkbox"/> PK	<input checked="" type="checkbox"/> Classic	<input checked="" type="checkbox"/> (Pre)Academic/Cognitive/Academic
<input checked="" type="checkbox"/> Mixed	<input checked="" type="checkbox"/> Elementary	<input type="checkbox"/> High	<input checked="" type="checkbox"/> Adaptive Behavior/Daily Living
<input checked="" type="checkbox"/> Verbal	<input checked="" type="checkbox"/> Middle/High	Functioning	<input checked="" type="checkbox"/> Behavior
			<input checked="" type="checkbox"/> Communication/Speech
			<input checked="" type="checkbox"/> Social/Emotional

BRIEF INTRODUCTION

Children with autism (AU) interact with the environment differently than others due to their challenges in social interaction, behavior, communication, and sensory processing. This section includes reviews of 10 environmental support strategies designed to accommodate needs in these areas, (a) visual schedules, (b) task cards, (c) people locators, (d) boundary settings, (e) labels, (f) lists, (g) graphic organizers, (h) reminder cards, (i) travel card strategy, and (j) home base card.

DESCRIPTION

Visual schedules. Visual schedules are an environmental support that accommodates the need for predictability and decreases anxiety about the unknown. Visual schedules take an abstract concept (i.e., time) and present it in a more concrete and manageable form using words and/or pictures. They serve two major purposes: (a) to provide motivation by making clear when preferred activities, tasks, or classes will occur and allow anticipation of upcoming events and activities; and (b) to facilitate an understanding of time and the ability to predict change (Myles, 2005).



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Visual schedules can be created to present a range of information, such as a daily schedule, a schedule of activities to be completed in a class period, and so on. The information listed in each schedule should vary according to the individual’s age and level of functioning. They may be presented through written words, objects, photographs, line drawings, symbols or a combination of these options. Visual schedules can be displayed in different settings and made of different sizes according to their purposes.

The decision on (a) what and how the information will be presented on the visual schedule and (b) where the visual schedule will be displayed should be based on the specific individual’s characteristics and preferences. In addition, it is important to ensure that the individual understands the information presented on his visual schedule.

Task cards. Task cards, typically presented on business-card-size stock, help children recall academic content, routines, or social skills by setting out the steps to be followed. The statements are directives presented in short and concise language. The content of a task card may be an overview of routines, an outline of the working schedule, a list of the teacher expectations, and an outline of communication starters.

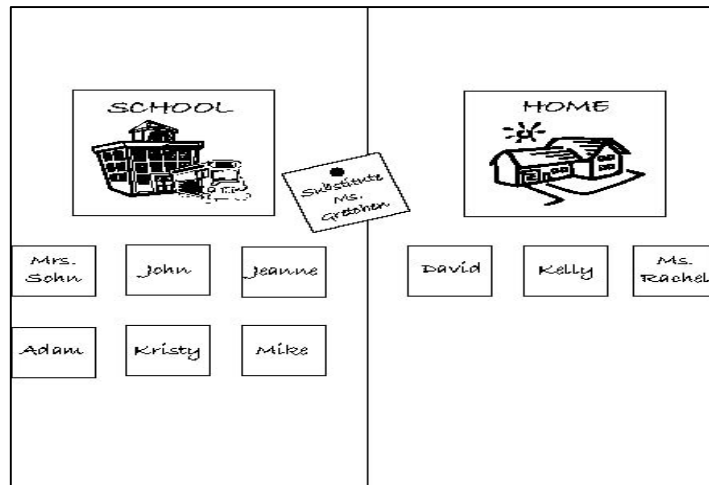


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People locators. Children with autism have a strong need for predictability and often feel anxious about the unknown. Therefore, knowing where important people in their lives are at various times is important for many. Any changes in “who will be where” can create immense anxiety for the child and may cause the child to display disruptive behaviors if he is unprepared.

A people locator is a visual support strategy that provides information about where people are in a visual format that is easily understood by the child. Specifically, a people locator gives the child information about (a) who is here today, (b) who is gone today, (c) who is coming later, (d) when someone will come, and (e) where someone is.

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Boundary settings. A boundary setting is an intervention that creates structure and helps children with autism manage their own behavior. Boundary settings provide visual cues that can be used to guide individuals with autism through physical spaces within their environment. Specifically, the purposes of boundary settings are to (a) provide a safe environment, (b) create structure, (c) establish clear, concise, and consistent guidelines for behavior, and (d) teach children how to set their own boundaries in different settings.





