Gateway
TO LANGUAGE & LEARNING

**for**
**Proloquo2Go**

# Introductory Manual

**by**
**Joan Bruno, Ph.D., CCC-SLP**


Highlands, NJ, USA
www.AACCorweWord.com

# An Introduction to Gateway©

## What is Gateway©?

Gateway to Language and Learning©, (Gateway) is a series of core word page sets that supports the language learning needs of young children and facilitates efficient communication for the competent communicator. There is consistency in the design of all Vocabulary Levels to enable a user to seamlessly move across grid sizes (e.g. 4*6, 5*7, 6*11, etc.) or advance to the next level of complexity (e.g., Developing Language to Advanced Communicator) while maintaining ones level of communicative competence.

The underlying philosophy of Gateway is to enable effective and efficient communication. All individuals need to be able to say what they want to say, when they want to say it, and to be able to do so with a minimum of effort. Within Gateway, effective communication is achieved by providing AAC users access to a high frequency core vocabulary and fringe vocabulary that is selected to match a user's age, needs, interests, and linguistic abilities. Efficient communication is achieved by minimizing the number of key selections required to speak each word. The Gateway vocabulary was organized to give the user access to its core vocabulary using an average of less than 1.5 key selections per word.

Proloquo2Go (P2G) is a robust AAC App. It supports the powerful Gateway features such as *auto-close popups*, *Semantic Power Strips*, *Sentence Development Strips* and *Dynamic Morphology* features. Proloquo2Go's *Vocabulary Levels*, *VocaPriority*, *Visibility* and *Grammar Support* features led to the development of a significantly improved and expanded version of the original Gateway© App. Gateway for Proloquo2Go contains five vocabulary Levels – Child Functional, Teen Adult Functional, Developing Language, Advanced Communicator, and Text. Within each of these levels there are a variety of grid sizes ranging from 12 - 140 locations.

This manual is intended to provide an overview of Gateway© as it has been designed for use with the Proloquo2Go App. It defines targeted user abilities for each vocabulary level, key design features and how these features affect language development and effective communication.

## The Origin of Gateway©

In 1997 Gateway was designed as a custom page set to enable Frankie, a 6-year old 1st grader with cerebral palsy, to efficiently and effectively communicate his needs and wants and to be able to compete educationally in his mainstreamed educational environment. Prior to using Gateway, he had a manual communication board with well over 150 symbols that he effectively used to express needs and wants. It did not provide him a voice to interact with his typically developing peers nor did if offer him a means to independently function in his educational setting or achieve to the fullest of his potential.

Frankie need a page set for his high tech device that he could use to not only respond to questions in class but one that enabled him to create complex messages. He wanted to read his 1st grader reader aloud in class, like other students did. The

school wanted him to achieve to his highest potential. As his speech-language pathologist I was charged with the task of making these requests a reality.

The original page set contained a core of approximately 800 root words, selected word morphology functions keys, and strategically designed auto-close popups. His MAIN page was linked to pages containing words from grammatical categories such as people, verbs, descriptive words, objects and places in a format similar to his manual board. It also contained a link to a spelling page with word prediction. The initial core vocabulary included many words identified as frequently used by young children. It also contained all of the words on his manual communication board and high frequency core words from his 1st grade curriculum. His high tech page set allowed efficient message generation and enabled unrestricted communication. On average, he was able create a sentence using an average of 1.3 key selections per word.

In 1998, Gateway to Language and Learning© became commercially available page set for the DynaVox device. It presented a new approach for storing vocabulary on a dynamic display device (Bruno, 1997). Over time, with input from users and the field, Gateway evolved to become a series of page sets that addressed the needs of young children through adults. Many children, like Frankie, who began using Gateway© as a child, have become effective communicators and college graduates.

At present, Gateway continues to meet the needs of children and adults. In addition to the page sets that have existed over the years, Gateway for Proloquo2Go include new page sets designed specifically to meet the needs of students ASD. It contains an expanded array of grid sizes including 88, 108 and 140 for all Vocabulary Levels. Over the years Gateway has evolved and continues to reflect advances in technology and best practices in AAC.

