

## **Module: Speech Generating Devices (SGD)**

### **Steps for Implementation: Speech Generating Devices (SGD)**

Fransone, E., & Collet-Klingenberg, L. (2008). *Overview of speech generating devices for children and youth with autism spectrum disorders*. Madison, WI: The National Professional Development Center on Autism Spectrum Disorders, Waisman Center, The University of Wisconsin.

Implementing an SGD is not a step-by-step, sequential process. Unlike more behavioral intervention methods, there are no real rules as to “If X happens, do Y.” Nevertheless, the following guidelines provide professionals with a plan to introduce and implement the use of an SGD. To be successful, this process also will require the use of professional wisdom and skills.

For learners with ASD, it is important to have the team, including family members, to identify priority goals based on the IEP or IFSP. While it may not be reasonable to assume that a learner will quickly learn to create novel sentences for numerous communicative functions, as the top priority for the SGD, the team may consider the ability to spontaneously request desired items meaningful. The ability to express a single novel thought may also be considered an important goal.

#### **Step 1. Identifying and Setting Up the Device**

In Step 1, teachers/practitioners focus on identifying an appropriate SGD device for the learner with ASD by taking into account a number of factors including learner needs and characteristics, and available training and technical assistance.

1. Teachers/practitioners select an appropriate device, taking into account how the information is displayed, the learner’s present and potential abilities (e.g., attention span, experience with symbols, ability to establish joint attention), portability of the device, available training and technical assistance, and funding sources.

Teachers/practitioners also choose a number of symbols in the visual field that the learner will be able to discriminate easily by considering the learner’s attention span, experience with symbols, and ability to establish joint attention (Ogletree & Harn, 2001).

2. Teachers/practitioners introduce the device to the learner by having a device with few symbols and/or buttons with nothing on them.

To begin, teachers/practitioners introduce a single symbol and have buttons with nothing on them to introduce the idea that the symbol, not the button, is the important factor.

3. Teachers/practitioners include desirable and undesirable symbols to facilitate the learner’s ability to discriminate.

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By pairing a desired symbol with an undesirable symbol, or somewhat aversive object symbol, the learner may more efficiently attend to the symbol and discriminate between symbol choices.

### ***Step 2. Introducing Direct Support Persons to the Device***

In Step 2, teachers/practitioners identify direct support persons and train them how to use the identified SGD.

1. Team members are identified and trained in how to program and use the device.

Persons who will be using and/or supporting the device participate in training offered by the manufacturer.

2. One or two key members of the team are identified as primary contacts regarding its use.

One team member may be designated as the primary contact with the manufacturer, and as the go-to person when the device is not working properly.

### ***Step 3. Identifying Environments Where the Device Will Initially Be Used and With Which Communication Partners***

1. The device is introduced during familiar routines which allow for frequent communicative attempts (e.g., circle time, English class, snack, lunch, free play).

Initial environments should involve routines that provide opportunities for frequent communicative attempts and that are generally positive for the learner. Snack and free choice time provide opportunities for practicing requests with a SGD. Show and tell, circle time, and functional jobs (e.g., mail delivery) provide opportunities to practice social greetings or comments.

### ***Step 4. Identify Vocabulary Appropriate to the Learner and the Environments***

In Step 4, teachers/practitioners focus on identifying age- and developmentally-appropriate vocabulary that can be used in the identified environments.

1. Words and phrases are age-appropriate.
2. Words and phrases are meaningful and motivating for the learner.
3. Words and phrases serve an identifiable communicative function (e.g., greeting, requesting).

Identified words should be age-appropriate, meaningful to learners and their communicative partners, and should serve an identified communicative function (e.g., requesting, greeting,

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protesting). Vocabulary should be motivating to learners and applicable to their daily lives (e.g., vocabulary related to daily routines, curriculum, and/or activities outside of school). The entire team, including parents, should be involved in the selection of vocabulary. For example, a classroom teacher might suggest that color and animal words would be appropriate for an Eric Carle author unit, or a parent might request words specific to a worship service in which the family participates (e.g. greeting others in the pew). Teachers/practitioners should refer to their speech-language pathologists and/or assistive technology specialists for more information on how to choose vocabulary specifically for certain learners and/or specific devices.

### **Step 5. Allowing the Learner to Explore the Device**

In Step 5, teachers/practitioners provide opportunities and sufficient time for learners to explore and become familiar with the device.

1. Teachers/practitioners give the learner an opportunity to independently explore the device.

### **Step 6. Setting Up Communicative Opportunities**

While SGD use should take place in natural environments, some level of individualized instruction is required to introduce the device. For requesting, options depend on the skills of the learner. Some learners may need the actual objects displayed (e.g., crackers, apple slices, juice on a tray out of the student's reach), while others may already be aware of options by virtue of the location or the time of day.