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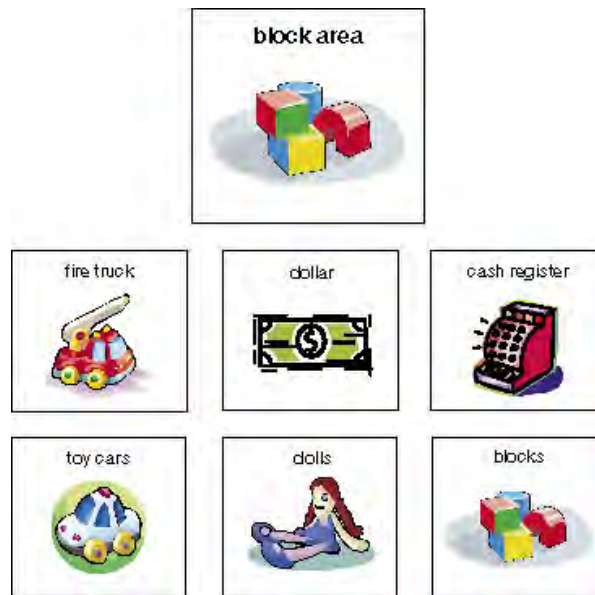
From Ahlers, M., & Zillich, C. H. (2008). *Classroom and communication skills program: Practical strategies for educating young children with autism spectrum and other developmental disabilities in the public school setting*. Shawnee Mission, KS: Autism Asperger Publishing Company. Used with permission.

Barriers, rugs, bookcases, furniture, or tape on the floor are examples of how to create boundary settings. There are five steps in setting boundaries.

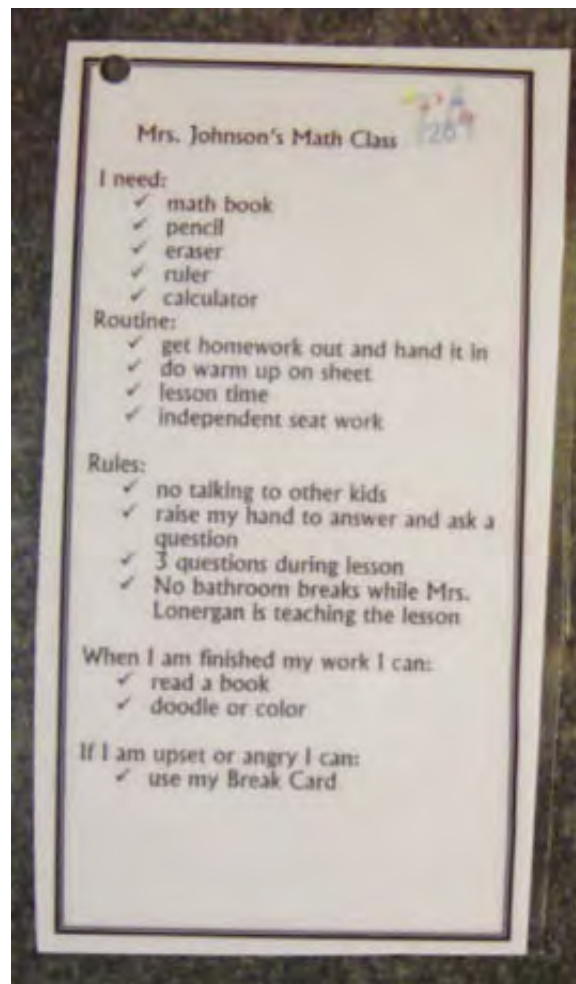
1. *Address the need.* Prioritize the child’s need. “Does the child have difficulty staying in one place?” “Does the child have difficulty in transition from one place to another?” “Does the child have trouble sitting?” and “Does the child experience problems leaving others’ belongings alone?” are questions that need to be addressed.
2. *Define the boundary.* Set up and organize the classroom into various areas: play area, group area, work area, and quiet area. Defining the boundary will assist children in understanding areas that are accessible and where things belong. It makes it easier for children to identify the meaningful parts of the environment.
3. *Teach the boundary.* Teach how to recognize and follow the guidelines established by boundary settings. Modeling and reinforcement are strategies that work well in teaching children the boundary.
4. *Evaluate success.* Several questions need to be answered in evaluating the boundaries you set up: (a) Does the child independently leave objects where they belong? (b) Does the child consistently transition successfully from one area to another? (c) Does the child leave others’ belongings alone? (d) Does the child stay in the designated area? and (e) Does the child remain seated when desired?

Labels. Labeling is one of the easiest ways to provide visual supports in the environment. Children with autism find it less stressful and easier to participate efficiently and function independently in activities when labels are added to the environment. The following types of labeling can assist in articulating environmental organization: labeling shelves, drawers, and cupboard and closet doors identifies what and where to find and return items; labeling an individual’s space and belongings can help delineate personal possessions; or labeling activity

areas, such as the art table, the play rug, the work table, the leisure area, the break corner, and the book table. Many children with autism need to be specifically taught how to recognize and understand the information provided by the label.



Lists. Lists are another valuable way to present information that is typically presented only verbally (e.g., instruction) or not presented at all (e.g., steps of taking the school bus) to children with autism (Myles, 2005). Lists allow individuals with AU to have a solid representation of the information. Lists may be written in a variety of formats. They can be checklists or numbered lists of steps to be taken.

