As an early childhood special educator, Ms. Pool is proud of her elementary school’s commitment to providing special education programs to students with disabilities in inclusive settings. She is especially excited about Ms. Carter’s first grade classroom, in which Keith, a 7-year-old boy diagnosed with autism spectrum disorder (ASD), has been placed for the past 2 months.

However, the two teachers have become increasingly concerned about Keith’s obvious social isolation in the classroom. During relatively unstructured free and playtime activities, Keith typically sits by himself in one specific location, repetitively rocking back and forth while quietly humming. Other students do not seem to enjoy this activity, so Keith is usually left alone during these times. Ms. Carter and Ms. Pool are convinced of the benefits that enhanced social interactions could have for Keith. They also believe that if Keith could develop more appropriate toy play behaviors, other students would be more likely to play with him. The question they both pose is how do they best teach Keith these skills?

Young students diagnosed with ASD increasingly are receiving their educational programs in inclusive settings, learning side by side with typical peers. These students often display lower levels of social interaction (including appropriate play behaviors) than do other students (Bregman & Higdon, 2012; Smith, 2011). Therefore, any interventions implemented in inclusive settings must be tailored to the individual child’s needs. Given these potential challenges, providing students with ASD in inclusive school settings with opportunities to interact with students who have more established toy play and social skills can be especially valuable.

One way teachers can help students with ASD develop these skills is to understand the progression of how young children learn to play. Generally, the accepted progression of play skills is (Charlesworth, 2011):

- Solitary play (e.g., shaking objects, reaching out for toys, showing and pulling toys).
- Parallel play (i.e., playing near another child but not interacting).
- Associative play (i.e., sharing toys with peers, but each child goes his or her own way).
- Cooperative play (i.e., children work together toward a common goal or share a fantasy theme).

In the earliest stages of play, teachers working with students like Keith need to know that appropriate interactions with toys facilitate the development of later and more social levels of play. As Weiss and Harris (2001) described, children first establish the foundations of subsequent social interactions by learning basic toy manipulation skills. Once the child has established these skills in isolation, they can then be expanded into the associative and cooperative levels of play.

In this way, students with ASD, like Keith, can gain more success in toy play activities and then enjoy successful interactions with peers. This progression of skills is especially critical in that students with ASD often exhibit lower levels of play behaviors than do their typical peers (e.g., Barton & Pavilanis, 2012; Barton & Wolery, 2010). In addition, their play activities may be idiosyncratic and/or unusual (e.g., stereotyped or inappropriately repetitive; Barton & Pavilanis, 2012), further inhibiting the possibilities for successful social interactions with classmates. For too many students with ASD, invaluable social interaction opportunities with classmates may be limited simply by their lack of development of appropriate play skills.

However, as teachers and parents work with children with ASD at an early age, these learners can be systematically taught appropriate play behaviors that can then lead to enhanced social opportunities. In this article, we share how teachers can develop and implement systematic instructional strategies incorporating
visual structuring to elicit more successful play behaviors for students like Keith in inclusive settings.

**Visual Processing and Visual Structuring**

Although students with ASD often are seen primarily in terms of skill deficits, a more accurate and productive view also notes that these students may possess unique skill sets relative to their typical peers. One such recognized strength for students with ASD may be in the area of visual processing. As described by Temple Grandin (1995) taking in information visually enables many individuals with ASD to process new content in a more concrete way, as mental images can be "stored" and later accessed. Educators teaching play and social skills should remember that traditional methods that are language-based have been found to be less effective for many students with ASD who often have difficulty understanding abstract concepts and words with dual meanings (Mesibov, Shea, & Schopler, 2004).

Taking advantage of this population of students' preference for visual stimuli, teachers structuring materials for learners through this modality is an increasingly common practice (Mesibov & Shea, 2010; National Research Council, 2001). Using visually structured activities provides students with ASD materials with cues to assist them in responding correctly. In effective visually structured activities, the materials are organized and presented in a planned, sequential, and logical way. This planning may incorporate additional visual cues to enhance the subsequent acquisition of the skill. By visually structuring materials, teachers can help students with ASD focus more on essential information and cues while minimizing attention to irrelevancies (Ganz, Earles-Vollrath, & Cook, 2011).

Effective visual structuring provides students with ASD with stable cues that can be repeatedly accessed over time, thus reducing overreliance on adult prompting (Hodgdon, 1995). The benefits of visually structured materials include (a) expansion of social skills (Laushey, Heflin, Shippen, Alberto, & Fredrick, 2009), (b) task accuracy and independence (Hampshire, Butera, & Bellini, 2011), and (c) effective management of transitions (Banda, Grimmett, & Hart, 2009). These cues can then be used in a variety of settings including home, school, and community. Visual structuring strategies also can help students with ASD master appropriate toy play behaviors and subsequent social interactions. The following five-step sequence to developing effective visually structured activities explains how this might be done for a child like Keith to help increase his peer interactions and play behaviors.

**Development and Implementation of Visually Structured Tasks**

**Step 1: Identify Reinforcing Play Materials**

The first step for developing a visually structured play task is identifying potentially reinforcing play materials. Initially the teacher might spend some time observing the child in a variety of settings, including home and school. As part of this initial information-gathering phase, the teacher might also ask the child's parents to observe the child, noting any favored toys or materials.

