Gateway for Snap

USER MANUAL

Teen/Adult Functional Page Set
USER MANUAL

Joan Bruno, Ph.D. CCC-SLP

# Gateway© Teen/Adult Functional Page Set

Overview

The Teen/Adult Functional Page Set was designed for individuals with limitations in receptive and expressive language performance who generate multi-word messages but have difficulty using correct word order and/or adding word endings to verbs and nouns etc. These page sets offer limited support for use of auxiliaries, articles, prepositions, conjunctions and word endings within this Page Set. Theme pages help to promote communication across a range of leisure and community-based activities. The Teen/Adult Functional Page Set is a logical next step for children using the Child Functional Page Set who may be involved in more community-based activities.

Each grid size within this level (e.g., 3*3, 4*5, 9*11) includes high frequency core words and fringe vocabulary focusing on basic and sensory needs. It also includes vocabulary that can be used in school, a supported vocational setting and within the community. Pages can easily be customized if the selected vocabulary does not match the user's needs, interests and/or abilities. A *My Things* folder is available on all but the 3*3 grid size. This is an open page that provides the user easy access to his or preferred items. Accompanying theme pages can be used within the home and school environments to support educational goals and pragmatic language development activities.

There are seven (7) grid sizes within the Teen/Adult Functional Page Set ranging from simplex to complex arrangements. Samples of the 4*5 and 9*11 are pictured to the right. Each grid size offers a HOME Core and a School/Community Core that share the same high frequency core words but offer fringe vocabulary optimally suited to the respective communicative environment. The Teen/Adult Functional Page Set includes the grid formats listed below

    3*3 (9 vocabulary buttons);
    4*5 (20 vocabulary buttons);
    5*6 (30 vocabulary buttons);
    5*8 (40 vocabulary buttons);
    6*10 (60 vocabulary buttons);
    8*10 (80 vocabulary buttons);
    9*11 (99 vocabulary buttons);

The 9, 20, 30 and 40 button grid sizes can be selected by those who prefer to start the user with a small core vocabulary and systematically move them to more advanced level. Alternatively, 60 – 99 button grids can be used by those who seek a large static core from which a user can rehearse consistent motor patterns
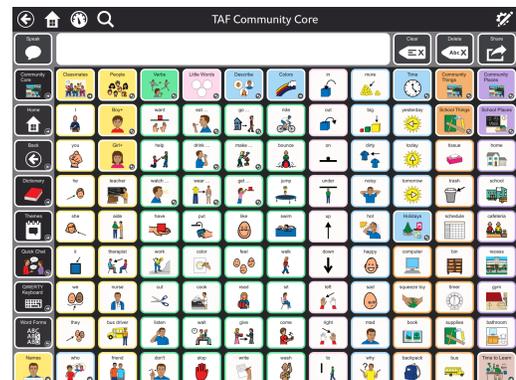
to become proficient in their use within a functional context. If selecting this approach, buttons can be hidden to initially create a simplified symbol array. New vocabulary can be revealed based upon the user's needs and progress.

Vocabulary Organization and Features

- Toolbar
- HOME and COMMUNITY CORE
- Fitzgerald Key Arrangement
- Sentence Development Strips
- Theme Pages

Toolbar

All grid sizes within the Teen/Adult Functional Page Set have a *Toolbar* positioned on the left side of the grid. The items contained in the toolbar have black ground with a white border black and white font so they can easily be differentiated from the core vocabulary. Using the *editing feature* of Snap, these buttons can be hidden or replaced with other function keys if they are deemed inappropriate for the user.

The contents of the Toolbar varies with the grid size. All grid sizes minimally contain a *Themes* and the *Clear* function.   As the grid size becomes more complex and more buttons are available, additional folders and functions are added. These may include *a Community, Quick Chat, Dictionary,* Keyboard and customizable *Names* folder.

The Dictionary icon links to folders that are not represented on the HOME page. They enable a user to more efficiently access a content word without needing to navigate through many pages. The number of folders in the dictionary varies with the number of buttons in the arrangement.

A Keyboard folder is available for grid sizes 5*6 and higher. This provides access to letters, numbers, punctuation and word prediction. The Word Forms function is available for users who may be creating or learning to create syntactically correct sentences.