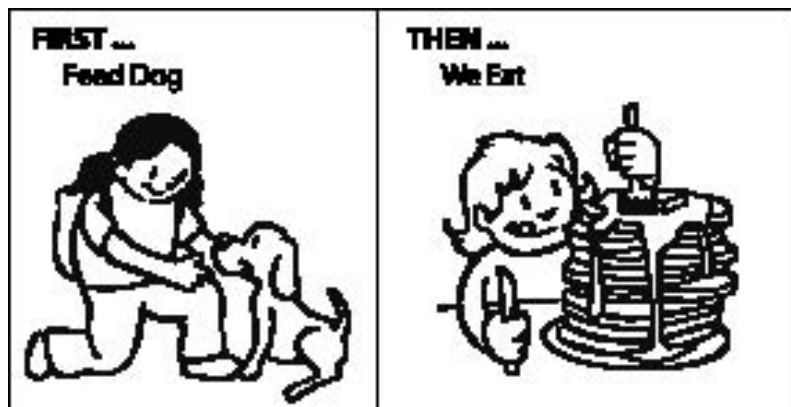


From The Geneva Centre for Autism
(www.autism.net). Used with permission.

Graphic organizers. The optimal goal of using graphic organizers is to enhance learning. Graphic organizers, such as semantic maps, Venn diagrams, outlines, and charts, are visual supports that organize content material in a way that makes it easier to understand. They are valuable tools for helping students with autism organize important information about a topic since they provide visual and holistic representations of facts and concepts and their relationship within an organized framework.



Reminder cards. Reminder cards are another visual support strategy that can be used to support children with autism with daily activities. A reminder card is simply a visual cue placed on a piece of paper, an index card, or other media (i.e., PDA) that gives direction. They can be used in a variety of settings and situations. Use of reminder cards can enhance independence, minimize disruptive behavior, and improve communication and understanding of individuals with autism.



From Cardon, T. (2008). *Top ten tips – A survival guide for families with children on the autism spectrum*. Shawnee Mission, KS: Autism Asperger Publishing Company. Used with permission.

Travel card strategy. The travel card provides a brief list of the academic, behavior, and social strategies on which the child is working, using a gridlike format (Jones & Jones, 2006). The travel card strategy involves the child carrying the travel card, which is prepared by his case manager or resource room teacher on a daily basis, from class to class. Each teacher must sign the card and indicate whether the student is engaging in the targeted behaviors. The child receives tokens from each teacher if he carries the card to class and engages in the targeted behavior during the class period.

The advantages of the travel card lies in the fact that it not only increases the child’s productive behavior across multiple environments but also facilitates teacher collaboration and improves school-home communication (Carpenter, 2001).



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**Travel Card
Rocky**

Date _____

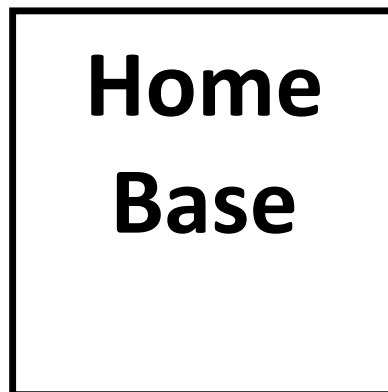
Key +=Yes 0=No NA=Not Applicable

	Did student follow class rules?	Did student participate in class?	Did student complete assignments?	Did student turn in homework?	Teacher's Initials
Reading					
Science					
Social Studies					
Study Skills					
English					
Spanish					
Bonus Points	Went to nurse after getting off bus?			Has assignment book?	
Total	+	0			

Teacher Comments/Suggestions/Announcements:

From Myles, B. S., & Adreon, D. (2001). *Asperger Syndrome and adolescence: Practical solutions for school success*. Shawnee Mission, KS: Autism Asperger Publishing Company. Used with permission.

Home base card. Children with autism often have difficulties modulating their behaviors. A home base is a quiet and safe place where individuals with AU can go to regain control over their environment (Myles & Adreon, 2001; Myles & Simpson, 2003). In other words, a home base allows children with AU to have a designated spot to (a) plan or review information or (b) cope with stress and behavior challenges (Myles & Adreon, 2001). In addition, children with autism who are overwhelmed by sounds, movement, and lighting might benefit from a home base (Faherty, 2000).





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A home base should be a positive and prosocial setting. It is not a time-out room nor a place where children can escape from whatever they were doing before the need for home base occurred.

To benefit from home base, the student should be taught how to go to home base at a time when he is not upset or angry. To make the process go smoothly and be as non-intrusive as possible, the adult recognizes the student needs to go to home base and places the home base card on the student's desk as a prompt to go to home base.

STEPS

There are no specific steps involved in providing environmental supports to children with AU. Nevertheless, generally, when providing environmental supports, first evaluate the child's strengths, interests, goals, and learning style and identify challenges that need to be addressed. Based on the child's specific characteristics, the appropriate environmental support can then be identified.