1. Teachers/practitioners thoughtfully arrange opportunities within naturally occurring environments that provide cues and motivation necessary for the learner's success (e.g., takes into account materials needed and needs of individual learners, places out of reach).

It can be helpful to think of this step as a form of environmental "sabotage;" that is, interfering with a desired outcome so that the learner is motivated to communicate. For example, desired snacks may be placed on a high shelf, or the computer mouse may be missing when the learner tries to play a video game. Teachers/practitioners must challenge learners to communicate, while not frustrating them to the point that they shut down.

2. Teachers/practitioners use frequent questioning to facilitate communicative exchanges during routines and activities.

Frequent questioning also can be used to encourage communication if symbols are available for the learner to respond to the questions. The following example illustrates how numerous communicative opportunities can be provided with a single activity.

*Teacher: "What do you want to do?"*

*Learner (via SGD): "Ball."*

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*Teacher: "What do you want to do on the ball?"*

*Learner: "Bounce."*

*Teacher: "How many times do you want to bounce?"*

*Learner: "Five."*

3. Teachers/practitioners instruct peers in how to respond to learners' SGD use (e.g., responding to learner rather than teacher).

For social interactions, classmates need to be introduced to the device before it is used. Classmates and staff also need instruction regarding how to respond to the learner's SGD (e.g., respond to the learner rather than to the teacher or assistant).

### ***Step 7. Providing as Few Prompts as the Learner Requires***

1. Teachers/practitioners do not begin the communicative exchange by using prompts that are not needed by the learner (e.g., hand-over-hand assistance) when a more subtle prompt would suffice.

Providing prompts from least to most restrictive prevents the teacher from providing more support than the learner needs. As examples, some learners may need the teacher to point directly at the appropriate icon, while others may need the teacher to point to the device, while other learners just need to be asked, "What do you want?" After a few trials, teachers/practitioners should try using less restrictive prompts.

2. Teachers/practitioners allow pause time (i.e., approximately 4-5 seconds) before using a prompt, depending on the needs of the learner.

Some learners with ASD, while not yet able to initiate SGD use, eventually respond to cues as subtle as a communicative partner glancing at the device. Plenty of pause time (e.g., 5-10 seconds) should be provided, allowing the learner time to scan the pictures and choose the one that is appropriate.

Teachers/practitioners should be mindful that for some learners, it may be best to avoid any physical touch. Cues such as hovering a hand over the desired symbol and/or shining a flashlight on the desired symbol may prevent a "Here's my hand, tell me what I want" dilemma.

**Please refer to *Least-to-Most Prompting: Steps for Implementation* (National Professional Development Center on ASD, 2008) for more information about prompting.**

### ***Step 8. Honoring the Communication***

1. Teachers/practitioners immediately grant the learner's request upon the communication even if it is not a desired item, object, or action.

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After the learner has communicated a request, teachers/practitioners immediately grant the request even if it is not a desired item, object, or action.

Initially when learners make a request, the request should always be granted. For some learners, it may be necessary to remove or hide pictures of activities or objects that are inappropriate at certain times. If the child initiates a different kind of communicative function, the teacher/practitioner should respond to the child's communication as if it were intentional and purposeful even if it is suspected that the communication was not intentional

2. Teachers/practitioners simply explain when a choice is no longer an option.

As learners become more familiar with the SGD, it may be appropriate, even necessary, to say, "We're all done with \_\_\_\_\_. Make another choice." At the same time, remember that the overall goal is communication.

3. Teachers/practitioners give learners choices during routines/activities and follow their lead when appropriate communication is used (e.g., staying on playground to swing, playing on computer during reading time).

It may be more important to have students independently make choices and control their environments than participate in their regular routines. For example, if a learner requests, "More swing" when the rest of the class is heading inside, you may want to consider letting her stay on the playground for a few more minutes.

If learners become frustrated because their choices do not match the intended request, the practitioners should use their best judgment to determine the appropriate course of action. Frequently, this is a prime opportunity for learning. By simply giving the learner the requested item (even if this request did not match the learner's intention), learners may discover quickly that certain icons can be used to obtain highly desired objects or activities. At other times, learners may become so frustrated that they cannot learn. When this happens, it may be best to use cues or modeling to correct the error to help them secure the desired item. These introductory lessons help develop meaningful choice-making, rather than simply pushing icons because the student understands that this is the expectation.