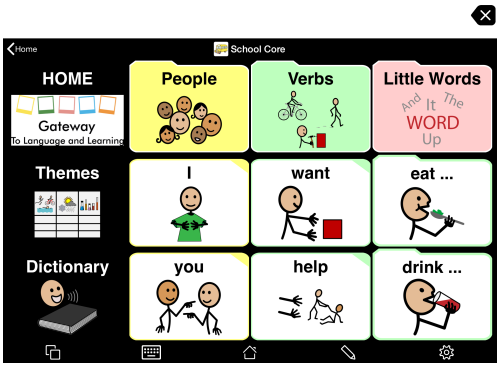
## What's Included in the Gateway© Vocabularies

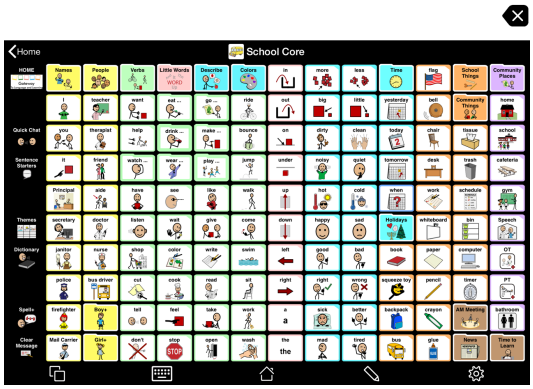
Gateway© contains 5 Vocabulary Levels – (a) Child Functional, (b) Teen/Adult Functional, (c) Developing Language, (d) Advanced Communicator and (e) Text. Each of these levels contains a high frequency core and fringe vocabulary relevant to the targeted population. An associated set of theme pages, matches leisure, educational and recurring conversational needs. Within each vocabulary level, there is a range of grid sizes from a 3*4 (12 location) to a 10*14 (140 locations). The Advanced Communicator and Text Levels include 5 * 9 (45) through 10*14 (140) grid sizes.

**Gateway Paradigm for Proloquo2Go**

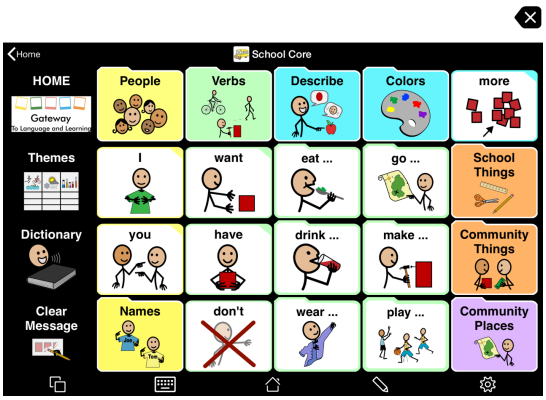
| Child Functional | Teen/Adult Functional | Developing Language | Advanced Communicator | Text |
|---|---|---|---|---|
| 3*4 | 3*4 | 3*4 | | |
| 4*6 | 4*6 | 4*6 | | |
| 5*7 | 5*7 | 5*7 | | |
| 5*9 | 5*9 | 5*9 | 5*9 | 5*9 |
| 6*11 | 6*11 | 6*11 | 6*11 | 6*11 |
| 8*11 | 8*11 | 8*11 | 8*11 | 8*11 |
| 9*12 | 9*12 | 9*12 | 9*12 | 9*12 |
| 10*14 | 10*14 | 10*14 | 10*14 | 10*14 |

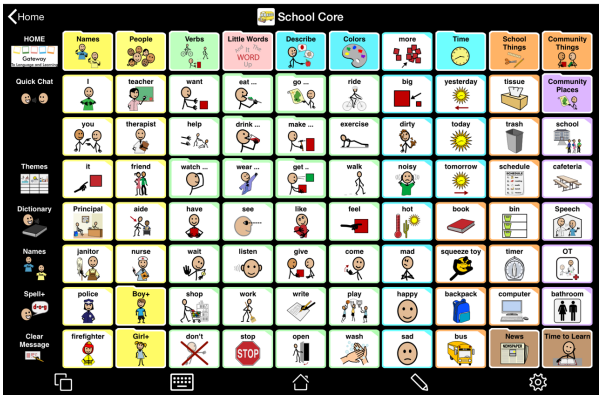
**CHILD FUNCTIONAL** is designed for children with Autism Spectrum Disorders who benefit from a functionally based core vocabulary. It has eight (8) grid sizes that can facilitate the development of multi-word messages. Consistency of vocabulary organization supports the principles of language acquisition through motor planning. It contains HOME and SCHOOL CORE pages that seamlessly link to relevant topical vocabulary without losing access to the high frequency core. Theme pages provide activities to promote communication in educational and social settings. It contains eight grid sizes ranging from 3*4 to 10*14. Below are the Home pages of Gateway 12 (3*4) and Gateway 140 (10*14).



