A Few Good Words:

Why Core Vocabulary is Needed to Enhance Communication in Non-verbal Students

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Introduction and Purpose:

This paper was born the day I saw a child with severe mental retardation being asked to identify a picture representing the word, *zucchini* as part of a vocabulary lesson. Each week, words were chosen for the lesson based on the alphabet. The staff struggled to find 10 words starting with the letter Z, and *zucchini* was one that they decided upon. This student was not able to use symbols of any type to communicate her thoughts and needs to her teacher or her classmates. She could not choose her cup from a field of two real objects, and she was a picky eater. It is unlikely that zucchini was a food that interested her.

Shortly after this incident, I visited the classroom of a nonverbal high school student. He was quite an outgoing young man who used many vocalizations and gestures to get his point across. His staff proudly showed me the communication notebook they had created for him. There in front of me was approximately 90 pounds of 3 ring binder filled with candy wrappers, box tops and pictures from magazines. It was the most amazing array of nouns ever assembled, but it was only that: 90 pounds of nouns. Functionally, this student was communicating by using a system of rudimentary gestures supplemented by nouns.

I filed these incidents away for future thought along with other situations I had encountered. They all involved the choice of vocabulary used to teach our nonverbal students and to construct augmentative and alternative communication systems.

As I thought about vocabulary, another student came to mind. This student was using a high end electronic device with auditory scanning. He was unable to speak, to create meaningful gestures or signs, or see symbols. Though he was able to use his device to choose academic answers from a page of options presented to him, he had no way to speak on a variety of subjects generatively or to initiate a conversation of his own choosing. For instance, if he were on the weather page discussing the day's weather and wanted to discuss the fact that his mother went out of town, how could he do this? We who use verbal speech do this sort of topic switching all the time and we do it effortlessly. Not so for this student. For him, the effort to scan to a new page accurately was confusing and physically taxing. Also, should he try to scan to a new page, some well meaning adult would probably interfere, thinking he had hit the wrong choice or that he wanted to get out of doing his work. And so he whined..... It is the one communicative option always open to him

In thinking about these students, I asked myself, is there not a way to use vocabulary in such a way that a person has access to simple yet generative language across contexts? ....Some sort of vocabulary that does not require lots of physical and cognitive effort to access? ....some vocabulary that is not invented and scripted by others?

I felt that the students needed a way to generate language and communication on their own, to take responsibility for that communication and to use it to meet their own purposes. When one is merely presented with pages of academic options predominated by nouns, or social conversations prescribed, scripted and trivialized by the fact that they are manufactured by another person, communication is only an expression of the desires and designs of the adults at the helm. How, then, could nonverbal students communicate effectively across contexts using their own chosen language without undue physical and cognitive fatigue?

To answer those questions, I begin the discussion of core vocabulary for nonverbal students in school environments. I will draw upon original research in the fields of AAC and language along with my personal experiences gained over a 10 year period. I will explain why I feel strongly that core vocabulary should be central in all low and high tech systems designed for all nonverbal students, regardless of the physical status, cognitive ability or age of the student. I believe that use of core vocabulary can enhance communication and language learning for all types of nonverbal students.

What is CoreVocabulary

Simply put, core vocabulary consists of the basic words in any language that are needed to communicate. Cross, Baker, Klotz and Badman (retrieved 2006) define core as "words which are used frequently and across situations."(Vocabulary section, para. 1) Michael Stubbs (1986) described core vocabulary more colorfully when he said,

> When people think of a language, they think almost inevitably of words: vocabulary. And when they think of language development, they...tend to think of vocabulary enlargement....The notion of extending someone's vocabulary is a perfectly plausible one in itself. It rests on the powerful, though sometimes hazy, intuition that some words are simpler, more important or more basic than others. (p. 1)

Stubbs (1986) goes on to discuss the uses of core vocabulary by saying that the concept of core or basic vocabulary underlies all vocabulary teaching and is used in vocabulary lists of various kinds including those found

in any language textbook. These lists serve many purposes including teaching English as a foreign language, facilitating international communication, and determining language expectations of English-speaking school children. (p. 2)