In some cases, the teacher and/or parent might observe that the child perhaps does not prefer any particular items, but instead certain attributes of several related items. For example, the child may show a strong preference for things with wheels, or for items with smooth textures (e.g., plastic blocks). The goal is to identify items or item attributes that the child has a preference for, but does not currently engage with in a functional way. These items may facilitate the progress into the next stage of an imaginative sequence of play.
Based on observations in the school and home setting, Keith appeared to prefer items that “fit together.” For example, Keith’s mom reported that when playing with markers at home, he consistently put the cap back on the marker immediately after he was finished with it. Similarly, whenever Keith saw a cup or a cooking pot with an unattached lid, he typically quickly sought to attach the cover.

At school Keith’s teacher saw similar behaviors, and noted that he particularly sought out such items as puzzles, Tinker Toys, and other materials in which items fit together. Given this observed preference for fitting items together, it was determined that Legos might be a good place to start teaching Keith toy play behaviors.

**Step 2: Task Analyze a Play Sequence**

Next, the teacher should determine how the student might play with the targeted items in a way that would promote later elaboration, imaginative exploration, and associative and cooperative levels of play. This process might begin by the teacher thinking about what a student could do with the materials. The teacher can observe how other students in the classroom engage with similar materials.

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Once the teacher has identified a possible play sequence, he or she might then task analyze the sequence to determine the specific steps the child must go through to complete that play sequence. An additional consideration is to estimate how much support (prompts or cues) the learner with ASD might require with each step of play. Once the individual steps in the play sequence have been determined, the validity of this proposed sequence should be confirmed by having another adult (e.g., a paraprofessional) or a peer already competent in the task go through each step to identify any potential unidentified issues (See Figure 1 for an example of a task analysis of Keith’s Lego toy skills).

After completing the task analysis, the teacher should consider how the sequence of steps would be taught to the student. Whereas many students with ASD struggle with written language, others are competent readers. In the latter case, the teacher might use a written list of short instructional phrases, one per step (as in Figure 1) or use images on a mobile device or simple images to convey each step. If the child is at an emergent reader level, alternative visual cues with words might be added to the written instructions.

**Step 3: Visually Structure the Materials**

The next step for the teacher is to plan the visual structure of the materials. In doing so, the teacher should remember that in effective visual structuring, the materials are in essence the instructions. The order in which the materials are presented serves to cue the learner, giving the order in which the task steps should be done. Mesibov et al. (2004) suggested three key areas to consider when visually structuring any teaching materials: (a) visual organization, (b) visual clarity, and (c) visual instructions.

Visual Organization. Visual organization refers to the way in which the materials and physical space of the task are organized and presented by the teacher to the learner. Especially early on, materials should be presented in a consistent and predictable sequence. This sequence may be especially critical in teaching toy play skills to students with ASD given their frequent strong preference for organization and “sameness.” Good visual arrangements include presenting only those materials necessary to complete the activity, eliminating irrelevant and potentially distracting materials. However, as each step in the sequence is mastered, such distractors may be systematically introduced to further enhance student independence and generalization.

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**Figure 1. Keith’s Task Analysis for Legos**

**Time to Play With Legos!**

1. Place a long blue Lego block on the table.
2. Pick up a long green Lego block.
3. Place the long green Lego on top of the long blue Lego block, and press down until secure.
4. Pick up a small blue Lego block.
5. Place the small blue Lego block in the middle of the long green Lego block, and press down until secure.
6. Pick up a long red Lego block.
7. Place the long red Lego block in the middle of top of the blue Lego block, and press down until secure.
8. Pick up a small blue Lego block.
9. Place the small blue Lego block in the middle of the top of the long red Lego block, and press down until secure.
10. Pick up a small red Lego block.
11. Put the small red Lego block on top of the small blue Lego block, and press down until secure.
12. Pick up a long green Lego block.
13. Place the long green Lego block on top of the small red Lego in the middle, and press down until secure.
14. Finished!
An additional consideration is the strength and stability of the materials. Especially early on, toy materials used should be especially sturdy to minimize student fixation on any instability of the materials (Mesibov et al., 2004).

In teaching Keith toy play skills with the Lego blocks, instead of simply putting a pile of blocks on the floor in front of the child, the teacher could present the blocks in a series of bins, sorted by size and/or color. To minimize learning errors, the teacher should assure beforehand that the bins are not too small or too large for the number and sizes of the Lego blocks. This placement reduces the possibility that extraneous bin space will serve as a distractor for the students, who may fixate on this irrelevant feature of the task. (See Figure 2 for additional visual organization strategies.)

Visual Clarity. Visual clarity refers to the visual cues the teacher incorporates in the presentation of the materials that will best draw the student’s attention to critical features of the task. Examples include color coding, labeling, highlighting, and exaggeration. For example, for Keith’s Lego blocks instruction, color cues were inherent in the task, as both the completed model Lego assembly and the individual parts Keith was to use were already color-coded. (See Figure 3 for an illustration of how visual clarity was considered in Keith’s structured materials).