BRIEF EXAMPLE

Maria is a first-grade student with autism. Maria's teacher, Ms. Cook, has noticed that Maria has difficulty remaining seated with her feet on the floor whenever the students are required to work in groups. Sometimes she lies across the table, the floor, or on her chair, and sometimes she leaves her seat without permission. In addition, she frequently plays with other children's belongings or materials.

Ms. Cook decided to use the boundary setting strategy to help Maria manage her behaviors. She gave Maria a picture of herself sitting in her chair, her hands in her lap, feet on the floor. The picture was taped to the table to provide Maria with a visual reminder of classroom expectations. Ms. Cook praised Maria whenever she observed her sitting quietly in her chair,



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with hands in her lap and feet on floor. Soon, Maria began to do a better job of sitting in her seat and showed a greater respect for her classmates’ belongings.

SUMMARY

The unique characteristics and challenges of children with AU can be accommodated through various environmental supports. In determining appropriate environmental supports for the child, it is important to keep in mind that those supports should be individualized to meet the specific strengths, challenges, interests, goals, and learning style of the child.

RESEARCH TABLE

Number of Studies	Ages (year)	Sample Size	Area(s) Addressed	Outcome
63*	3-Adult	173	Problem behavior, transition, communication, social behavior, leisure activities, daily living skill, vocational skill	+

*Note: Includes studies cited in integrated reviews of literature conducted by Wheeler, Baggett, Fox, and Blevins (2006) and Odom, Brown, Frey, Karasu, Smith-Cantor, and Strain (2003).

STUDIES CITED IN RESEARCH TABLE

1. Koyama, T., & Wang, H. (2011). Use of activity schedule to promote independent performance of individuals with autism and other intellectual disabilities: A review. *Research in Developmental Disabilities, 32*, 2235-2242.
This collection of twenty-three studies involving sixty-nine students with autism reviews the effectiveness of using activity scheduling for the improvement of independent performance.
2. Murdock, L. C., & Hobbs, J. Q. (2011). Tell me what you did today: A visual cueing strategy for children with ASD. *Focus on Autism and Other Developmental Disabilities, 26*(3), 162-172.
Three children were selected for a specific visual cueing system prompt: “Tell me what you did today?”. Results indicate that that children learned with a visual system in place.



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3. Rockwell, S. B., Griffin, C. C., & Jones, H. A. (2011). Schema-based strategy instruction in mathematics and the word problem-solving performance of a student with autism. *Focus on Autism and Other Developmental Disabilities, 26*(2), 87-95.
This study of one student with autism was designed to determine whether a visually- and schema-based instruction could be used effectively to teach simple mathematical concepts. The visual strategy had a positive impact on the learner.
4. Stringfield, S. G., Luscre, D., & Gast, D. L. (2011). Effects of a story map on accelerated reader postreading test scores in students with high-functioning autism. *Focus on Autism and Other Developmental Disabilities, 26*(4), 218-229.
Three students were selected to use a graphic organizer called a Story Map, and evaluated on the effectiveness of the organizer, and student willingness to use the organizer. The Story Map had a positive impact on reading test scores. However, when support was faded, two of the students rarely used the support.
5. Cihak, D.F., Wright, R., & Ayres, K.M. (2010). Use of self-modeling static-picture prompts via a handheld computer to facilitate self-monitoring in the general education classroom. *Education and Training in Autism and Developmental Disabilities, 45*(1), 136-149.
The study evaluated the effect of providing picture prompts via a handheld computer on the in-class engagement levels of three fully integrated middle school boys with ASD. Using a multiple-probe-across-settings design with an embedded reversal in each setting, the experimenters demonstrated that all three boys had clearly increased rates of engagement and reduced numbers of teacher-provided prompts to stay on task only when the picture prompts were provided.
6. Schneider, N. & Goldstein, H. (2010). Using social stories and visual schedules to improve socially appropriate behaviors in children with autism. *Journal of Positive Behavior Interventions, 12*(3), 149-160.
This study examined the effects of Social Stories on the engagement levels of three children with ASD in inclusive classroom settings. In a multiple-baseline-across-participants design, the introduction of Social Stories led to moderate improvements in engagement levels for all three participants. One participant also had a visual schedule added to the intervention after several days of just Social Stories, and the effect was again minimal –with engagement levels returning to nearly baseline levels by the end of treatment.
7. Carnahan, C., Musti-Rao, S., & Bailey, J. (2009). Promoting active engagement in small group learning experiences for students with autism and significant learning needs. *Education and Treatment of Children, 32*, 37-61.
This study evaluated the effects of interactive reading materials using visual cues and music on the engagement behavior of six students with autism ranging in age from 6 to 11. Results



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indicated an increase in students' engagement with the use of interactive reading materials in comparison to traditional read-aloud materials.