Core vocabulary then is not a new concept nor is it the exclusive domain of language impaired communicators. Core vocabulary is, indeed, universal. It is also illusive. There does not seem to be THE CORE VOCABULARY, but rather a fluctuating core vocabulary that depends on the user and the situation. Regardless of the exact words included in a core vocabulary, they are simple, general and basic. As stated by Stubbs (1986):

> A language is so complex that selection from it is always one of the first and most difficult problems of anyone who wishes to teach it systematically... To find the minimum number of words that could operate together in constructions capable of entering into the greatest variety of contexts has therefore been the chief aim of those trying to simplify English for the learner. (p.2)

If core vocabulary is not an absolute, then, but a living, changing entity, how does one decide on the core vocabulary one will use? The composition of core vocabulary has been extensively analyzed. For instance, Baker, Hill, and Devylder (2000) indicate in their presentation at CSUN, that instructional courses at the American Speech-Language Hearing association dating back to 1985 have been devoted to vocabulary selection. Stubbs (1986) in his article on nuclear vocabulary, speaks of the qualities of core vocabulary. Core, according to Stubbs, tends to be made up of verbs, demonstratives and pronouns because these words are a small set of words that are generally unchanging in our language. This is obvious for pronouns. We simply don't need another word for *you*. Core, however, also encompasses words like *give*. This word is considered to be a core word because it is the lowest common denominator for a concept. It is the most basic word that will get a point across without shadings of culture and context. It could be used instead of other words like *donate* and *award* which are more complex words with more specific meanings. While we can use *give* instead of *donate*, we could not always use *donate* instead of *give*. One would *donate* a car but would not *donate* a backrub, whereas one is equally able to *give* either a car or a backrub. This is why *give* is a core word and *donate* is not. Similarly, *child* would be a potential core word because of its usefulness in general conversation while *kid* would not be. (p.6)

The following list of words presented by Stubbs (1986) are from Collins English Dictionary. This list counts the different senses of individual words regardless of part of speech. From this list, it is easy to choose words that are candidates for a core vocabulary. (p. 9)

run 83, sprint 3

walk 24, saunter 3, stroll 3

strong 20, potent 5, powerful 4

give 29, award 4, donate 1

fat 19, stout 5, obese 1

kill 19, murder 8, execute 8, assassinate 2

thin 9, slim 3, svelte 2, emaciate 1

house 28, mansion 5, villa 3, bungalow 2

father 14, paternal 3

child 9, kid 5 (p. 9)

The question now becomes why would we attempt to find and use a core vocabulary for our non verbal communicators? One of the main reasons can be gleaned from looking at the list above which hints at the fact that with a few key words much can be said. For instance, by using the word *strong,* one can get the point of *powerful* across. The context in which the word is used turns it miraculously into the form intended. This happens in the mind of the listener who takes the word *strong* and gives it the proper meaning, *powerful*, based on the discussion. In so doing, the augmented communicator saves time and energy but still participates in a colorful communicative language experience.

More important is the fact that core vocabulary crosses environments. (Baker, Hill, Devylder, 2000, p. 2) This means that students can use a few words to create many thoughts regardless of where they are or who they are with. These few core words can help the augmented communicator generate novel utterances instead of phrases scripted by teachers and family.

Finally, the same few words can be used to telegraph a longer message. For students with physical disabilities, the ability to use a very little physical effort to say as much as possible is crucial.

The case for the use of core vocabulary in augmenting communication for nonverbal and physically disabled speakers is most eloquently made by Bruce Baker and Katya Hill. Both are researchers in the field of AAC of long

standing duration and are employed by both accredited universities and by the Prentke Romich Company, a manufacturer of devices which use core vocabulary as a basic organizing unit. Their ideas should be included in any discussion of the use of core vocabulary.