HOME AND COMMUNITY CORE

Each HOME page contains a set of research-based high frequently core words accessed with a single key selection and folders linking to word categories such as PEOPLE, VERBS, DESCRIBE, THINGS, PLACES, and other categories such as EVENTS, HYGIENE, etc. The grid size impacts the number of grammatical folders that are linked to the Home page. Users may configure the Snap settings to activate its grammar function to access a range of morphological endings.

Each grid size also contains a COMMUNITY Core that can be accessed from

the Toolbar. The COMMUNITY Core replicates the contents of the HOME page for prime core vocabulary and sensory-based needs and actions. The fringe vocabulary changes to reflect words or topics needed for use within the school setting. It also contains two folders one for Community THINGS and one for Community PLACES. The users have simplified access to school and community vocabulary while maintaining access to the high frequency core vocabulary of Gateway's HOME page.

Knowing that many potential users of this Page Set often request foods, sensory objects, and common actions, these words have been included as space permitted throughout the various grid sizes on both the Home page and the School Core. Below are examples of the HOME and COMMUNITY Core for the 9*11 arrangement.
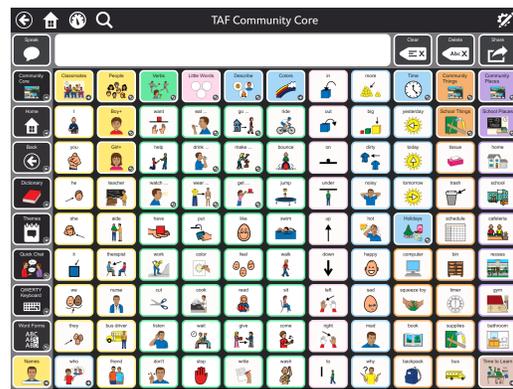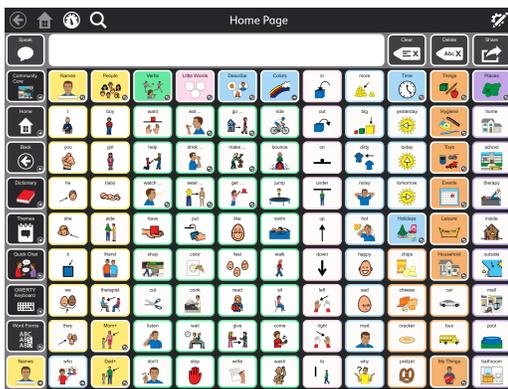
Fitzgerald Key Arrangement

Each word and word category are color-coded according to the Fitzgerald Key format. As seen in the images above, People are colored in yellow; Verbs – green; Little Words – pink, Descriptive Words – blue; Things – orange and Places – purple. Folders are solid colored and buttons have a colored border. This color-coding is consistent throughout all of the Gateway pages and helps ease the transition for a Teen/Adult moving from one grid size or Page Set to a more complex grid format. Within the Fitzgerald Key, "Little Words" are defined as prepositions, articles and conjunctions and "Descriptive Words" includes adjective, adverbs, and time words.

Sentence Development Link

All vocabulary grid sizes within the Teen/Adult Functional Page Set include a Gateway© feature referred to as *Sentence Development Links* for the words, eat, drink, go, make, watch and wear. The purpose of these links is to help users form multi-word sentences and to expand their core vocabulary.

Sentence Development Links are used to provide a simplified approach to facilitate sentence formation. They are designated on the Home page using an ellipsis (i.e., …). Selecting a *verb* results in automatically opening a page of associated objects or "Things" that can be used to complete a message. For example, after selecting "eat…", a page with common foods is automatically opened.

Semantic Power Strips

Some grid sizes (e.g. 5*8; 8*10, etc.) use a Gateway© feature referred to as a *Semantic Power Strip.* *Semantic Power Strips* are sets of paradigmatically associated words, that enable a user to access related vocabulary without scrolling through pages or popup screens. They are represented by a "solid colored button with a +" following a word. *Semantic Power Strips* are used for words such as *Dad+*, *Mom+*, and for some *verbs*. For example, selecting "*girl+*" will open a semantic power strip containing – girl, mom, grandma, aunt, sister, etc. The number of related words varies with the grid size. That is, a 5*8 power strip may have fewer vocabulary options presented than an 8*10 power strip, as there are few buttons on the page.