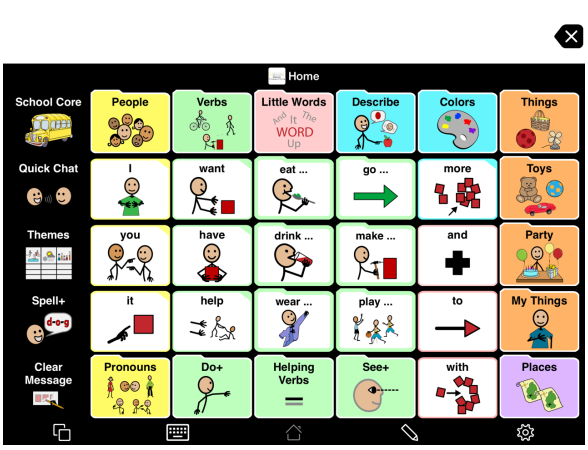



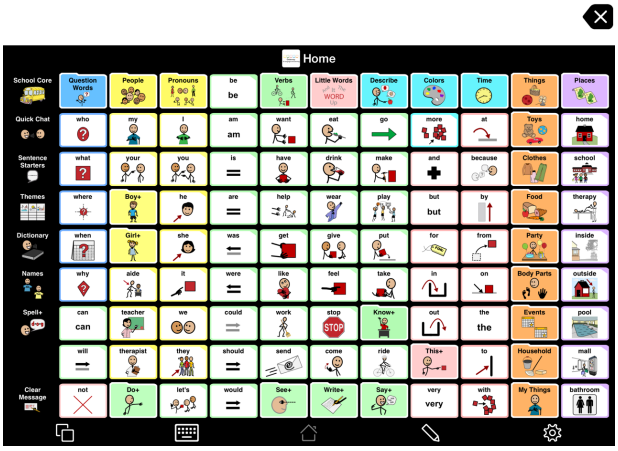

**TEEN/ADULT FUNCTIONAL** is designed for individuals with limitations in expressive language abilities, who generate multi-word messages but have difficulty using correct word order and/or adding word endings. It has eight (8) grid sizes. Through use of a HOME page and a SCHOOL/COMMUNITY Core page users can seamlessly access relevant topical vocabulary using a vocabulary that enables spontaneous communication in home, school, vocational and leisure environments. There is limited support for use of grammatical markers. Theme pages help to promote communication across a range of leisure and community-based activities. It contains eight grid sizes ranging from 3*4 to 10*14. Below are the Home pages of Gateway 20 (4*6) and Gateway 80 (8*11).



