Communication
and the Use of Tangible Symbols

In this world of fast-changing communication technology, it is easy to reach for the newest and fanciest gadgets and think, "With all these features, communication is bound to happen."

We all want the best for the clients we serve and most of us are willing to try everything out there in order to find it. However, we often put "the cart before the horse."

CAN WE REALLY EXPECT COMMUNICATION TO PROGRESS TO THE LEVEL WE WANT FOR OUR CLIENTS IF WE DON'T BEGIN INTERVENTION AT THEIR LEVEL?

Research shows there are no prerequisites to communication intervention, but there is another important fact that should always follow this statement and is often forgotten. Although there are no prerequisites to intervention, there does appear to be a logical sequence. Knowing where your client's communication skills fall in this sequence is essential for intervention. Dr. Charity Rowland of the Oregon Health and Science University first developed the Communication Matrix in 1996. The Communication Matrix is an assessment tool designed to pinpoint how an individual is communicating and to provide a framework for determining logical communication goals. Described within the Communication Matrix are seven levels of communication. The levels described in the matrix break down communication into understandable units and help make communication goals functional. The following are brief descriptions of each communication level.

LORI DAHLQUIST is a Speech Pathologist and Audiologist with over 35 years experience in the area of assistive technology. For more than 20 years, her primary focus was working directly with children with severe disabilities. Lori has worked for Adaptivation Inc. since 2000 as their Speech/Education Coordinator. She is an experienced presenter, having presented educational sessions at national, regional, and local conferences and workshops.

Level 1 of the sequence begins with "Pre-Intentional Behavior." At this level, behavior is a reflection of the individual's general state (i.e. hungry, sleepy, uncomfortable), but the behavior is not under their control. In typically-developing children, this stage occurs between 0-3 months.

Level 2 is labeled "Intentional Behavior." At this level, the individual's behavior is under their control but is NOT used to communicate intentionally. Generally, the caregiver interprets and acts on the behaviors. In typically-developing children, this stage occurs between 3-8 months of age.

Level 3 of the Communication Matrix is where intentional communication begins. It typically occurs between 6-12 months and is called "Unconventional Communication (pre-symbolic)." Communication is considered pre-symbolic because it does not involve any form of symbol. At this level, communication behaviors are considered "unconventional" because they would not be considered socially acceptable at an older age. Communication behaviors include body movements, vocalizations, facial expressions and gestures.

Level 4 is referred to as "Conventional Communication (pre-symbolic)," occurring between 12 and 18 months in typically-developing children. At this level, communication behavior still does not use any form of symbol. It is considered conventional because behaviors are considered socially acceptable, and we continue to use them to accompany language as we mature. Examples of communication behaviors at this level include pointing, nodding, waving and looking from a person to a desired object.

At Level 5, symbolic communication begins and is known as the "Concrete Symbol" stage. Concrete symbols can look like, feel like, move like or sound like the thing they represent. They can include objects, pictures, gestures or sounds. Typically, development of this skill occurs between 12-24 months.

Level 6 is the "Abstract Symbol" stage. This stage involves symbols, such as speech, manual signs, Braille or printed words for communication. The symbols used are abstract because they are not physically similar to what they represent. The abstract symbols at this stage are used one at a time. Typically this state is between 12-24 months.

Level 7 is known as "Language." Symbols, both concrete and abstract are combined in two or three symbol combinations. Here the individual understands that the meaning of a symbol combination will differ with how symbols are ordered. In typically-developing children, this occurs around 24 months.

Children without disabilities move through all the above levels of communication, beginning pre-symbolically. Pre-symbolic communication can be effective, but limits the communicator to the here and now. Moving on to symbolic communication is the only way to communicate about things outside the immediate context. The use of true language can only develop if the communicator can use a form of symbolic communication.