Baker and Hill presenting in the year 2000 at CSUN, speak of the fact that current practices in AAC have gone away from the concepts of core vocabulary. Certainly, I have seen this myself. When taking a graduate level class in AAC from George Mason University in 2003, no mention was made at all as to the purposes and use of core vocabularies. Instead, emphasis was placed on the use of tightly scripted, context specific communication boards. Baker and Hill (2000) describe this practice as follows:

> In current augmentative communication practice, large amounts of time are used to develop special vocabularies for classes, field trips, activity-based learning and a host of other academic and non-academic environments. The vocabulary, for example, of earth sciences is considered to be radically different from that of seventh grade social studies.....Functional vocabulary for a restaurant includes menu items, requests for condiments, expressions of preference like rare, medium, and well done. A nature walk has its own special vocabulary which must be added to each device before summer camping experiences. (p. 1)

Those who prefer the concept of core vocabulary would say that with a vocabulary of a few hundred words, a person can speak on any topic imaginable in the English language including all of the above stated situations and could do so without the invention of boards for each subject. Studies have shown generally that the 100 most frequently occurring words typically account for more than 60 % of the total words communicated. By the time you get to the 200 most frequently used words, you have accounted for 80% of the total words communicated. With the addition of a few nouns to describe the specific situation, one is able to use one board to communicate across settings. Once again in the words of Baker and Hill (2000):

> Which is easier to do? Organize and teach an effective structure for 200 core words and their grammatical morphemes or the near random cast of extended vocabulary that float through every individual's life? In our opinion, it is core vocabulary that liberates. The fact that the same core vocabulary is used across all environments gives one in control of core vocabulary functionality across environments. Although topics change, core vocabulary is consistent. (p. 2)

Core versus Fringe Vocabulary

In discussions of vocabulary selection, the term *core vocabulary* must be counterbalanced by the term *fringe vocabulary*. The two concepts go hand in hand and together comprise the whole of an individual's vocabulary. We have now defined core words as high frequency universal words that are usable across contexts. Fringe words, on the other hand, are described by Yorkston, Dowden, Honsigner, Marriner, and Smith (1988) as

> Those words that may not be important for the majority of individuals but are nonetheless necessary for a particular individual in a particular circumstance. Fringe lists include words that do not occur frequently but rather are dictated by an individual's activities, interests, environment, and personal style. Fringe lists may be large with new words frequently added for particular situations. (p. 202)

Fringe words are the content words in the sentence. In the sentence, *I am going to the museum*, the only non-core word in the sentence is the word *museum.* This word is not an often used word and so would not be a core word for most people unless that person is the curator of a museum or lives next door to a museum and goes there often. However, it is an important word because it carries the meaning of the sentence. Using a core vocabulary without important fringe words is limiting. The question is how to have core vocabulary for use in structuring novel sentences and fringe words to carry important meaning. Even more important is to know which fringe words to include in a communication system since the list of words in this class is large and not often needed. Judgment needs to be used as to the inclusion of words. Additionally, the user needs to become creative in using existing core words.

An example of this type of creativity comes from Gail Van Tatenhove. Speaking in Spotsylvania, Virginia in the summer of 2006, she spoke of a user with extreme access problems who was able to communicate the meaning of the word *tournament* by using the word *team* in sequence. When he used his communication device to say *Team Team Team Saturday*, he was able to get the point across that there would be a soccer tournament on Saturday. The word *team* is not a core word per se; it was a fringe word that had been selected for this man's communication system to become part of his personal core. This means that it was a word he used often. The word *soccer* was implied through context and the knowledge of the family and events that surrounded this AAC user. The word *tournament* was not in his vocabulary at all because it took up too much real estate for too little communicative value. Through creativity, he was able to use his small bank of words to get his thought across.

In order to structure a comprehensive and flexible communication system for the use of a specific individual, a means of selecting vocabulary becomes crucial. Researchers have sought to answer the important question of vocabulary selection by analyzing available standard word lists, by analyzing the speech of verbal speakers in a variety of situation, and by collecting and analyzing the words produced by literate AAC users. The research gained from these studies supplies good information to use when constructing boards and systems.