8. Machalicek, W., Shogren, K., Lang, R., Rispoli, M., O'Reilly, M. F., Franco, J. H., & Sigafoos, J. (2009). Increasing play and decreasing the challenging behavior of children with autism during recess with activity schedules and task correspondence training. *Research in Autism Spectrum Disorders, 3*, 547-555.
Three boys with autism (6, 7, 12) received a teacher-implemented playground intervention that included an activity schedule and graduated guidance. Participants learned to follow an activity schedule, improved their play, and decreased their inappropriate behavior.
9. Waters, M. B., Lerman, D. C., & Hovanetz, A. N. (2009). Separate and combined effects of visual schedules and extinction plus differential reinforcement on problem behavior occasioned by transitions. *Journal of Applied Behavior Analysis, 42*, 309-313.
The separate and combined effects of visual schedules and extinction plus differential reinforcement of other behavior (DRO) were evaluated to decrease transition-related problem behavior of two 6-year-old boys with autism. Visual schedules alone were ineffective in reducing problem behavior when transitioning from preferred to nonpreferred activities. Problem behavior decreased for both participants when extinction and DRO were introduced, regardless of whether visual schedules were also used.
10. Betz, A., Hige, T. S., & Reagon, K. A. (2008). Using joint activity schedules to promote peer engagement in preschoolers with autism. *Journal of Applied Behavior Analysis, 41*, 237-241.
Three pairs of students (n=6, ages 4 to 5 years) were taught to joint activity schedules that cued both members to play a sequence of interactive games together. Results indicated an increased in peer engagement and number of games completed for all three pairs.
11. Ganz, J. B., Bourgeois, B. C., Flores, M. M., & Campos, B. A. (2008). Implementing visually cued imitation training with children with autism spectrum disorders and developmental delays. *Journal of Positive Behavior Interventions, 10*, 56-66.
The study investigated the impact of a multicomponent visually cued imitation strategy. Four children with autism participated. Results revealed a positive impact of the strategy.
12. Ganz, J. B., & Flores, M. M. (2008). Effects of the use of visual strategies in play groups for children with autism spectrum disorders and their peers. *Journal of Autism and Developmental Disorders, 38*, 926-940.
The study investigated the effects of visual strategies on three children with autism and their peers during play group sessions. Results revealed positive impacts on the participants' use of script phrases, context-related comments, and intervals in which speech occurred.
13. West, E. A. (2008). Effects of verbal cues versus pictorial cues on the transfer of stimulus



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control for children with autism. *Focus on Autism and Other Developmental Disabilities*, 23, 229-241.

Four students from ages 3 to 6 participated in a study designed to determine whether students could move from effectively from teacher-prompts to independence using (a) visual or (b) verbal cues). Results indicate that it is more efficient to achieve transfer of stimulus control from instructor assistance to pictorial cues for three of the participants.

14. Vacca, J. J. (2007). Incorporating interests and structure to improve participation of a child with autism in a standardized assessment: A case study analysis. *Focus on Autism and Other Developmental Disabilities*, 22, 51-59.

The study described an innovative approach that includes incorporating interests and a structured schedule, to assess a girl with autism. Results showed positive outcomes of using the approach.

15. Brown, K. E., & Mirenda, P. (2006). Contingency mapping: Use of a novel visual support strategy as an adjunct to functional equivalence training. *Journal of Positive Behavior Interventions*, 8, 155-164.

The study evaluated the effectiveness of contingency mapping, a new visual support strategy designed to enhance understanding of the contingencies associated with functional equivalence training. A 13-year-old adolescent with autism participated. Results showed that contingency mapping was related to reductions in problem behavior and increases in alternative behavior.

16. Wheeler, J. J., Baggett, B. A., Fox, J., & Blevins, L. (2006). Treatment integrity: A review of intervention studies conducted with autism. *Focus on Autism and Other Developmental Disabilities*, 21, 45-55.

This study consisted of a search of intervention studies in autism from 1993 to 2003 to determine treatment integrity. Among the 60 studies located, 15 focused on visual strategies. These 15 studies are already included in this document.

17. Conroy, M. A., Asmus, J. M., Sellers, J. A., & Ladwig, C. N. (2005). The use of an antecedent-based intervention to decrease stereotypic behavior in a general education classroom: A case study. *Focus on Autism and Other Developmental Disabilities*, 20, 223-230.

The study evaluated the effectiveness of an antecedent-based intervention, including the use of visual cues to indicate activity time, on the stereotypic behavior of a 6-year-old boy with autism. Results revealed a decrease in the boy's stereotypic behavior.

18. O'Reilly, M., Sigafos, J., Lancioni, G., Edrisinha, C., & Andrews, A. (2005). An examination of the effects of a classroom activity schedule on levels of self-injury and engagement for a child with severe autism. *Journal of Autism and Developmental Disorders*, 35, 305-311.



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The study examined the effects of an individualized schedule on levels of engagement and self-injury for a 12-year-old boy with autism. Results indicated that a schedule of activities produced substantial reductions in self-injury and increase in engagement. Maintenance of the results was documented in the follow-up assessment.