### **Step 9. Reducing Prompts As Soon As Possible**

Spontaneous use of the SGD can be particularly challenging for learners with ASD because they may become dependent on the prompts, or **cues**, teachers and other practitioners use to facilitate their use of the device. The most natural prompts are verbalizations directed at the learner, such as, "What do you want?" or "What did you bring to show us today?"

1. After a few successful trials, teachers/practitioners use a less-restrictive prompt and provide pause time (i.e., 4-5 seconds) in which the learner may activate the SGD.

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Allowing sufficient pause time for learners to respond is extremely important. Learners must be given opportunities to activate the SGD independently.

2. Teachers/practitioners are aware of learners' attention, frustration, and motivation and adjust demands during routines/activities accordingly (e.g., more/less intensive prompts, more/less pause time).

Professionals should use their best judgment to determine the length of the pause by considering learners' attention spans, motor planning abilities, and temperaments (Light, Roberts, Dimarco, & Greiner, 1998). Although it can be difficult, quietly waiting is an enormously valuable teaching tool. If after waiting an appropriate amount of time, learners do not initiate use of the SGD, professionals may provide a high-level prompt (i.e., less restrictive), such as asking a question or gesturing toward the options (e.g., pointing at the snacks available). Again, teachers/practitioners should wait to see if learners activate the SGD independently. If not, a more direct prompt (i.e., more restrictive) should be provided, such as pointing to the device or giving a verbal direction (e.g., "Use your Vantage™ and tell me what you want"). After the second prompt, teachers/practitioners should wait again. If learners still do not activate the SGD, teachers/practitioners should be even more direct by providing a more restrictive prompt (e.g., pointing to the desired symbol).

**Modeling** is another way to encourage SGD use. Learners may be grouped with peers who have been taught to use the SGD or peers who are more successful with their own SGD. For example, learners may all take turns requesting snack. If learners with ASD observe peers using the SGD independently, they may be more apt to do so.

**Please refer to *Least-to-Most Prompting: Steps for Implementation* (National Professional Development Center on ASD, 2008) for more information about prompting.**

### ***Step 10. Increasing the Environments Where the SGD is Used***

1. Teachers/practitioners provide opportunities for the learner to use the SGD in environments around the school, at home, and/or in the community.

As the learner becomes more comfortable with a SGD, encourage its use in other activities and settings to promote generalization. Environments may include different classrooms, work places, home, or community settings (e.g., restaurants, stores, bowling alleys, movie theaters).

2. Teachers/practitioners encourage the use of the SGD with multiple communicative partners.

Learners also should be encouraged to use their SGD with multiple conversational partners. In some instances, learners may become too comfortable using their SGD with a single communicative partner (e.g., assistant, speech-language pathologist) and may have difficulty generalizing SGD use to different people.

### ***Step 11. Increasing Vocabulary***

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1. Teachers/practitioners increase the number of symbols in a single field as the learner becomes more proficient with the device.
2. Teachers/practitioners increase the number of overlays as the learner becomes more proficient with the device.

Depending on the device, this may be accomplished by adding novel overlays and/or adding vocabulary to an existing overlay (i.e., increasing the field). Another strategy for increasing expressive vocabulary is to encourage the use of modifiers by offering items that differ by only one attribute (e.g., “Do you want the big cookie or the little cookie?” “Do you want the red Lego or the blue Lego?”). The ability to use descriptive words allows learners to create utterances that are novel, flexible, and more specific.

Increasing vocabulary may require that a new device is obtained and taught to the learner. For example, if he/she has demonstrated the ability to use the maximum number of icons on a static device, acquiring a more dynamic device may be appropriate.

3. Teachers/practitioners get a new device as the learner’s need requires.

After learners are able to use their device efficiently, teachers/practitioners should consider upgrading to a more complex device. For example, if learners are using all four overlays on a GoTalk4, and their team believes they could use more pictures, new devices (perhaps one with a dynamic screen) should be considered. Some of the more complex devices have considerable capacity. Therefore, the team must constantly update vocabulary and make certain that the learner understands how to access it.

If learners can successfully push single buttons to activate a phrase, sentence building options should be considered. With this skill, learners push separate buttons or icons for “I,” “want,” and “juice.” To teach these skills, teachers/practitioners may need to initially use cues such as hovering over an icon or pointing. To start, teachers/practitioners may need to provide learners with a few basic sentences that require only two buttons: “I want” / \_\_\_\_\_, “More” / \_\_\_\_\_, “I see” / \_\_\_\_\_. Different devices (e.g. one with more icons) may be required to teach this skill.

Learners’ verbalizations may increase as they use SGD (Schepis, Reid, Behrmann, & Sutton, 1998). As learners begin to use intelligible speech functionally, SGD may be phased out. However, learners’ and families’ preferences must be considered when making decisions about discontinuing devices.