Themes

All of the Teen/Adult Functional grid sizes include a set of *Theme* pages to support pragmatic language development and functional device use within educational, leisure and community-based activities.

The *Themes* folder for this arrangement links to 6 *topical pages including: About You & Me, Comments, Questions, Time to Learn, Time to Relax,* and *Time in Town*. The *About Me & You page* must be personalized for the user . It provides a means for a user to provide basic information about him or herself. The *Questions* folder provides general questions and should be customized to enable the user to ask relevant questions on an on-going basis. The *Comments, Social and Sentence Starters* can help a develop pragmatic skills as it facilitates language use in a variety of communicative contexts

In general, the *Time to Learn* folder provides monthly theme pages and blank pages that can be customized for each subject used in the school environment. Several of these subject folders link to the SCHOOL Core so the topical vocabulary can also be used when an individual may be required to respond using more than a single word response. Depending upon the grid size, the *Time to Learn* link may provide access to the Common Core, Circle, Morning Meeting, as well as folders to support traditional academic subjects.

The *Time in Town* folder has pages that can be used within the community. Each of these requires some customization so they are meaningful for use within functional activities. Pages include topics such as: *At the Mall, McDonald's, Ice Cream, Vacation, Amusement Park* and *in the Park*. The *Scouts and Religion* pages are open for customization and there are an additional blank pages to support the personal

activities of the user.

The Time to Relax folder contains activity folders and several blank pages. Depending on the grid size, it may contain a include activities such as *Play Cards, Baking* and a *Phone Call*. The *Time in Town* tab has pages that can be used within the community. Each of these requires some customization so they are meaningful for use within functional activities. Pages include topics such as: *At the Mall, McDonald's, Ice Cream, Vacation, Amusement Park* and *in the Park*. The *Scouts and Religion* pages are open for customization and there are an additional blank pages to support the personal activities of the user.

Why Gateway©

- Ease of Learning
- Organization and Contents Supports A Range of Intervention Approaches
- Vocabulary Placement Supports Learning through Motor Planning Principles
- Efficient Organization Results in Minimal Keystrokes Per Word

Ease of Learning

Teens and adults with a wide range of disabilities can demonstrate language, communication, social, and cognitive impairments. These individuals often learn better through the use of visual aids, imitation and structured environments that accommodate their cognitive-language abilities. The visual aids combined with demonstrations of different activities can help a user demonstrate functional language performance.

Gateway is easy to use. The cognitive demands associated with learning symbol meanings are minimized by the use of single-meaning icons and/or written words to represent vocabulary. For nouns and many other word classes, the selected symbols provide a transparent or intuitive means of representing vocabulary. Symbols for verbs, adjectives and adverbs are less transparent and may require instruction to be understood by an individual who either is young or demonstrates perceptual and/or cognitive limitations.

Organization and Contents Supports A Range of Intervention Approaches

There are a wide range of intervention approaches used to teach communication skills to teens and adults with expressive language impairments. Some of these approaches include PECS, ABA, and LAMP name a few. The Teen/Adult Functional Vocabulary of Gateway has been organized to accommodate many of these approaches. Individuals who are transitioning from PECS to a voice output device could easily transition to Gateway. The Sentence Development Strips offer beginning users a simple way to make requests without requiring extensive navigation. Use of the "My

Things" page can enable users to select preferred items from a consistent location. Use of the Fitzgerald Key presents a categorical approach to locating needed items.

Individuals who are communicating beyond requesting can benefit from a the high frequency HOME and School core pages. They can also benefit from the activity based pages for School, Leisure and Community as a tool for integrating device use into functional setting and working to improve their pragmatic performance.

Vocabulary Placement Supports Learning through Motor Planning Principles

Individuals learning to communicate through the LAMP (Language Acquisition through Motor Planning) approach can find the Gateway 8*10 through 9 * 1 grid sizes of benefit. These arrangements not only offer high frequency core words, but high frequency fringe vocabulary is also included. This can help to increase the specificity of a users output. The Home Page and School Core include many words needed for routine everyday conversation.