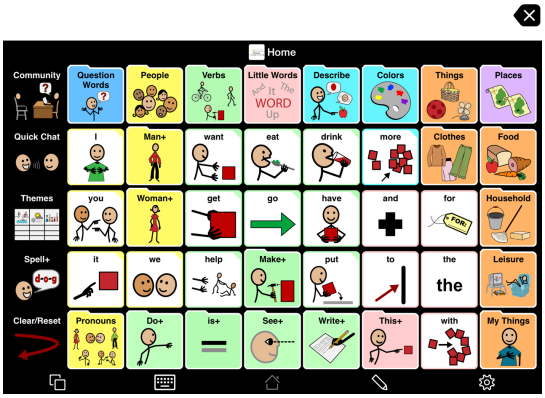



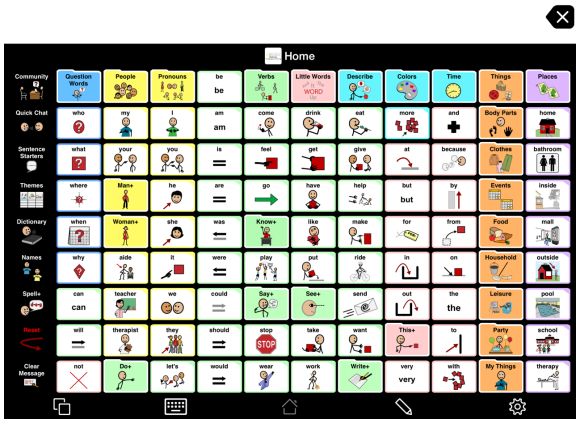
**DEVELOPING LANGUAGE** is designed for children acquiring language following the typical sequence of language development. It has eight (8) grid sizes providing options for children who are just learning to combine symbols to form multi-word messages as well as options for those who are learning to form more complex syntactically correct sentences. It contains HOME and SCHOOL CORE pages that seamlessly link to relevant topical vocabulary without losing access to the high frequency core. In several of the basic arrangements, *Sentence Development Links* are used to provide a simplified approach to facilitate sentence formation. *Semantic Power Strips*, sets of paradigmatically associated words, enable users to access related vocabulary without scrolling through pages or complex arrays. All arrangements support use of the full range of grammar functions. A set of THEME pages supports language development in school, play and social activities. It contains eight grid sizes ranging from 3*4 to 10*14. Below are the Home pages of Gateway 30 (5*7) and Gateway 108 (9*12).



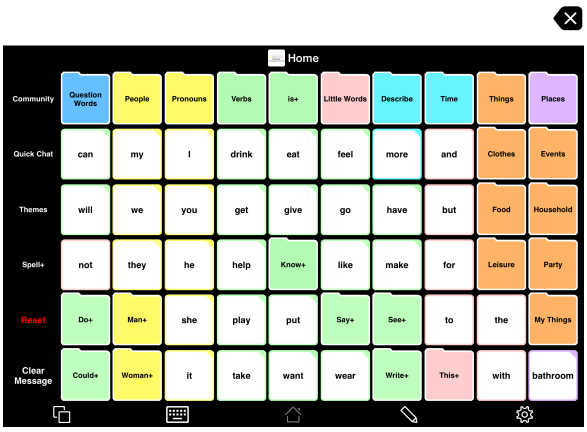



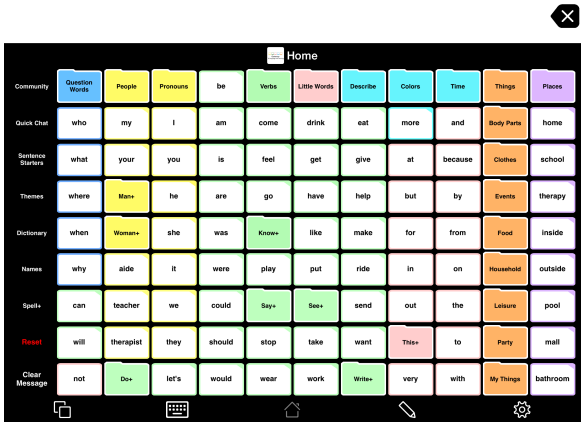

**ADVANCED COMMUNICATOR** is designed for individuals with advanced expressive language skills, who could benefit from an efficient and powerful core word vocabulary enabling complex message generation. It is a logical next step for children using the Developing Language Vocabulary Level, who now require a more mature vocabulary and greater efficiency in message generation to address their daily communication needs. Gateway's *Dynamic Morphology* feature enables users to rapidly create messages using an average of less than 1.5 key selections per word. Theme pages support communication in recurring environments and activities. It contains five grid sizes ranging from 5*9 to 10*14. Below are the Home pages of Gateway 40 (4*6) and Gateway 80 (9*12).




**TEXT** is designed for teens and adults with advanced literacy skills, who seek a highly efficient *text-based* core vocabulary page set. This page set replicates the contents of the Advanced Communicator Level, however, vocabulary is typically organized alphabetically to enable more efficient word retrieval. The user must configure settings in the options menu to change the text and images setting to text only. It contains five grid sizes ranging from 5*9 to 10*14. Below are the Home pages of Gateway 60 (6*11) and Gateway 80 (9*12).




