Augmentative Communication
For Adults With Acquired Disabilities

Celeste R. Helling, M.A., CCC-SLP, ATP
North Carolina Assistive Technology Program
Augmentative Communication For Adults With Acquired Disabilities

Handout Is Available At http://www.ncatp.org/
North Carolina Assistive Technology Program

- State & federally funded program created under the Federal Tech Act.

- NCATP serves: children and adults, older adults experiencing difficulty with daily activities, professionals in disability related fields, and employers/employees in private/public settings.

- Agencies, Schools, and Other Organizations can purchase: technical assistance, assistive technology assessments, training, consultation services, and specialized workshops.
NCATP Provides...

- Services to all 100 counties in NC
- Hands-on demonstrations of assistive technology
- Short-term AT loans
- AT resource information and referral to other programs.
- Awareness activities on AT and overview of services.
- Advocacy
- Funding Resource Information
- Access to previously owned technology on NC Technology Exchange Post (www.pat.org)
Speech to Speech (STS)

- Individuals with a speech disability can use his/her own voice or voice synthesizer over the phone.

- Specially trained operators mediate phone calls and repeat the individual’s responses, when necessary, to ensure that the speech-disabled person will be heard and understood.

- For more information visit: www.relay.com

- 1-877-735-8261 (speech-to-speech)
Session Topic
Managing The Augmentative Communication Needs Of Adults With Acquired Speech / Language Disabilities.

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Thoughts On AAC For Adults..........

Somewhere along the way, we tried to impose AAC assessment and intervention practices for adults with acquired communication disabilities along the lines with pediatric, developmentally based interventions.

- Nature of the disorder
  - developmental vs. acquired
- Cues administered to facilitate competency
- Conflicting principals of learning / recovery
Thoughts On AAC For Adults

- Nature of the disorder: Developmental vs. Acquired
  - Traditional speech/language service focus is on describing the nature and extent of the communication disability, estimating prognosis, developing intervention goals focused on recovery.
    - Acquired disabilities requiring AAC services assumes that the communication disorder is chronic and that natural language is not likely to occur.
    - The focus on the assessment of acquired disabilities shifts to designing an AAC system that will provide for the highest level of generative communication that can be achieved.
    - The focus of intervention for acquired disabilities shifts to maximizing multimodal communication strategies.
Thoughts On AAC For Adults

- Cues administered to facilitate competency.
  - Traditional developmental language interventions begin with vocabulary identification / naming goals. Imitation is a primary cueing strategy.
  - In acquired language disorders, therapy protocols typically begin with convergent and divergent exercises with semantic and phonemic cue strategies.

- Conflicting principals of learning / recovery.
  - Learning language vs. accessing language.
  - Developmental intervention vs. neurolinguistic intervention
Thoughts On AAC For Adults

- We must do a better job of managing the communication needs of individuals with acquired speech and language disorders.

Augmentative and Alternative Communication for Adults with Acquired Neurologic Disorders, Edited by David R. Beukelman, PhD, Kathryn M. Yorkston, PhD and Joe Reichle, PhD, Brookes Publishing Company, 2000
Thoughts On AAC For Adults...........

- We have to develop the insight to look at the assistive technology as a potential tool for maximizing communication abilities.

- There is a very real patient/family expectation that technology will alleviate the disability.
Augmentative and alternative communication (AAC) refers to an area of research, clinical, and educational practice. AAC involves attempts to study and when necessary compensate for temporary or permanent impairments, activity limitations, and participation restrictions of individuals with severe disorders of speech-language production and/or comprehension, including spoken and written modes of communication.