19. Dauphin, M., Kinney, E. M., & Stromer, R. (2004). Using video enhanced activity schedules and matrix training to teach sociodramatic play to a child with autism. *Journal of Positive Behavior Interventions, 6*, 238–250.
A young boy participated in a study to determine whether video-based activity and a notebook schedule of pictures could be used to teach sociodramatic play skills. The participant learned play schemes across both methods.
20. Charlop-Christy, M. & Kelso, S. (2003). Teaching children with autism conversational speech using a cue card/written script program. *Education and Treatment of Children, 26*(2), 108-127.
This study assessed the efficacy of a written script/cue card program to teach verbal, literate, children with autism conversational speech skills. Scripted conversations were created about abstract, age appropriate topics. Children's lines were printed on "cue cards". Three boys, ages 8, 9, and 10, were taught to respond to a conversational question and then ask a contextually appropriate question. Initially, all three boys demonstrated low frequencies of conversational speech. Following intervention, all three quickly met the training criteria, and maintained correct responding without cue cards. Responding generalized to untrained topics, and across conversants and settings.
21. Johnston, S., Nelson, C., Evans, J., & Palazolo, K. (2003). The use of visual supports in teaching young children with autism spectrum disorder to initiate interactions. *Augmentative and Alternative Communication, 19*, 86-103.
This study involved three boys with autism who were taught to utilize a graphic symbol representing "Can I Play?" to request entrance into play activities. Results indicated that the strategy was effective.
22. Kuoch, H. & Mirenda, P. (2003). Social story interventions for young children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 18*, 219-227.
This study examined the effectiveness of social story interventions for 3 young children diagnosed with autism spectrum disorders. Stories were delivered in a picture & text format. Results confirmed previous research with regard to the effectiveness of this intervention for reducing the frequency of target behaviors.
23. Odom, S. L., Brown, W. H., Frey, T., Karasu, N., Smith-Cantor, L. L., & Strain, P. (2003). Evidence-based practices for young children with autism: Contributions for single-subject design research. *Focus on Autism and Other Developmental Disabilities, 18*, 166-175.



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An analysis of single-subject design research with children with autism published between 1990 and 2002 was undertaken. Seven of the 37 studies used visual supports. These have been included in this document.

24. Charlop-Christy, M., Carpenter, M., Le, L., LeBlanc, L., & Kellet, K. (2002). Using the Picture Exchange Communication System (PECS) with children with autism: Assessment of PECS acquisition, speech, social-communicative behavior, and problem behavior. *Journal of Applied Behavior Analysis, 35*(3), 213-231.
This present study examined the acquisition of PECS with 3 children with autism. Results indicated that all 3 children met the learning criterion for PECS and showed concomitant increases in verbal speech.
25. Lorimer, P., Simpson, R., Myles, B., & Ganz, J. (2002). The use of social stories as a preventative in a home setting with a child with autism. *Journal of Positive Behavior Interventions, 4* (1), 53-60.
The purpose of this study was to determine the efficacy of a social story intervention implemented in a home setting to decrease precursors to tantrum behavior in a 5-year-old boy with autism. These social stories were visually based using Boardmaker symbols. Data revealed a decrease in interrupting verbalizations and tantrums when the social stories were available and an increase in these behaviors when the social stories were withdrawn.
26. Morrison, R., Sainato, D., BenChaaban, D., & Endo, S. (2002). Increasing play skills of children with autism using activity schedules and correspondence training. *Journal of Early Intervention, 25*, 58-72.
The purpose of this study was to investigate a strategy to improve the independent performance of four preschoolers with autism during playtime in an inclusive setting. Results of the study indicated that all 4 participants' on-task and play correspondence behavior increased, while experimenter prompts gradually decreased.
27. Frea, W., Arnold, C., & Vittimberga, G. (2001). A demonstration of the effects of augmentative communication on the extreme aggressive behavior of a child with autism within an integrated preschool setting. *Journal of Positive Behavior Interventions 3*(4), 194-198.
This case study examines the effects of picture exchange on severe aggressive behavior of a preschooler with autism. Results indicated that the student's aggressive behavior was eliminated in a brief amount of time when picture exchanges were in place.
28. Keen, D., Sigafoos, J. & Woodyatt, G. (2001). Replacing prelinguistic behaviors with functional communication. *Journal of Autism and Developmental Disorders, 31*(4), 385-398.
This study evaluated the effectiveness of a teacher-implemented intervention designed to replace prelinguistic behaviors with functional communication in four young children with



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autism. Teachers encouraged use of specific communication forms to replace specific prelinguistic behaviors. During intervention, the replacement forms increased and prelinguistic behaviors decreased in most cases.