## Why Gateway©

- Simple to Learn
- Developmental Model for Language Acquisition
- Consistent Vocabulary Placement Supports Learning through Motor Planning Principles
- Efficient Organization Results in Minimal Keystrokes Per Word
- Achieving Core Curriculum Competences

### Simple to Learn

Gateway is easy to learn. 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. Text is used to represent many function words. This helps to reduce the need for learning arbitrary symbols to represent the words of our language that cannot be easily be represented by an iconic symbol. 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.

Young children tend to separate pictures according to categories. That is, children can easily sort pictures into categories of people, colors, foods, places, and so on. The organization of Gateway reflects this developmental ability and uses a modified Fitzgerald Key Format to represent vocabulary.

**Developmental Model for Language Acquisition**

Using Gateway, the course of a child's expressive language acquisition can mirror the normal language development sequence. A child can begin communicating using single words. By learning to combine symbols across pages, they can begin to form telegraphic messages. Once a child understands verb tenses, use of plurals and other morphologic endings, the child can learn to use these features to create syntactically correct sentences. Using the vocabulary and word morphology keys embedded systematically within Gateway, a child can learn to recode our language to achieve the same level of language competence as speaking peers.

While Gateway© meets the needs with children acquiring language through the normal sequence of language development, these children require intervention directed towards improving their expressive communication performance. It is important that individuals who provide this intervention understand how they can use the language features designed as a part of the Gateway© to enable children who use AAC to expand their expressive language performance to become linguistically competent. Aided Language Stimulation is a highly effective and recommended intervention approach.

**Consistent Vocabulary Placement Supports Learning through Motor Planning Principles**

Individuals learning to communicate through the LAMP (Language Acquisition through Motor Planning) can also find the Gateway 8*10 through 10 * 14 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.

**Efficient Communication Results in Minimal Keystrokes Per Word**

Gateway has been organized to provide maximum efficiency for the user. An efficiently designed communication system enables a user to converse with a minimum amount of effort. Gateway was designed to achieve an average 1.5

selections per word for *core* vocabulary words. All of the Gateway vocabularies have been designed to be as efficient as possible however the needs and abilities of the targeted user population as a major factor to guide page set development. The Developing Language and Advanced Communicator have a greater emphasis on syntactic development and performance respectively.

As an example, Gateway's Dynamic Morphology feature results in a significant reduction in keystrokes when generating messages. This is an important feature for students included in a regular education setting and for communicating within the community. Words considered fringe, or less frequently used vocabulary, may require two or more key selections. The number of words presented per page affects efficiency.

The following table presents sample sentences created using the single word vocabulary of the Advanced Communicator and Text Vocabulary Levels.

| **Advanced Communicator Comparison** | | Key Selections | | | |
|---|---|---|---|---|---|
| Message | # Words | **5*9**<br>40 | **6*10**<br>60 | **8*11**<br>80 | **10*14**<br>130 |
| We are going to eat chicken. | 6 | 8 | 8 | 8 | 6 |
| Can you help me? | 4 | 6 | 5 | 5 | 4 |
| I want to go to the mall. | 7 | 6 | 7 | 6 | 6 |
| Yesterday they helped me with my computer. | 7 | 12 | 11 | 11 | 10 |
| I want to get my sister a present. | 8 | 10 | 10 | 10 | 9 |
| Will you give it to me? | 6 | 9 | 6 | 6 | 6 |
| What do you want me to do? | 7 | 9 | 8 | 9 | 8 |
| She has to work tomorrow. | 5 | 7 | 6 | 4 | 4 |
| **Total Spoken Words – Hits** | **50** | **67** | **61** | **59** | **53** |
| **Avg. # Keystrokes Per Word** | | **1.34** | **1.22** | **1.18** | **1.06** |

These sample sentences contain 50 words. Using the core word component of the Advanced Communicator or Text Level of Gateway, a user would need to make total of 67 key selections to generate these sentences using the 5*9 arrangement. The average number of keystrokes (ANK) to "speak" these sentences is 1.34. The efficiency increases as the size of grid increases. Using the 10*14 grid size, 58 keystrokes are required and the ANK is 1.06. While the ANK of key selections will vary with the unique messages generated by each user, these sample sentences provide a rough estimate of the Gateway's efficiency across messages generated during a routine conversation.