How was the Vocabulary Selected?

- Frequency of Use
- Syntactical Development
- Promote Language During Leisure Activities
- Educational Goals

Frequency of Use

The vocabulary selected for use within each of the Gateway© Page Sets are based upon research and by analyzing the vocabulary used in a number of programs for students with ASD. All Gateway© page sets contain a "core" of words such as eat, drink, go, want, and have. No matter what phase an individual is within their language development, these words are a part of one's core vocabulary.

Some words may be important at one phase of an individual's life and not at another. For example, bubbles are important to young children. A razor may be important to an adolescent or adult. The Teen/Adult Functional Level was designed to meet the needs and interests of teens and adults with developmental disabilities.

Syntactical Development

It is recognized that many of the users of the Teen/Adult Functional Page Set are not at an advanced level of syntactic development nor for many users, it would not even be an goal.   However, for those users who do have goals for syntactical development, the Teen/Adult Functional Page Set could support many of their goals. To achieve this, Snap Grammar Support would need to be turned on.

Promote Language During Leisure Activities

Individuals learn and develop language when they have opportunities to communicate in meaningful and functional activities. Social vocabulary and topic pages have been designed to facilitate device use during recreational activities. Pages have been designed for typical leisure activities like cards and Bingo. This vocabulary can be located by selecting the *Themes* folder.

Educational Goals

It is expected that some of the individuals who use the Teen/Adult Functional Level of Gateway© are school-aged and/or perhaps attending a vocational program. To enhance participation, all grid sizes within this level of Gateway contain requisite vocabulary for a range of functional activities and to allow spontaneous message generation about everyday events.

Customization - Domains to Customize

- Understanding Functions and Features of Snap
- Understanding Gateway's Features
- Personal Information, Needs and Interests
- Educational and Social Information

Understanding Functions and Features of Snap

Gateway was designed using the Snap App. In many respects it is comparable to separate user within Snap. Personalization or customization of Gateway© requires that the person assigned with this responsibility demonstrates a basic level of competency with Snap editing and operational functions. That is, a person needs to know how to edit a button. Minimally editing a button can involve changing the label, the symbol, or the text to be spoken.

Tobi Dynavox has extensive resources to support users of Snap. These resources are on their website and within the App under SYSTEM - > HELP and TUTORIALS.

Gateway's Functions and Feature

The Gateway Vocabulary features include *Sentence Development Links* and the *Semantic Power Strips,* The Sentence Development links are explained above and these do not require any special considerations when customizing.

Gateway uses Semantic Power Strips as a tool to provide the user access to semantically related words. After selecting a word from the semantic power strip, the popup automatically closes. This is done as a keystroke saving minimizing the need for a user to close the page after each word.

Within this page set there are no other special considerations that need to be addressed when customizing the Gateway pages.

Personal Information, Needs and Interests

To customize Gateway for Snap the facilitator needs to consider both the personal information and the needs and interests of the user. Changes considered appropriate need to be made within Gateway. The process of customizing Gateway requires knowledge of the vocabulary within Gateway, the color-coding system used within Gateway, and the fundamental categorization of the vocabulary.

Often teens and adults with severe expressive language impairments are challenged when then need to provide basic information about themselves including

their name, address, parent's phone number. They also lack the skills to share personal information about themselves and to engage a communication partner in a similar conversation. The *About Me & You* page offers individuals a way to address this need.

Unless Gateway's vocabulary matches the needs, wants, interests and "personality" of the user, it is unlikely that the user will maximize use of the program. Another important step in customizing Gateway is to add and/or change key vocabulary items and expressions. For example, the *Foods* page contains an assortment of foods and beverages considered representative of the typical foods people eat. This may or may not match the preferences of the individual using Gateway. Changes should be made to this page as needed to allow the user to communicate effectively. Family and user input should be considered in determining what changes, if any, are needed. Other pages such as Things and Places will also require the same type of consideration in evaluating the "appropriateness" of the vocabulary provided.