29. Theimann, K. & Goldstein, H. (2001). Social stories, written text cues, and video feedback: Effects on social communication of children with autism. *Journal of Applied Behavior Analysis, 34*(4), 425-446.
This study investigated the effects of written text and pictorial cuing with supplemental video feedback on the social communication of 5 students with autism and social deficits. Results showed increases in targeted social communication skills when the treatment was implemented.
30. Bryan, L. & Gast, D. (2000). Teaching on-task and on-schedule behaviors to high functioning children with autism via picture activity schedules. *Journal of Autism and Developmental Disorders, 30*, 553-567.
The purpose of this investigation was to evaluate the effectiveness of using graduated guidance and visual activity schedules to teach four elementary students with autism on-task and on-schedule behavior. Student performance (a) increased when prompting was used; (b) performance was maintained when the picture activity book was available; (c) it dropped when the picture activity book was not available; and (c) student performance generalized to novel activities.
31. Dettmer, S., Simpson, R., Myles, B., & Ganz, J. (2000). The use of visual supports to facilitate transitions of students with autism. *Focus on Autism and Other Developmental Disabilities, 15*, 163-170.
A combination of visual supports for two elementary-age boys with autism was evaluated. The visual supports were used to aid transitions from one activity to another in community and home settings. The data revealed a significant decrease between the time the students were given instructions and the time they began the next activity when the visual supports were used.
32. Massey, G., & Wheeler, J. (2000). Acquisition and generalization of activity schedules and their effects on task engagement in a young child with autism in an inclusive preschool classroom. *Education and Training in Mental Retardation and Developmental Disabilities, 35*, 326-335.
Efficacy of individualized activity schedules with a 4-year old child diagnosed with autism who attended an integrated public pre-school classroom was examined. Graduated physical guidance and a system of most-to-least prompts were used during skill acquisition stages with teacher proximity and level of prompts being eventually faded. The child successfully acquired the skills necessary to independently follow activity schedules and generalized these skills to other settings with minimal training.



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33. Schmit, J., Alper, S., Raschke, D., & Ryndak, D. (2000). Effects of using a photographic cueing package during routine school transition with a child who has autism. *Mental Retardation*, 38, 131-137.

The study examined the efficacy of using a photographic cue package to teach a young child with autism to make successful transitions in daily routines across three different school settings. Results indicated that a combination of verbal and photographic cues reduced the participant's tantruming while increasing the number of successful transitions. Several other positive outcomes were also documented.

34. Stiebel, D. (1999). Promoting augmentative communication during daily routines. *Journal of Positive Behavior Interventions* 1(3), 159-169.

This study examined whether teaching parents a problem-solving intervention that considered the family's lifestyle would promote child spontaneous picture card use and parent-provided communication opportunities during daily routines. The results showed increases in the child's use of cards and in the parent's use of communication opportunities across multiple routines, parent and child behavior maintenance over time, and increases in the parent's perception of their child's communication skill and of their own ability to promote communication.

35. Krantz, P. & McClannahan, L. (1998). Social interaction skills for children with autism: A script-fading procedure for beginning readers. *Journal of Applied Behavior Analysis*, 31(2), 191-202.

The 3 boys (ages 4, 4, and 5 years) who participated in this study had acquired small verbal repertoires, but typically spoke only when answering questions or requesting preferred edible items or toys, and did not converse with a familiar teacher during baseline. During teaching, textual cues ("Look" and "Watch me") were embedded in the youngsters' photographic activity schedules; after learning to use the scripts, the children's verbal elaborations and unscripted interactions increased and were maintained when a new recipient of interaction was introduced. After scripts were faded, unscripted interactions not only continued but also generalized to different activities that had not been the topic of teaching. The script-fading procedure enabled children with autism to converse with adults, to benefit from adults' language models, and to engage in language practice that contributes to fluency.

36. Kelly, S., Green, G., & Sidman, M. (1998). Visual identity matching and auditory-visual matching: A procedural note. *Journal of Applied Behavior Analysis*, 31(2), 237-243.

After preliminary computerized training on visual-visual identity matching, a 5-year-old boy with autism (Sam) was given visual-visual and auditory-visual matching-to-sample tests with new stimuli. These findings showed that seemingly small procedural changes can influence performance and demonstrated that successful auditory-visual matching does not guarantee proficiency in visual-visual identity matching.