Beukelman, Jones and Rowan (1989) studied frequency of word usage of 6 preschoolers by audio taping these students. In analyzing the language samples of these preschoolers, Beukelman et al. found that the 25 most frequently occurring words accounted for 45.1% of the sample collected. Some examples of these frequently occurring words included *wa*nt, *eat*, and *go* - verbs, demonstratives, prepositions, and adverbs. No nouns were among the 25 most frequently used words by preschoolers within the study sample. In other words, they found that young children appear to use core vocabulary more frequently than fringe vocabulary. (Banajee, Dicarlo and Stricklin, 2003, p. 68)

Regardless of the fact than nouns are not a large part of the vocabulary of preschoolers, Adamson, Romski, Deffenbach, and Sevcik (1992) reported that nouns representing foods and objects are the first symbols used to design AAC systems. According to Adamson et al. 1974,

> ...nouns are chosen because they are considered to be easiest to teach and assess and are of considerable functional use to the communicator. In addition, the clinicians often omitted other words (e.g. want, more, help) that regulate interaction from augmentative communication systems and are harder to teach and represent on communication systems. When Adamson et al. (1974) added these action words (in addition to the nouns) to communication boards used by young males with moderate to severe intellectual disabilities, the frequency with which they used these boards increased from 2 to 41%. The Adamson et al. (1974) study is one of several recent studies that have demonstrated that combining core and fringe vocabulary words increases the frequency of AAC use. (e.g. Beukelman et al., 1991, Yorkston, Dowden, Honsinger, Marriner, and Smith, 1989.)

Benajee, Dicarlo and Stricklin (2003) studied core vocabulary determination for toddlers and their findings support previous research. In their study, 50 toddlers were selected and audio taped during preschool activities. The first 150 utterances were analyzed. (p. 69)

> The results of this study revealed that nine common words were used across child-directed free play and adult-directed activities within nursery school and day programs. A further analysis of the language sample revealed the use of words to express different parts of syntactic, semantic, and pragmatic functions. A lack of nouns was noted in the common words used across different activities.....The nine core words identified by this research project were all included in the 25 most frequently used words identified by Beukelman et al. (1989). The similarities to past research help strengthen the premise that a common core vocabulary can be applied across activities and environments. (p. 71)

The authors go on to conclude that it is of the utmost importance to include words from all semantic categories in the design of communication materials. Some of these words may be hard to represent graphically but these can be taught through the use of modeling by teachers in the classroom. (Benajee et al. 2003, p. 71)

Yorkston, et al. (1988) studied vocabulary lists to "assess the usefulness of these lists as a source of vocabulary for adolescents and adults using aided communication. To do this the researchers chose lists of existing words and lists of words derived from user diaries and analyzed them. The results were as follows:

> The results....suggest that clinical usefulness of either single user lists or single standard vocabulary lists is limited as a source of vocabulary items for a number of reasons. First, user vocabulary lists may be too small and contain words too unique to serve as an adequate model for the selection of vocabulary lists for other users. Second, standard vocabulary lists, although somewhat larger and more comprehensive than user vocabularies, also contain such a large proportion of unique words that none can be considered a comprehensive source of words for a broad range of non-speaking individuals. (p. 200)

Yorkston et al. (1988) goes on to find that the best way to choose individual vocabularies is to use composite lists for finding core vocabulary but to obtain fringe vocabulary through communication diaries and environmental inventories. (p. 201)

One clinician in the field who has combined standard lists with user diaries is Gail Van Tatenhove. She is a speech language pathologist who specializes in augmentative communication. In her practice, which spans a period of about 30 years, she has compiled composite lists for everyday use by real people. These lists have their start in the research stated above but have been coaxed along and enriched by the vocabularies of real users in real situations.

The first list, presented below, comes from the 2003 research by Benajee, et al. on the core vocabulary of toddlers. (p.70) These researchers list the top words used by toddlers as follows:

1. a
2. all gone/finished
3. go
4. help
5. here
6. I
7. in
8. is
9. it
10. mine
11. more
12. my
13. no
14. off
15. on
16. out
17. some
18. that
19. the
20. want
21. what
22. yes/yeah
23. you

Van Tatenhove altered this list for clinical use by referencing different word lists and comparing those lists to the communication samples and diaries of her consumers. In that way, she broadened and sequenced the original list in order to determine what words to use for her clients augmentative systems and in what order to introduce them. Following are some of Van Tatenhove's clinical application lists based on but expanded from the original Benajee et al. (2003) list. The complete clinical application listing is in the appendix of this paper.