Educational and Social Information

In order to help an individual meet his or her educational goals, it is imperative that the user be able to express the vocabulary targeted for the range of spoken and written educational tasks associated with relevant core curriculum competencies. While it is recognized that Gateway does not contain all of the educational vocabulary needed, it is believed that Gateway does create a framework to enable users to meet many educational competencies. Individuals working with a Gateway user (i.e., the teachers, therapist, aides) must take an active role in adding appropriate vocabulary to this program as needed. This requires that these individuals become familiar with the contents of Gateway. It also requires that they know what vocabulary is needed to complete daily lessons. Vocabulary that is needed, and that is *not* currently stored within the Gateway vocabulary, should be added if and when determined necessary by the user's team.

Implementation

- Where Do We Begin?
- Teaching Language Through Use of the Single Word Vocabulary:
- Role and Responsibilities of Service Providers
- Evaluating the AAC User's Abilities
- Learning to Communicate with Gateway
  - Aided Language Stimulation as in Intervention Strategy
  - Expansion as in Intervention Strategy
  - Teaching Vocabulary Contents and Location.
  - Highlight the Organizational Structure.
  - Reading
  - Learning Gateway Through Traditional Language Intervention.
  - Communicating Through the Academic Pages
  - Using the Recreational Pages

Where Do We Begin?

The specific approach used to implement Gateway will vary with the needs and language abilities of the user. Gateway should be introduced to the user in a variety of functional contexts. Successful implementation requires a commitment on the part of the individuals working with the user (i.e., the facilitator, teacher, SLP) to become familiar with Gateway's vocabulary contents and the location of these words. It also requires a commitment to customize the program to match the needs, interests and abilities of the user.

Teaching Language Through Use of the Single Word Vocabulary:

Each Gateway grid size contains a core of high frequency words and fringe vocabulary. Learning the contents and location of this core vocabulary is a first step in helping someone to become a competent communicator. Variables such as cognitive/language abilities, behavior, attention, motivation and frequency of use of Gateway will all impact a user's ability to gain proficiency using Gateway to communicate. The key to helping a user become a successful communicator when using Gateway is to provide effective and appropriate language intervention. That is, if an individual is communicating using single words, he may benefit from guided intervention to systematically learn to combine words to form more complex messages. The environment needs to be engineered to promote device use and strategically target various language forms.

Teaching language to an AAC user is not radically different from teaching language to a someone who speaks but has an expressive language disorder. The major difference is that for an AAC user, the medium for expression is an AAC device as opposed to speech. This being the case, (1) the therapist must be knowledgeable of the vocabulary contents and location of words contained in the system, (2) the user must learn the contents and location of available vocabulary, and (3) words targeted for intervention activities or routine daily activities must be available within the communication device or the AAC user cannot express them.

With that in mind, the procedure for teaching language to an AAC user requires that the therapist: (a) evaluate the user's abilities; (b) define appropriate long and short term language intervention goals and (c) establish effective intervention activities to enable the AAC user to achieve the goals.

Therapist's Role and Responsibilities of Service Providers

Prior to initiating intervention, the those working with the user must first become familiar with program's vocabulary. They must know what words are included in the Gateway Vocabulary and how to access these words. Unless they are competent in communicating with this vocabulary set, they can neither develop appropriate training activities nor serve as a model in demonstrating or expanding the user's utterances.

Modeling, or aided language stimulation (ALS), is an appropriate and effective language intervention technique that one can use when working with an AAC user. This technique can be used to teach the Gateway core word vocabulary. Using this technique, a communication partner interacts with the AAC user using the user's AAC

system. Use of aided language stimulation requires the partner to know the contents and location of the Gateway Vocabulary. The partner can model a simple sentence (e.g., I like candy.) or follow the statement with a question (e.g., I went to grandma's yesterday. Where did you go?).

Learning the vocabulary of each grid size can be best accomplished by personally using the device to create sentences. If your student is going to be using the 4*6 or 6*11 arrangement, try reading a simple children's book using. This functional activity helps the service provider develop a working knowledge of the program's vocabulary. Books at this level contain words across all grammatical categories. The activity will teach the service provider how to navigate the system using words and word endings. It will create an awareness of what words are *not* stored in the vocabulary set and may need to be added.