### Achieving Core Curriculum Competences

Many of the individuals who use Gateway© are school-aged children and teens. To enhance a user's classroom participation and to better enable his or her ability to demonstrate mastery of the core curriculum competencies, all versions of Gateway contain requisite vocabulary for Morning Meeting and links to pages where targeted

academic vocabulary can be added. Many of the page sets provide access to the states, capitals, countries and planets. Academic pages have been designed to interface with the Main page so that a user can respond using single words or complete sentence. A TEST page can enable a user to complete a test or worksheet without significant adult assistance.

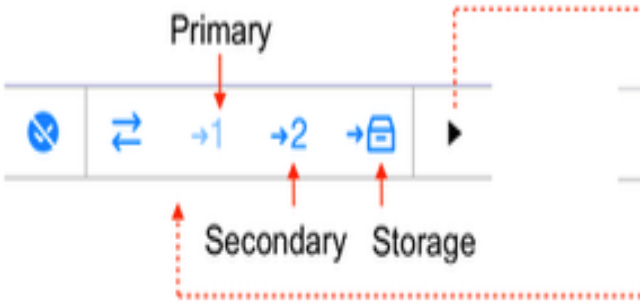
## Implementing Gateway©?

- Understanding Proloquo2Go Functions and Features.
- Understanding Gateway's Distinct Features
- Access the Appropriate Gateway Manual
- Customize the Vocabulary to Meet User Needs, Interests and Goals
- Implement the Appropriate AAC Intervention Strategies

### Understanding Proloquo2Go's Functions and Features

Gateway was designed using the Proloquo2Go App. In many respects it is comparable to a separate user within Proloquo2Go. Personalization or customization of Gateway© requires that that the person assigned with this responsibility demonstrates a basic level of competency with Proloquo2Go 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. Gateway uses the standard Fitzgerald key color-coding. A user may opt to change button borders and backgrounds. The graphic below highlights the button features than can be edited.

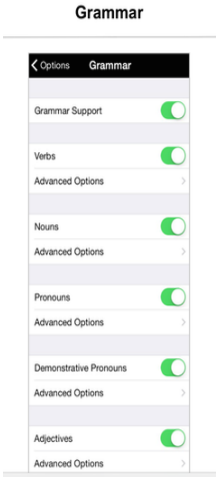

In addition to button features, there are basic edit mode tools that one must become familiar with. In Proloquo2Go, vocabulary that appears on a page is considered to be on the Primary Level. Within Gateway, there will be some pages that offer a user access to vocabulary stored on the Secondary Level. If there are words on a page that do not match the needs of the user, do not delete these words, but rather move them to the Storage level.



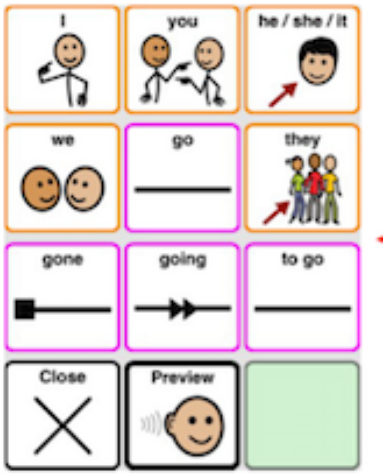

Since there is some relationship between all of pages across all Gateway vocabulary Levels (e.g., Child Functional, Developing Language, etc.) it is optimal to

move unwanted words and/or Folders into storage in the chance that the user may want to access these at a later time. The “Trash Can” pictured below, is the Delete function. If you select it, you will be given the options of moving it into storage or permanently deleting the selected button. Again, by no means is it recommended that any word or folder, be permanently deleted from Gateway.


Another important Proloquo2Go feature is Grammar Support. This feature is especially important to any user whose speech-language goals include syntactic development. Pictured to the right is a sample of the parts of speech that can be controlled using the grammar support “Option”. Each can be turned on if it is appropriate for the user or you can choose to not use it. When a user wants to be able to add word ending in the course of message generation, the grammar support features for the specific part of speech must be turned on.




Below are examples of the grammar popups for a pronoun, a verb and an adjective. These are accessed by depressing a button. The amount of time a user needs to keeps the button depressed can be controlled through the Options Menu.