It is the position of the American Speech-Language-Hearing Association (ASHA) that communication is the essence of human life and that all people have the right to communicate to the fullest extent possible. No individuals should be denied this right, irrespective of the type and/or severity of communication, linguistic, social, cognitive, motor, sensory, perceptual, and/or other disability(ies) they may present.
ASHA Position Statement

Provision of AAC services is within the scope of practice of speech-language pathologists (ASHA, 2001). The speech-language pathologist (SLP) who is practicing within the area of AAC shall:

- Recognize and hold paramount the needs and interests of individuals who may benefit from AAC and assist them to communicate in ways they desire.
- Implement a multimodal approach to enhance effective communication that is culturally and linguistically appropriate.
- Acquire and maintain the knowledge and skills (ASHA, 2002) that are necessary to provide quality professional services.
- Integrate perspectives, knowledge and skills of team members, especially those individuals who have AAC needs, their families, and significant others in developing functional and meaningful goals and objectives.
- Assess, intervene, and evaluate progress and outcomes associated with AAC interventions using principles of evidence-based practice.
- Facilitate individuals' uses of AAC to promote and maintain their quality of life.
- Advocate with and for individuals who can or already do benefit from AAC, their families, and significant others to address communication needs and ensuring rights to full communication access.

ASHA Communication Bill of Rights

1. The right to request desired objects, actions, events, and persons, and to express personal preferences, or feelings.
2. The right to be offered choices end alternatives.
3. The right to reject or refuse undesired objects, events, or actions, including the right to decline or reject all proffered choices.
4. The right to request, and be given, attention from and interaction with another person.
5. The right to request feedback or information about state, an object, a person, or an event of interest.
6. The right to active treatment and intervention efforts to enable people with severe disabilities to communicate messages in whatever modes and as effectively and efficiently as their specific abilities will allow.
7. The right to have communication acts acknowledged and responded to, even when the intent of these acts cannot be fulfilled by the responder.
8. The right to have access at all times to any needed augmentative and alternative communication devices and other assistive devices, and to have those devices in good working order.
9. The right to environmental contexts, interactions, and opportunities that expect and encourage persons with disabilities to participate as full communication partners with other people, including peers.
10. The right to be informed about the people, things, and events in one's immediate environment.
11. The right to be communicated with in a manner that recognizes and acknowledges the inherent dignity of the person being addressed, including the right to be part of communication exchanges about individuals that are conducted in his or her presence.
12. The right to be communicated with in ways that are meaningful, understandable, and culturally and linguistically appropriate.

Guidelines for Meeting the Communication Needs of Persons With Severe Disabilities.
Evidence Based Practice

- “Evidence-based practice (EBP) is a perspective on clinical decision-making that originated in evidence based medicine, and has been defined as “... the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients ... [by] integrating individual clinical expertise with the best available external clinical evidence from systematic research” (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996, p. 71). Recent discussions of EBP (e.g., Guyatt et al., 2000; Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000) have emphasized the need to integrate patient values and preferences along with best current research evidence and clinical expertise in making clinical decisions”.

EBP Requires Three Types of Information

1. Knowledge about best practices
2. Knowledge about the client
3. Knowledge about devices, technology and systems
   - Gathering information about technology and remaining current
   - Feature Matching
Types of Communication Interaction

1. Expression of wants and needs
   • Goal is to obtain something
   • Most AAC devices are initially designed with needs/wants vocabulary

2. Information Transfer
   • Share information with others
   • Goal is to communicate in detail on a wide variety of topics

3. Social Closeness
   • Develop or maintain a relationship through communication
   • Extremely important to most AAC users
   • Feeling of connectedness to social interactions is felt to be more important than content, speed, and accuracy of message.

4. Social Etiquette
   • Politeness
   • Reflection of Personality

Four Areas of Communication Competence

- **Linguistic**
  - Receptive and expressive language skills as well as the ability to use the symbols of a communication system to create messages with complex meanings.

- **Operational**
  - Technical Skills to operate AAC systems
  - Includes the symbol system and hardware

- **Social**
  - Skills in the social rules of interaction
  - Knowledge and judgment needed to initiate, maintain, and terminate interactions.