To better understand symbolic communication, we must look at its parts. Symbolic communication is made up of symbols. But what is a symbol? A symbol represents people, objects, places, activities or concepts. Symbols differ from gestures because they allow the user to refer to things that have occurred in the past, will occur in the future or things spatially out of sight. There are two subset symbol groups that help to further explain symbolic communication. They are known as Abstract Symbols and Concrete Symbols.

Abstract symbols are symbols that make up languages and include speech, manual sign language and printed language. The main characteristic of an abstract symbol is that it has no obvious relationship between the symbol and the physical properties (auditory, visual, tactile) it represents.

Concrete symbols DO have an obvious physical relationship to their referent. One form of a concrete symbol is the use of iconic gestures we might use when playing charades. Children will often mimic the shape, movement or sound of what they want to communicate. For example, a child may make a "smacking" sound if he wants a kiss or pat a chair if he wants someone to sit.

Tangible symbols are another form of concrete symbols. Tangible symbols may be either three-dimensional (objects) or two-dimensional (pictures), with which we all seem to be more familiar. Two-dimensional symbols are pictures of the referent and might include photographs and a variety of line drawings. Various commercial two-dimensional systems are available for purchase, making it easy to keep vocabulary consistent - a blessing as well as a curse. Because the two-dimensional symbols are so readily available and often have a built-in organizational system, we sometimes forget to consider the use of three-dimensional symbols. Three-dimensional tangible symbols, (real objects, miniature objects, partial objects or textures) can fill the communication void for individuals who cannot use other symbol forms and should be given full consideration when exploring

Tangible object cards samples

symbol options. Learning to use tangible symbols lays the foundation for the acquisition of more abstract symbol systems.

The use of three-dimensional tangible symbols was first described in the 1960s by Jan van Dijk as a means of communication for people who were congenitally deaf-blind. However, their use has now been extended and considered effective for many. Those who have learned to use tangible symbol systems include individuals of all ages who lack the skills to communicate clearly using speech or other abstract symbol systems. This includes individuals with the following disabilities:

- severe intellectual disability
- developmental disability
- autism or pervasive developmental disorders

Tangible Object Card on Pal Pad.

Tangible Object Card Bundle with Lex.

- severe vision impairment
- severe orthopedic impairment
- multiple disabilities
- deaf-blind

Unlike standard two-dimensional picture systems, little has been done to establish a set of standardized three-dimensional tangible symbols. There appears to be two schools of thought on this matter, favoring either an individualized or a shared approach.

Those favoring an individualized approach believe the objects chosen should be individualized for each communicator. This ensures that the objects chosen have meaning and are motivating for the user. Although ideal, this may not be functional.

Based on clinical experience, this author has adopted a shared approach for the following reasons:

First: Language is NOT individualized, it is shared. For you to read this article, you must share my language. For signers to sign to each other with meaning, they must share the same system of signs. In the world of augmentative and alternative communication (AAC), we try not to have a different set of symbols for each user. Given this, why would we take a different approach with three-dimensional tangible objects?

Second: Simply for practical purposes — it is easier to house, maintain and keep track of individualized tangible objects for a number of learners if they are shared, especially if they have several symbols each. It is also more difficult and more expensive to replace individualized items when they go missing (and they will) than it is with shared items that may be purchased in bulk. This shared approach also makes implementa-

Proxpad with tangible object card.

tion easier for staff, and we MUST keep staff in mind. Because a commercially produced tangible symbol system might not meet all individual communication needs, it can be individualized with the addition of personalized symbols.

Third: The communicator learns the intended representation of the object through the established process of frequent and long-term repetition. Although it is not best to pick a totally abstract object, the process of repeated and consistent presentation is more important than the object itself.

Fourth: The development of a basic set of standardized tangible symbols would provide continuity within an organization. The uniformity and availability of symbols throughout a program can help instill a culture that values the use of a communication system.

Fifth: There are already those out in the field using a shared set of three-dimensional tangible symbols effectively!

CURRENT LITERATURE REGARDING THE USE OF THREE-DIMENSIONAL TANGIBLE OBJECTS HAS NOTED SEVERAL PROPERTIES THAT MAKE TANGIBLE SYMBOLS UNIQUE.:

- They are manipulable — meaning you can hold them and touch them.