Assistiveware has extensive resources to support users of Proloquo2Go. These resources are on their website - http://www.assistiveware.com/support. The Proloquo2Go manual is also located inside the app itself. It can be accessed in several ways (1) Options > green help button in upper right corner; (2) Edit mode > Quick Options > green help button in upper right corner; (3) Edit mode > tap ? for help overlay > tap the “learn more” link in the upper left area of the help overlay to get to the Edit mode specific section of the manual.

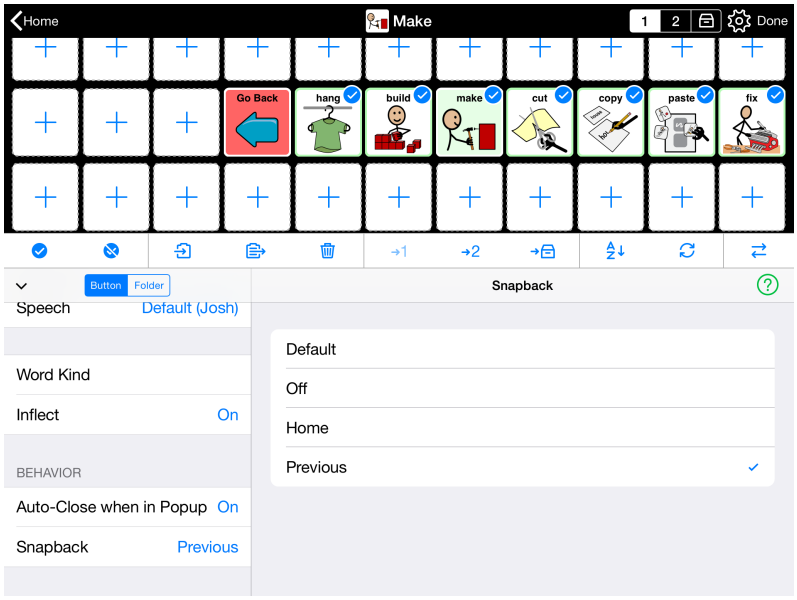
## Understanding Gateway’s Distinct Features

The Gateway Vocabulary features such as *Sentence Development Link, Semantic Power Strips,* Dynamic Morphology, and the Spell+ page, were created using the programming features of Proloquo2Go. The Sentence Development links are explained above and these do not require any special considerations when customizing.

The *Spell+* page provides access to the keyboard and it used in some of the larger grid arrangements. This keyboard may also provide the user access to letters, numbers and punctuation. It does not offer word prediction. If a user wants to access the Proloquo2Go word prediction features, he or she must use through Typing View available on the Toolbar. Since access the word prediction function and adding text into the message window using it adds a significant number of hits, the Spell+ page was added as a means to quickly add text. This should not be used as a primary spelling function, but instead as a quick way to add words not found within the Gateway pages or perhaps to respond quickly within an educational activity.

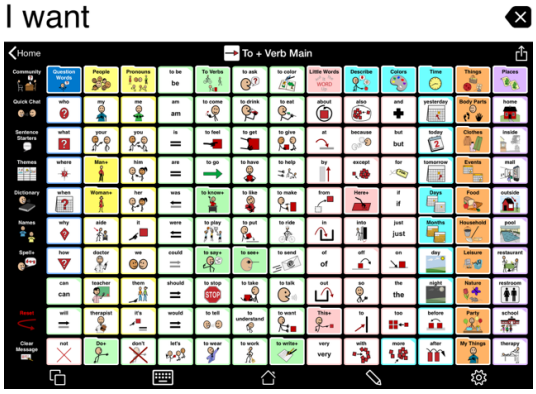
Gateway uses *Semantic Power Strips* as a tool to provide the user access to semantically related words. After selecting a word from the semantic power strip, the popup automatically closes. This is done as a keystroke saving minimizing the need for a user to close the page after each word.

This same auto-close feature is used throughout Gateway’s core vocabulary. When composing a message, a user can select words from the Home page and then access fringe vocabulary selecting folders such as Things, Play, Events, and the like. Each time a word is accessed on the fringe vocabulary page, the page automatically closes. Depending upon where the page is and for what purpose, it will either return to the Home Page or to the Previous Page.



Should the user wish to change the setting so that the page or popup does not auto-close, the user would go into the Edit Mode, pictured to the right. On the lower left corner, the behaviors would be need to be changed, shutting the Auto-close to OFF and the Snapback to OFF.