- **Strategic**
  - Compensatory strategies that AAC users require to overcome communication breakdowns

Impact of Acquired Disability

- Research has identified five broad roles that adults associate themselves with:
  - Student
  - Worker
  - Citizen
  - Homemaker/Family Member
  - Leisurite

Augmentative and Alternative Communication for Adults with Acquired Neurologic Disorders, Edited by David R. Beukelman, PhD, Kathryn M. Yorkston, PhD and Joe Reichle, PhD, Brookes Publishing Company, 2000
Impact of Acquired Disability

- Speech/language disability results in devastating disruption of the life roles that people have identified themselves with.

- It’s not uncommon for persons with speech/language disabilities to hold on to the same levels of commitment to life roles prior to their disability despite a reduction in their functional capabilities.

- This discrepancy between role performance and role commitment may lead to the personal dissonance that is experienced by many individuals with disabilities. (Brintnell et al 1996).

- Successful AAC outcomes require careful consideration of the social roles that persons with communication disability identify themselves with.

- Consideration of social roles translates to client/patient values and motivation.

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Influence Of Motivation On AAC Use

- The strongest desire to communicate is based on intrinsic motivation. (Deci & Ryan, 1985)

- Individuals engage in activities in which they perceive themselves as competent and that promote their self-esteem & self-satisfaction. (Bandura, 1986)

- AAC intervention must be tailored to intrinsic motivation (i.e. social roles) and achievable goals that result in feelings of communicative competence.

Adapted From: Augmentative and Alternative Communication for Adults with Acquired Neurologic Disorders, Edited by David R. Beukelman, PhD, Kathryn M. Yorkston, PhD and Joe Reichle, PhD, Brookes Publishing Company, 2000
### Common Diagnoses And Functional Needs And SGD Implications For Impairments Necessitating A Speech Generating Device (SGD)

<table>
<thead>
<tr>
<th>Diagnosis and ICD9-Code</th>
<th>Common Medical Diagnoses</th>
<th>Functional Needs and SGD Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dysarthria ICD-9 784.5</td>
<td>Amyotrophic Lateral Sclerosis, Multiple Sclerosis, Guillain-Barre Syndrome, Parkinson’s Disease, Wilson’s Disease, Progressive Supranuclear Palsy, Huntington’s Disease, Myasthenia Gravis, Friedreich’s Ataxia, Stroke (CVA), Traumatic Brain Injury, Cerebral Palsy, Moebius Syndrome, Encephalitis</td>
<td>Intelligible speech output</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intelligibility decline with progressive diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disease may or may not induce cognitive decline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disease may or may not induce sensory loss</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telephone, email, SMS, computer access tend to be very important</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communicate complex language intelligibly in multiple settings with a variety of partners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Determined based on needs and abilities</td>
</tr>
</tbody>
</table>

### Common Diagnoses And Functional Needs And SGD Implications For Impairments Necessitating A Speech Generating Device (SGD)

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</tr>
</thead>
<tbody>
<tr>
<td>Apraxia ICD-9 784.69</td>
<td>Stroke, Traumatic Brain Injury, Parkinson’s Disease,</td>
<td>Support language generation in the presence of other expressive problems</td>
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<tr>
<td></td>
<td></td>
<td>Communicate with care provider and family</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communicate medical and physical needs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Device features: Word &amp; grammatical prediction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Core vocabulary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clear display</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scaffold for language</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telephone, email, SMS, computer access may or may not be very important</td>
</tr>
</tbody>
</table>