37. Pierce, K., & Schreibman, L. (1994). Teaching daily living skills to children with autism in unsupervised settings through pictorial self-management. *Journal of Applied Behavior Analysis, 27(3)*, 471-481.
This study of 3 low-functioning children (ages 6-9) with autism found that subjects could successfully use pictures to manage their self-care behavior in the absence of a treatment provider, generalize their behavior across settings and tasks, and maintain behaviors at follow-up. When picture order was manipulated, subjects followed the new picture sequence.
38. Krantz, P. & McClannahan, L. (1993). Teaching children with autism to initiate to peers: Effects of a script-fading procedure. *Journal of Applied Behavior Analysis, 26(1)*, 121-132.
A script that was systematically faded from end to beginning was used to teach peer initiations about recently completed, current, and future activities. The effectiveness of the script-fading procedure was assessed via a multiple baseline design across 4 children with autism. The script-fading procedure enabled children with severe social and verbal deficits to practice context-specific, peer-directed generative language that was not prompted by adults or peer confederates.
39. Krantz, P., MacDuff, M., & McClannahan, L. (1993). Programming participation in family activities for children with autism: Parent's use photographic activity schedules. *Journal of Applied Behavior Analysis, 26*, 137-138.
A graduated guidance procedure was used to teach four boys with autism (ages 9, 11, 14) to follow photographic activity schedules to increase on-task and on-schedule behavior. The results indicated that photographic activity schedules produced sustained engagement, and skills generalized to a new sequence of photographs and to new photographs.
40. MacDuff, G., Krantz, P. & McClannahan, L. (1993). Teaching children with autism to use photographic activity schedules: maintenance and generalization of complex response chains. *Journal of Applied Behavior Analysis, 26(1)*, 89-97.
Used a graduated guidance procedure to teach 4 boys with autism to follow photographic activity schedules to increase on-task and on-schedule behavior. The results indicated that photographic activity schedules (albums depicting after-school activities) produced sustained engagement, and skills generalized to a new sequence of photographs and to new photographs.
41. Matson, J., Sevin, J., Box, M., Francis, K., & Sevin, B. (1993). An evaluation of two methods for increasing self-initiated verbalizations in autistic children. *Journal of Applied Behavior Analysis, 26(3)*, 389-398.
Three children with autism and mental retardation were treated for deficits in self-initiated speech. A novel treatment package employing visual cue fading was compared with a graduated time-delay procedure previously shown to be effective for increasing self-



initiated language. Both treatments included training multiple self-initiated verbalizations using multiple therapists and settings. Both treatments were effective, with no differences in measures of acquisition of target phrases, maintenance of behavioral gains, acquisition with additional therapists and settings, and social validity.

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ORGANIZATIONS RECOGNIZING INTERVENTION AS EVIDENCE BASED

Centers for Medicaid and Medicare Services

National Autism Center

National Professional Development Center

RESOURCES AND MATERIALS

- Do 2 Learn: <http://www.do2learn.com/>
This is an extensive resource for visual supports.
- Use Visual Strategies: <http://www.usevisualstrategies.com/VisualStrategiesInformation.aspx>
Linda Hogdon's site with information on using visual strategies for communication.



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- Visual Schedules. Interactive Collaborative Autism Network:
<http://www.autismnetwork.org/modules/environ/visualschedule/index.html>
This learning module provides parents and educators with a basic understanding of using visual schedules.
- Visual Supports. Evidence-Based Practices Brief. National Professional Development Center on Autism Spectrum Disorders: <http://autismpdc.fpg.unc.edu/content/visual-supports>
The NPDC has developed evidence-based practice (EBP) briefs for their identified EBP. Each brief contains an overview, step-by-step directions for implementation, implementation checklist, and evidence base.
- Visual Supports. Autism Internet Modules:
http://www.autisminternetmodules.org/user_mod.php
This site offers a broad range of modules on topics related to autism. You must have a user account to view modules, but the account is free. The visual support module is thorough and comprehensive.

GENERAL RESOURCES

- Autism Internet Modules (AIM) www.autisminternetmodules.org. The Autism Internet Modules were developed with one aim in mind: to make comprehensive, up-to-date, and usable information on autism accessible and applicable to educators, other professionals, and families who support individuals with autism spectrum disorders (ASD). Written by experts from across the U.S., all online modules are free, and are designed to promote understanding of, respect for, and equality of persons with ASD.
- The Autism Web Course: http://cdd.unm.edu/swan/autism_course/about/index.htm. This web course was developed out of materials from the Interactive Collaborative Autism Network (ICAN). The Autism Programs at the University of New Mexico has updated and added information to this web course.
 - Characteristics
 - Assessment
 - Academic Interventions
 - Behavioral Interventions
 - Communication Interventions
 - Environmental Interventions
 - Social Interventions
 - Family Support Suggestions
- Indiana Resource Center for Autism (IRCA)
<http://www.iidc.indiana.edu/irca/fmain1.html>. The Indiana Resource Center for Autism staff's efforts are focused on providing communities, organizations, agencies, and families



Tri-State Autism Collaborative – Colorado - Kansas - Nebraska

with the knowledge and skills to support children and adults in typical early intervention, school, community, work, and home settings.

- IRCA Articles: <http://www.iidc.indiana.edu/index.php?pageId=273>

- Texas Statewide Leadership for Autism www.txautism.net. The Texas Statewide Leadership for Autism in conjunction with the network of Texas Education Service center with a grant from the Texas Education Agency has developed a series of free online courses in autism. Please check the training page, www.txautism.net/training.html, for update lists of courses, course numbers and registration information. Current courses include the following:
 - Asperger Syndrome 101
 - Augmentative and Alternative Communication and the Autism Spectrum
 - Autism for the General Education Teacher
 - Autism 101: Top Ten Pieces to the Puzzle
 - Classroom Organization: The Power of Structure for Individuals with ASD
 - Communication: The Power of Communication for Individuals with ASD
 - Futures Planning for Students with Autism Spectrum Disorder
 - Navigating the Social Maze: Supports and Interventions for Individuals with ASD
 - Solving the Behavior Puzzle: Making Connections for Individuals with ASD