- They are permanent — they exist in a permanent display and don't have to be recalled from memory.

- They can be discriminated through one's tactile sense.

- They represent something else — they are symbolic.

- They include two-dimensional symbols (photos, line drawings and/or text) to support communication.

Adaptivation's Tangible Object Cards are now available and are helping to fill the void of a standardized three-dimensional symbol system. They are made up of whole objects, parts of objects, associated objects or textures that stand for or represent common things we communicate. The above properties were kept in mind when these object cards were developed. This commercially available system reduces the time required for teachers, therapists and parents to search

out, purchase and make the symbols. It also ensures uniform quality and durability.

These Tangible Object Cards are a core set of 20 vocabulary items and six supplemental vocabulary sets containing five items each, for a total of 50 available cards. The vocabulary was chosen based on findings in the literature and from working with professionals in the field. Although the 50 objects are obviously not all-inclusive, they do represent the items most often requested.

When using objects that bear a strong resemblance to what they represent, one runs the risk of the user confusing the symbol with the referent. To avoid this problem and establish symbol consistency, each object in Adaptivation's commercial symbol set has been attached to a 5x7 plastic card. This gives each symbol boundaries and establishes a consistent symbol size. It also allows an easy and consistent way to attach the symbols to other areas, such as switches, communication devices, calendars, schedules, doorways, etc. Blank 5x7 cards are also available for expansion of vocabulary.

There are also various options for pairing a two-dimensional visual cue with each object. Color or black-and-white pictures are available, pre-printed on small detachable plastic cards. Blank small cards are also available for adding the picture cue of your choice.

The goal of an object communication system is always to provide a means for the learner to attain a higher level of communication. While the focus is initially on the object, the learner is seeing the symbol every time the object is presented, hopefully providing scaffolding of knowledge from what the learner knows to what he doesn't know - a link to future learning and language acquisition.

The desire is that tangible symbols provide the pre-symbolic communicator a way to move into the world of symbolic communication as easily and successfully as possible. It is often difficult to determine which type of symbol to start with. For example, even an individual with functional vision may require the concreteness of a three-dimensional symbol to make the cognitive connection between the symbol and its intention.

Tangible symbols can be used for receptive communication development, as well as for expressive communication. For receptive communication purposes (a means to provide information to an individual), tangible symbols can be used prior to the emergence of intentional pre-symbolic communication. Using symbols receptively increases the odds of the communication being understood. It also helps to reinforce the association between the symbol and its referent. This will be an advantage when the communicator is ready to use the symbol expressively.

THERE APPEARS TO BE THREE MAJOR INDICATORS THAT SUGGEST READINESS FOR THE USE OF TANGIBLE SYMBOLS EXPRESSIVELY:

- The individual has intentional behavior that may be used to indicate a symbol. Example behaviors include picking up the symbol and giving it, pointing to the symbol, eye gazing to the symbol or guiding someone's hand to the symbol.

- The individual understands that he can control the behavior of another person through some pre-symbolic means, such as pointing, extending objects, facial expression or vocalizing. Research (Rowland & Schweigert, 2000) shows that individuals that already communicate pre-symbolically will more readily learn to use tangible symbols.

- The individual does not already use abstract symbols to communicate. An individual who can use a higher level of communication efficiently should not be asked to use a lower level of communication unless the environment does not support this level of communication. One word of caution – communicators may need a lower form of communication when new concepts and vocabulary are introduced.

THERE ARE MANY DIFFERENT STRATEGIES FOR IMPLEMENTING ANY TYPE OF COMMUNICATION SYSTEM, AND THE USE OF TANGIBLE SYMBOLS IS NO EXCEPTION. IT IS BEYOND THE SCOPE OF THIS ARTICLE TO ELABORATE ON EVEN ONE, BUT THERE ARE SOME GENERAL PRINCIPLES TO FOLLOW:

- Be consistent: To help ensure consistency, establish a policy regarding how tangible symbols will be used.