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</thead>
<tbody>
<tr>
<td>Aphonia ICD9 784.41</td>
<td>Locked-In Syndrome,</td>
<td>Functional communication</td>
</tr>
<tr>
<td></td>
<td>Traumatic Brain Injury,</td>
<td>to meet basic medical and physical</td>
</tr>
<tr>
<td></td>
<td>Ventilator Dependent,</td>
<td>needs</td>
</tr>
<tr>
<td></td>
<td>Laryngectomy, Myasthenia</td>
<td>Quantity of communication</td>
</tr>
<tr>
<td></td>
<td>Graves, Parkinson’s</td>
<td>typically tied to health status</td>
</tr>
<tr>
<td></td>
<td>Disease, Multiple</td>
<td>Specific to medical facility</td>
</tr>
<tr>
<td></td>
<td>Sclerosis, Neurogenic</td>
<td>and/or medical needs</td>
</tr>
<tr>
<td></td>
<td>Voice Disorder, Spastic</td>
<td>Telephone, email, SMS, computer</td>
</tr>
<tr>
<td></td>
<td>Dysphonia, Amyotrophic</td>
<td>access may or may not be very important</td>
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<tr>
<td></td>
<td>Lateral Sclerosis</td>
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</tbody>
</table>
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<th>Functional Needs and SGD Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aphasia ICD-9 784.3</td>
<td>Stroke, Traumatic Brain Injury, CNS Infection Or Disease</td>
<td>Support language disability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skilled communication partners critical to successful outcomes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communicate functional needs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Requesting very important</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engage in family and social exchanges tend to be highly important</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communicate with medical professionals and care providers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telephone / Internet may or may not be Important</td>
</tr>
</tbody>
</table>

**Stages in AAC Intervention**

- **What is staging?**
  - The sequencing of management so that current problems are addressed and future problems anticipated.

- **Helps to minimize clinical errors in AAC**
  - Failing to deal with current communication disorders because intervention is focused on future recovery.
    - Frustrating interval between onset of the communication disability and recovery.
  - Failure to provide AAC when recovery does not occur.
  - Primary focus on current communication disability and ignore future needs or problems.

*Augmentative and Alternative Communication for Adults with Acquired Neurologic Disorders, Edited by David R. Beukelman, PhD, Kathryn M. Yorkston, PhD and Joe Reichle, PhD, Brookes Publishing Company, 2000*
Stages of Communication Intervention In Degenerative Disease

- Stage 1: No Detectable Speech Disorder
  - Language modalities may not be initially affected.
  - Intervention focused on confirming communication is not affected and counseling on possible impact of the disease on speech and language.

- Stage 2: Obvious Speech Disorder with Intelligible Speech, Writing and Functional Reading
  - Communication disorder does not extensively interfere with speech, language, reading or writing.
  - Intervention focuses on compensatory strategies.

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Stages of Communication Intervention In Degenerative Disease

❖ Stage 3: Reduction In Speech Intelligibility
  ▪ Speaker is no longer understood.
  ▪ Intervention continues to focus on optimizing intelligibility and compensatory strategies.
  ▪ Strategies to repair communication breakdown.
    • Provide contextual information
    • Monitoring partner feedback
    • Reduce complexity of speech

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Stage 4: Natural Speech Supplemented With Augmentative Communication

- Speech, language, reading and writing are no longer effective to meet individual’s communication needs.
- Continues to speak with transition to AAC management.
  - Topic boards
  - Alphabet boards to cue first letter of word
  - Word boards
Stages of Communication Intervention In Degenerative Disease

줘 Stage 5: No Useful Speech

- No functional communication.
- AAC support can range from low tech to integrated multifunction systems.
  - Augmentative Communication
  - Computer AND Internet Access
  - Telecommunication Access / Usage
  - Environmental Control

Augmentative and Alternative Communication for Adults with Acquired Neurologic Disorders, Edited by David R. Beukelman, PhD, Kathryn M. Yorkston, PhD and Joe Reichle, PhD, Brookes Publishing Company, 2000
Stages of Communication Intervention In Stable Or Recovering Disorders

- Stage 1: No Useful Speech
- Stage 2: Natural Speech Supplemented With Augmentative Communication
- Stage 3: Reduction In Speech Intelligibility
- Stage 4: Obvious Speech Disorder with Intelligible Speech, Writing and Functional Reading
- Stage 5: No Detectable Speech Disorder
Stages of Communication Intervention In Stable Or Recovering Disorders

- Similar to stages of communication intervention in degenerative disease except the order is reversed.
- It is not uncommon for AAC to be needed for several years to support recovering communication skills.
- Intervention combines AAC techniques and recovery of premorbid speech and language modalities to the maximum extent possible.