Evaluating the AAC User's Abilities

While one may have a sense of a user's abilities and limitations, it is often helpful to formally assess a user's skills to set appropriate goals and to measure or document progress. This is often a challenge for individuals who often challenged by structured tasks. Two of the most important areas to assess, however, are field size and symbol number. It is in the best interest of the user that the selected grid size have as many symbols that the he or she can handle. The more symbols on a grid, the less need to navigate to other pages and the more spontaneous communication may occur. For individuals who are able to easily able to tolerate structured tasks, completing this type of assessment is an easier task.

For some individuals, larger symbols help them in terms of visually recognizing the image. If this is the situation, a smaller grid size should be selected. If a user can handle a small image but a limited array, it may be optimal to select a grid size with many symbols, but to hide symbols reducing the complexity of the display. Once a user is familiar with an array, systematically exposing additional symbols should be a goal.

Learning to Communicate with Gateway

The general strategies used to teach Gateway are straightforward. The primary goals must be to insure that the user learns the vocabulary contents and organizational structure of Gateway. Once specific language intervention goals are identified, functional activities can be designed and implemented.

For an individual who has functionally used a communication board or other AAC App with a significant number of single words prior to receiving Gateway, introduction to this program should flow as a logical extension of his or her use of the manual board or App and to the teaching strategies already in place. That is, the individual will need to be oriented to where vocabulary is located, and what vocabulary is available, but it would be expected that the individual's performance with the Gateway program should eventually mirror or exceed his or her performance with his/her other system. As the individual learns more vocabulary, and is exposed to advanced language features, it would be expected that the individual's language

performance may improve. Strategies that have been used successfully to teach language should be continued.

Aided Language Stimulation As An Intervention Strategy. For an individual who has not previously used a single word vocabulary system, an effective clinical intervention strategy is the use of aided language stimulation or modeling. In modeling system usage, the facilitator (e.g., parent, aide, teacher, therapist) takes a lead role in using the device to talk with the user. Using this approach the user is indirectly guided through the system. The user sees where specific vocabulary is stored, and what page links must be accessed to select targeted vocabulary. The user may also be exposed to a range of grammatical morphemes such as possessives or contractions that can be used in expressing different word forms (e.g., questions, statements, imperatives).

Aided Language Stimulation can serve an additional purpose for both the individual using the system and the service providers working and or interacting with him. It reveals what vocabulary *is* and *is not* available within the page set. It serves as an indirect approach to determining what vocabulary needs to be added or deleted to personalize and optimize the system for the user. Modeling demonstrates that the spelling and word prediction feature may be accessed to express words not in this vocabulary program. It can show a user how to select a word using word prediction.

Many AAC users find dynamic display systems easy to navigate. Page links lead the a user to explore new vocabulary. Modeling lets the facilitator assume the role of "Tour Director". The facilitator shows the user which "locations" to visit and does so in the appropriate communicative context. Modeling may also serve to demonstrate new and more complex ways for the Teen/Adult to use language.

Expansion As An Intervention Strategy. Expansion is another strategy that can be used to improve a user 's expressive language performance. The facilitator can use the vocabulary within Gateway to expand the complexity of the individual's messages. It must be recognized that depending upon the user's age and prior intervention history this may not be an appropriate goal.

Expansion involves adding or expanding the message that the user originally generated. The goal of expansion is to help the individual learn to create more complex messages than he or she is currently using or to construct syntactically correct sentences. Many individuals who have not had the opportunity to use a language board, or a device with grammatical markers or functions words as a part of the core vocabulary, may need instruction to learn how to form age appropriate messages in the course of routine conversation.

Teaching Vocabulary Contents and Location. Teaching contents and location can be accomplished through focused intervention as well as through games and recreational activities. If the user does not know what words are available to him/her to create a message, unless the user can spell, he will not be able to formulate messages to express needs, wants, or ideas. Some strategies that can be used to teach the single word vocabulary include: (a) highlighting the organizational structure, (b) using Gateway to "talk", (c) creating opportunities to learn new words, (d) reading, (e) writing and (f) traditional language intervention

Highlight the Organizational Structure. Regardless of which Gateway grid size (e.g., 3*3, 4*5, 6*10, 8*10, 9*11) is selected for the user, the augmented communicator should be systematically introduced to the Home page, which is the core of the single word vocabulary. Each of the color-coded word categories should be pointed out along with its corresponding color-coded page link. A rationale for the color of some command keys has been established. It is felt that the color-coding may help some augmented users learn to locate words more quickly.