- Training is essential: Everyone involved must be trained in order for the use of tangible symbols to be successful.

- Keep it simple: Present only one tangible symbol at a time, and don't try too much too soon.

- Limit "wait" time: If the learner has to wait too long after a tangible symbol is presented for the intended outcome, he will forget about the symbol. This is especially true when using the objects for transitions.

- Be patient: Even with consistent programming, it can take weeks, months or even longer for a learner to make a connection with the objects.

A common question concerning the use of three-dimensional tangible objects is, "Can you use them with other forms of technology?" The answer is, "yes" - although most of us are more familiar with technologies that support the two-dimensional forms of symbols.

Probably the simplest way to add technology to three-dimensional symbols is to attach the symbols to a switch. For example, you could attach the object representing "play" to a toy. Adaptivation's large Pal Pad switch is sized for the Tangible Object Cards. This switch is flat, making it easy to attach the cards. Once the card has been attached to the switch, it can be activated by touching the object, by pulling the card off or by pulling off or attaching the picture card - making it versatile for the motor needs of the learner.

Adaptivation developed the Lex Communicator with the Tangible Objects Cards in mind. The Lex is a single-message communication aid with three levels. It uses natural-voice recorded speech and is pressure sensitive, like the Pal Pads (activated as listed above.) It works great for creating visual schedules, as well as a general communication aid.

The ProxPAD™ by Logan® ProxTalker® is the newest communication device developed for the Tangible Object Cards. The same size and shape of the Lex, it easily accommodates the Tangible Object Cards. It functions using recordable "tags." These tags are attached to the object cards (either on the back or on the front) just like the two-dimensional picture cards available for the Tangible Object Cards. The ProxPAD recorded tags come with SymbolStix pictures printed on them.

Blank recordable tags are available to create unique vocabulary. Messages are recorded using natural voice and are easily changed. The ProxPAD can be activated by touching the tag to the device or, when in its proximity mode, by "waving" the tag over the device.

All of the above mentioned technologies offer fun and functional ways to combine the use of technology and three-dimensional symbols, such as the Tangible Object Cards. They offer a variety of features that can help to meet the motor access needs of the targeted learners who often have multiple issues.

In summary, we can safely say that tangible symbols are key in the development of higher levels of communication. Of the two kinds of tangible symbols (two-dimensional and three-dimensional), it is the three-dimensional symbols that are often forgotten. Give careful thought when choosing symbols for learners, which, for some, can be the bridge to meaningful communication. Keep in mind the communication level of the learner and meet him at that level. We cannot choose the symbols for our learners based on what is most convenient for us or for the technology we want to try. All of us want the best for those we serve, and that could mean starting with something new!

RESOURCES

Adapt This…a picture-book guide for adapting anything! Available at Adaptivation

There are great functional ideas for implementing communication with tangible objects at http://talksense.weebly.com/objects-of-reference.html

For information about Tangible Object Cards, the Lex Communicator, Pal Pad Switches, ProxPAD™ and other devices and products from Adaptivation Inc., please contact Adaptivation Inc, 2225 W. 50th, Suite 100, Sioux Falls, SD, 57105, by phone at 800-723-2783 or through their website at www.adaptivation.com

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Tangible Object Card Vocabulary

CORE
Bathroom
Bed
Brush Teeth
Clean
Comb
Computer
Cook
Dress
Drink
Eat
Game
Listen
Money
Outside
Play
Read
Shop
TV
Wash
Work

School 1
Art
Bus
Music
PE
Snack

School 2
Classroom
Group
OT
PT
Speech

Leisure
Bubbles
Sand
Swim
Swing
Watering

Community
Church
Eat Out
Library
Sports
Theater

Wellness
Dentist
Exercise
Medicine
Nurse/Dr.
Pain

Fast Food
Dessert
Fries
Hamburger
Hotdog
Pizza

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