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Traditional AAC Assessment Components

- Present Means of Communication.

- Sensory/Perceptual: Goal is to determine size, type, placement of symbols and identify language input and output options.

- Linguistic: Goal is to identify AAC techniques & strategies & select types of symbols.

- Access: Goal is to identify optimal seating & positioning and motor technique for access.

Diversity of Disability

- No physical involvement to very complex seating, positioning and access needs.
- Severe cognitive deficits to average or above average IQ / cognitive-communication skills.
- May or may not have vision and / or hearing impairments.
- May or may not have difficulty with sensory processing impairments.

Assessing the Individual

- Lack of formalized and standardized AAC assessment tools.
- Must adapt and modify existing instruments.
- Must search for and find additional protocols, tools and techniques.
- Must have expertise to interpret informal/non-standardized assessment.
- Absence of formal tests often results in unorganized and incomplete recording of what was tested, how it was tested and exact results.
- Programming is an essential form of ongoing assessment.
- Regardless of the type of assessment used, thorough documentation is necessary to communicate results across people and time.

Feature Matching

- Systematic method of matching an individual’s need for AAC technology to his/her capabilities and preferences.
  - Physical Considerations
  - Sensory Considerations
  - Cognitive Considerations
  - Other Considerations

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Physical Considerations

- SGD Access
  - Direct selection
    - Manual & head pointing
  - Switch access
    - Switch access site
    - Single switch vs. switch array
    - Scanning pattern
    - Scanning feedback
  - Eye gaze access
- Wheelchair / Switch Mount
- Walker Attachment
- SGD Weight Considerations For Ambulatory User
AAC Access Hierarchy

- Direct Selection
  - Keyboard / Touch Screen
  - Mouse Input Technology
  - Mouse & Switch Technology
  - HeadPointing – Low & High Tech Options
  - Eye Gaze – Low & High Tech Options

- Indirect Access
  - Dual / Multiple Switch Scanning
  - Single Switch Scanning

- Partner Assisted Scanning
Hierarchical Switch Access Sites

- Hands
- Head/voice
- Arms/elbow
- Legs/knees
- Feet

Two or more input methods may use multiple sites for access.
Feature Matching

Sensory Considerations
- Display size
- Magnification of icons, text
- Auditory scanning
- Tactile symbols
- Braille symbols
- Visual output
Feature Matching

- Cognitive Considerations
  - Literacy level
  - Symbol recognition
  - Executive functions
  - Memory impairment
  - Language impairment
Feature Matching

Other Considerations
- Consumer preferences
- SGD battery capacity
- Family / peer / support
- Educational support
- Vocational support
- Skill of communication partners
- Motivation to communicate
- Will the SGD meet current and future needs?
### SGD Classification

<table>
<thead>
<tr>
<th>Speech Generating Device</th>
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<th>Speech Generating Device</th>
<th>Speech Generating Device</th>
<th>Speech Generating Device</th>
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<tbody>
<tr>
<td>Code</td>
<td>E2500 (formerly K0541)</td>
<td>E2502 (formerly K0615)</td>
<td>E2504 (formerly K0616)</td>
<td>E2506 (formerly K0617)</td>
<td>E2508 (formerly K0543)</td>
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<tr>
<td>Speech Output</td>
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<td>Digitized</td>
<td>Digitized</td>
<td>Digitized</td>
<td>Synthesized</td>
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<td>Message Type</td>
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<td>Prerecorded Messages</td>
<td>Prerecorded Messages</td>
<td>Prerecorded Messages</td>
<td>Message Formulation</td>
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<tr>
<td>Recording Type</td>
<td>Less than or equal to 8 minutes</td>
<td>Greater than 8 minutes but less than or equal to 20 minutes</td>
<td>Greater than 20 minutes but less than or equal to 40 minutes</td>
<td>Greater than 40 minutes</td>
<td>N/A</td>
</tr>
<tr>
<td>Access Method</td>
<td>Multiple access methods</td>
<td>Multiple access methods</td>
<td>Multiple access methods</td>
<td>Multiple access methods</td>
<td>Direct Physical contact with SGD</td>
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<tr>
<td>Message Formulation Technique</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Spelling</td>
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<tr>
<td>Fee Schedule Amount</td>
<td>$ 410.61</td>
<td>$1,255.59</td>
<td>$1,656.29</td>
<td>$2,428.61</td>
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<th>Mounting System</th>
<th>Accessory</th>
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<tr>
<td>Code</td>
<td>E2599 (formerly K0547)(individually priced)</td>
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### SGD Classification: Code E2500