Learning Gateway Through Traditional Language Intervention. The Gateway core contains many of the frequently used words of our language. As such, for young adults many games and therapy materials can be used with only minimal modifications. Some materials may require more modifications than others. Two good examples of therapy materials that require little modifications are *Just for Me!* (Concepts) and *"SPARC* for Grammar" produced by LinguiSystems. Some commonly used games and therapy activities include: Jeopardy, Outburst, Jr., Secret Square; adapted reading materials, or single line storybooks.   When an "off the shelf" game or activity contains words of little interactive value to the AAC user (e.g., kite, mouse, umbrella), it is suggested that the activity be modified rather than changing the vocabulary of the Gateway program to accommodate the program unless changing that vocabulary will ultimately increase device use long term.

There are many ways to teach Gateway. How it is taught can, and should, vary with the needs and abilities of the user. The suggestions provided here are just that, suggestions. The user's speech language pathologist is key in the implementation process. A therapist or communication partner should communicate to the Teen/Adult while using Gateway, creating messages with the words of the Gateway program.

Communicating Through the Academic Pages. In an effort to help users of Gateway page sets actively participate in their educational programs, a framework for customization has been established. There are open pages tied to subject folders. These can be customized as needed. It is recognized that a year's worth of classroom vocabulary cannot be stored, but typically there is room to accommodate chapters. For some simple areas such as Morning Meeting (e.g., Circle Time) the typically used vocabulary has been included in each of the page sets. That is, a user can describe the weather, and tell the day, week, or month.

Using the Recreational Pages. There is no question about the fact that everyone enjoy leisure activities. Within Gateway there are a variety of pages designed included to help individuals develop their language skills during leisure activities or within community-based activities. Typically, a user would need help from their communication partner to access appropriate messages while playing the game.

Summary

Gateway is a powerful core word page set complemented with rich pragmatic pages. Since 1998, Gateway has helped many young children to become competent communicators and to achieve academic success. It has enabled competent communicators to efficiently and effectively meet their daily communication needs across environments. Success in using Gateway is highly correlated with how its user is supported in learning the contents of the page set and in having access to his or her

device when appropriate.

The Teen/Adult Functional Page Set is a tool that individuals with impairments in their expressive language performance can use to communicate at home, at school and within the community. It presents a researched-based core vocabulary, high frequency fringe vocabulary as well as an organizational format that is intuitive to learn. High core and fringe vocabulary are included on each grid size, and potentially save parents, teachers and speech therapist hours of time needing to customize the pages to enable the user to communicate. It must be recognized that each user is different, so *personalization* of the vocabulary is critical to the ultimate success in using Gateway.

References

Beukelman, D., Jones, R and Rowan, M. (1989). Frequency of word usage by nondisabled peers in an integrated preschool classroom. AAC Journal, 5, 243-248.

Blackstone, S. (1993). Thinking a little harder about communication displays. ACN 6:1,1-3.

Bruno, J. (1989). Customizing a Minspeak system for a preliterate Teen/Adult : A case example. AAC Journal. 5, 89-100.

Bruno, J. (1994), Designing a vocabulary for a dynamic display system: A case example. In Proceedings of the Sixth Biennial Conference of ISAAC, (p 455-457). Maastricht, The Netherlands

Bruno, J. (1997) Gateway to Language and Learning. Pittsburgh, Pa. DynaVox Systems, Inc.

Carlson, F. (1981). A format for selecting vocabulary for the nonspeaking Teen/Adult . Language-Speech and Hearing in the Schools. 12, 240-245.

Fitzgerald, E. (1954). Straight Language for the Deaf. Washington, D.C.: Volta Bureau.

Locke, J. (1995) Development of the capacity for spoken language. In P. Fletcher and B. MacWhinney (Eds.) Handbook of Teen/Adult Language (Pp. 278-302). London: Blackwell

Raban, B. (1988). The spoken vocabulary of 5-year old children. Reading, U.K.: The Reading and Language Information Center at the University of Reading.