The Advanced Communicator and Text Vocabulary Levels make use of Gateway's Dynamic Morphology feature. That is, word endings are automatically added to some verb forms without requiring additional key selections. This occurs for 3rd person plural, the infinitive form of the verb following words, such as want and have and for the present progressive verb tense (i.e. –ing). Subject pronouns are automatically converted to object pronouns after selecting the pronouns "at, by, for, to and with".




Extensive programming has been done to achieve this outcome. If any verbs are added to the Verb Page, they will not automatically convert to the targeted verb form. Likewise, if a word is added to a verb popup, those verbs also will not automatically add the ending. This would need to be done manually.

Because of this feature there are many words located in the storage folder that appear to be a duplicate of what is on the home page, or People Page. These are not duplicates. Additional *Actions* have been added to the buttons. These buttons should not be deleted from the Storage level.

### Access the Appropriate Gateway Manual

Manuals for Gateway include this introductory overview of Gateway and separate manuals for each vocabulary level. The Advanced Communicator and Text are combined into one manual, since the vocabulary contents of the Text level replicates the vocabulary of the Advanced Communicator. It is only the organization of the vocabulary on each page that differs.

The manual for each Vocabulary Level is comprehensive and provides a detailed description of the respective Level's rational for vocabulary selection and organization, a description of the Gateway features that are used within the respective level and strategies for implementation. Each manual contains three (3) sorts - an Alpha Sort, Page Sort and Monthly Topic Sort. The sorts include core and fringe vocabulary, and not stored messages. These manuals can be used both to determine the presence or absence of vocabulary items and as a tool to document mastery of vocabulary contents.

### Customize the Vocabulary to Meet User Needs, Interests and Goals

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. A second 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.

In order to help an individual meet his or her educational goals, it is imperative that the child be able to express the vocabulary targeted for the range of spoken and written educational tasks associated with each core curriculum competency. While it is recognized that Gateway does not contain all of the educational vocabulary needed by each user of this program, it is believed that Gateway does create a framework to enable a child to meet most educational competencies. Individuals working with a Gateway user (i.e., the teachers, therapist, aides, parents) 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 child's team.

Within the school curriculum, there are several areas targeted for potential device use. These include *Math, Calendar* or the morning routine, and *Monthly thematic* activities. Pages have been created for each of these areas and they also should be customized to maximize the child's classroom participation.

## Implement the Appropriate AAC Intervention Strategies

The specific approach used to implement Gateway will vary with the needs and language abilities of the user. It is the philosophy of this author that Gateway 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, parent) become familiar with Gateway's vocabulary contents and the location of these words. It also requires a commitment to personalize the vocabulary to match the needs, interests and abilities of the user.

Teaching Language Through Use of the Single Word Vocabulary: Each Gateway file contains a core of high frequency words. Learning the contents and location of this core vocabulary is only the 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 child become a successful communicator when using Gateway is to provide effective and appropriate language intervention. That is, if a child is communicating using single words, that child needs to have 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 child who speaks. 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 child 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.

Aided Language Stimulation as an Intervention Approach**:** Prior to initiating intervention with the child, the therapist must first become familiar with program's vocabulary. The therapist must know what words are included in the Gateway Vocabulary and how to access these words. Unless a therapist is competent in communicating with the child's vocabulary set, the therapist can neither develop appropriate therapy activities nor serve as a model in demonstrating or expanding the child's utterances.

Aided language stimulation (ALS), is an appropriate and effective language intervention technique that a therapist can use when working with an AAC user. This technique can be used to teach the Gateway core word vocabulary and to improve syntactic performance. 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.

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.

Regardless of which Gateway level and arrangement is selected for the user, the augmented communicator should be systematically introduced to the MAIN page, which is the core of the single word vocabulary. Each of the color-coded word categories should be highlighted along with its corresponding color-coded page link. Color-coding may help some augmented users learn to locate words more quickly.

Using the Theme Pages: There is no question about the fact that most people enjoy leisure or unstructured activities. Children can and do learn through play. So too can teens and adults. Within Gateway there are a variety of pages designed included to help individual develop and expand their language skills during recreational, social and community-based activities.

## 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

communicator 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 and in having access to his or her device.