Visual Instructions. Visual instructions refer to how the teacher communicates to the student the expectations for engaging in the activity. This step of the play process can be given to students through a variety of visual cues. A particularly valuable strategy is to teach the student simple and typical usage patterns employed in many environments (e.g., left to right and top to bottom). To teach the typical left-to-right sequence used in so many daily tasks (e.g., reading and writing), the teacher might consistently lay out the play materials left to right in the order in which they will be used.

Effective visual presentation of instructional materials might initially additionally contain supplemental cues for the learner to enhance the understanding of as well as independence of the task in the early stages of learning (Mesibov et al., 2004). For example, with students who have mastered basic number skills, number signs might be added to each of the physical objects themselves, with the first object to be manipulated identified as "1," the next object as "2," and so on. For students with ASD who are not yet reading, the teacher might prepare a series of picture prompts that illustrate each of the individual steps of the play sequence. These picture cues might include photographs of the learner or another child exhibiting the correct response, and/or pictures of what the completed step looks like. These picture prompts might be paired with appropriate verbal prompts. As the student comes to demonstrate greater learning and independence in the skill, these prompts can be gradually reduced.

In the case of Keith learning to play with Legos, if the inherent color cues of the Lego pieces had been insufficient for him to complete the task, they might have been supplemented with numbers attached to each piece in the order that it was to be handled. In addition, these numbers could be matched with the same number on the Lego piece in the model.

Other ways to present visual instructions include using visual “mini-schedules,” and providing a model of a completed play sequence. Mini-schedules typically consist of the task-analyzed steps of the routine presented in a visual format (usually written with accompanying pictures). When using a mini-schedule, as
students complete each step of the activity they cross off that step and proceed to the next. For learners who already use a visual schedule in daily routines, a mini-schedule to teach a targeted toy skill sequence may be an especially promising strategy, as the students will already be familiar with the basic strategy.

For Keith, including a final picture model of the Lego structure was determined to be an effective way to clarify the targeted play skill outcome. (See Figure 2 for an example of a picture model. Figure 4 illustrates a mini-schedule as well as a left-to-right sequence cue.)

Step 4: Teach With Prompting

Once the teacher has selected and structured the play materials, the next step is to teach the child how to engage with the materials. Using a structured system such as least prompts has been found to be highly effective with individuals with ASD (Neitzel & Wolery, 2009). The research-based system of least prompts uses a prompt hierarchy ranging from least to most intrusive (e.g., visual prompt, verbal prompt, hand-over-hand, partial physical, full physical). For example, when teaching a new skill, the teacher will provide a visual cue (perhaps pointing), indicating to the child the next step in the activity. If the child is not able to complete the step with that level of prompting, the teacher will provide the next level of prompt on the hierarchy and so on until the child is able to complete the step. Such an approach assures that students receive the minimal amount of help necessary to complete the task, simultaneously enhancing both ultimate task independence and instructional efficiency.

Initially, Keith required a mix of verbal and gestural prompts paired with the aforementioned color cues. These supplemental cues were quickly faded as Keith learned the task. Another option for Keith would have been to use a visual mini-schedule that would have served as a consistent source of information as Keith worked toward independence in a toy play activity.

Step 5: Expand and Generalize

Once the child has learned to complete the play sequence independently, the teacher should move toward expansion and generalization of the new skills. As previously noted, a powerful rationale...
in the decision to teach toy play skills to a student with ASD is to facilitate subsequent, easier, and more successful social interactions with peers. If a teacher stops after simply teaching the student with ASD to engage appropriately with the structured play materials without involving peers, the instruction remains incomplete.

Generalization of the newly acquired toy play skills includes using similar though different materials, in different places, and at different times and includes playing with others with these materials. Teachers can use a variety of ways for a student to expand and generalize new play skill repertoire. These changes might include (a) adding in new materials, (b) fading/reducing the visual structure, (c) modeling new behaviors with the materials, and especially (d) bringing in a peer.

When seeking to develop greater generalization of the student's new toy play skills, as always the teacher must begin by considering the unique characteristics of the learner. Given that so many students with ASD find change challenging, the teacher might initially provide additional supports when new elements are introduced. For students with established imitative tendencies, the teacher might use modeling to help the child better generalize his or her new skills with the toy play materials. Finally, moving the play materials to a more inclusive setting where social bids from peers are possible can set the stage for expansion into more sophisticated and advanced levels of play.

After observing Keith's typical classmates playing with Legos and noting some interest on his part in these materials, Ms. Pool and Ms. Carter saw this activity as a potential path to greater interactions between Keith and his classmates. Following the steps listed here, the teachers were able to move Keith along to the point where he was independently combining the Legos into interesting shapes. They gradually moved two of his more socially skilled classmates to play alongside him with the Legos, helping them to shape Keith's social behaviors as they played together. This included sharing the materials and positively commenting on the completed pieces each constructed. The teachers also are observing greater social interactions between Keith and these classmates in other settings, including the playground.

**Other ways to present visual instructions** include using visual “mini schedules,” and providing a model of a completed play sequence.

**References**


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