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<th>Speech Output</th>
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<th>Access Method</th>
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<tr>
<td>Digitized</td>
<td>Prerecorded Messages</td>
<td>Less than or equal to 8 minutes</td>
<td>Multiple access methods</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- **BIGmack communicator**
- **Lingo**
- **Partner Plus Four**
- **iTalk2**
- **Step-by-Step communicator**
- **Tech/Talk**
### SGD Classification: Code E2502

<table>
<thead>
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<th>Speech Output</th>
<th>Message Type</th>
<th>Recording Type</th>
<th>Access Method</th>
<th>Message Formulation Technique</th>
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</thead>
<tbody>
<tr>
<td>Digitized</td>
<td>Prerecorded Messages</td>
<td>Greater than 8 minutes but less than or equal to 20 minutes</td>
<td>Multiple access methods</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**SuperTalker progressive communicator**

**FL4SH Scanning Communicator**

**Tech/Speak**

**MessageMate 40/600**
### SGD Classification: Code E2504

<table>
<thead>
<tr>
<th>Speech Output</th>
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<th>Access Method</th>
<th>Message Formulation Technique</th>
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</thead>
<tbody>
<tr>
<td>Digitized</td>
<td>Prerecorded Messages</td>
<td>Greater than 20 minutes but less than or equal to 40 minutes</td>
<td>Multiple access methods</td>
<td>N/A</td>
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**Phrase Maker Communicator**

**Smart/128**
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<th>Speech Output</th>
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<th>Recording Type</th>
<th>Access Method</th>
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<td>Digitized</td>
<td>Prerecorded Messages</td>
<td>Greater than 40 minutes</td>
<td>Multiple access methods</td>
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SpringBoard Lite
### SGD Classification: Code E2508

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<th>Message Type</th>
<th>Recording Type</th>
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<th>Message Formulation Technique</th>
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<tbody>
<tr>
<td>Synthesized</td>
<td>Message Formulation</td>
<td>N/A</td>
<td>Direct Physical contact with SGD</td>
<td>Spelling</td>
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**TextSpeak**

**Lightwriter SL40**
### SGD Classification: Code E2510

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<th>Speech Output</th>
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<th>Recording Type</th>
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<tbody>
<tr>
<td>Synthesized</td>
<td>Message Formulation</td>
<td>N/A</td>
<td>Multiple access methods</td>
<td>Spelling and other methods</td>
</tr>
</tbody>
</table>

**V & Vmax**

**Vantage Lite**

**Tobii C8 & C12**

**ECO2**
## SGD Classification: Code E2511

<table>
<thead>
<tr>
<th>Speech Output</th>
<th>Message Type</th>
<th>Recording Type</th>
<th>Access Method</th>
<th>Message Formulation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthesized</td>
<td>Message Formulation</td>
<td>N/A</td>
<td>Program for personal computer or PDA</td>
<td>Spelling and other methods</td>
</tr>
</tbody>
</table>

**Boardmaker with Speaking Dynamically Pro**

**Tobii Communicator**
<table>
<thead>
<tr>
<th>Mounting System</th>
<th>Accessory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal Switch Mount</td>
<td>Switches</td>
</tr>
<tr>
<td>Profiler Mounting System</td>
<td>Eye Gaze Accessory</td>
</tr>
</tbody>
</table>
Class Activities

- Hands On With SGD’s
- Class Activity