First 8 words:

1. all gone
2. help
3. want
4. mine
5. more
6. stop
7. that
8. what

First 15 words:

1. all gone
2. away
3. go
4. help
5. here
6. I
7. it
8. like
9. have
10. more
11. Stop
12. that
13. want
14. what
15. you

These lists are an integrated way of dealing with vocabulary. They are based on a developmental approach in which lists are derived from language acquisition principals. (Benajee et al. 2003, p. 67) They are then combined with user inventories as suggested by Yorkston et al., 1988, p.200 to make composite lists of useful, meaningful vocabulary. They give the novice "word finder" a simple logical way to begin the use of core vocabulary. They should not, however, be used as if they were a fixed and inflexible truth. Rather, they are a starting point for those who would begin to shift the focus of communication from the over use of fringe vocabulary to one which uses all parts of the language to provide communication simply and across contexts. These lists, I believe, represent a paradigm shift for most teachers selecting vocabulary for non verbal students in our schools today.

In current practice, teachers are using functional and environmental approaches to the choice of vocabulary. In the functional approach, words are chosen based on expressed communication functions such as requesting, commenting, greeting, and protesting. (Benajee et al. 2003, p. 67) This approach has given users opportunities to say pre-scripted things like, "Yummy!" "I don't want that." I want a cookie please." and "Hey Babe".

Words are also and often chosen according to the environmental approach. This is the approach that makes sure we have appropriate fringe vocabulary for a given situation because, in general, fringe vocabulary is specific to each communication environment. (Benajee et al. 2003, p. 67)) This is the approach that brings us, for instance, boards that list all the vocabulary needed for an art activity. Boards will have vocabulary for *marker, paper, crayon* and *glue* and this vocabulary will be changed when going on to a snack activity to words like *cookie, popcorn, drink*, and *spoon*.

Often the functional and environmental approaches are combined giving us the boards which are used in common practice in our schools. For instance, in the above mentioned art activity, the words *marker, paper, crayon* and *glue* would be supplemented with the words *more, finished, I like that* and *I don't like that* to make a situation specific board that has functional components.

While these approaches certainly add important pieces to the overall discussion of vocabulary selection, they are, in my opinion, overused. I would suggest that environmental/functional boards are potentially limiting when not used in addition to a basic core vocabulary. They supply a very little conversation on a teacher chosen topic. They supply no way for a student to talk generatively on the range of topics available to verbal peers. The only way students can begin to join the rich conversation of the schools and of life in general is through the use of core vocabulary.

Conclusion

Research shows that there is a core vocabulary that is usable across contexts, that it is made up of all parts of the language and that we all make use of it. Day in and day out, we use the little words we all know to speak on the topics at hand. We also use and need fringe vocabulary to bring the point home. There are times when only a noun will do. If you are a man lying parched in the desert sand, "Water" is the word needed and the word used.

Truthfully, the choosing of vocabulary for nonverbal users is difficult and fraught with problems. If the eyes are the window to the soul, then surely, words are the window out of it. How can anyone presume to find vocabulary that is sufficient to express what lies in another's mind? How can a few words on a Cheap Talk give power to the person sitting in front of it? Even words like "Wow" and "That's cool" when chosen by a teacher, mirror the thoughts of the programmer not those of the user. It is only with core vocabulary that real generative communication can begin.

If we step back and look at the concept of vocabulary, it seems to be pure logical truth that we have to teach language as we supply communication. If we take the time to teach the concepts behind the core words rather than making pretty and expedient boards of colorful nouns, we will have started to build a bridge to where we, as speakers, are participating in a rich language life. Recently I had a student who has normal language development but poor expressive ability using a core board. He said "I want little go." He meant "I only want to do a little work." He got the point across and he did it quickly and easily. There was no computer to contend with, no scanning to do, no board to change, no barrier between him and his idea except a few small words arranged on a single board.

And so we have come back to the students who began this paper. I think core vocabulary can make a difference for all of them and I am actively working toward that goal. I am hopeful that the word *zucchini* will be replaced by simple functional core and fringe words that supply language learning and have high communicative value. I am hopeful that the book of nouns will be used secondarily to a single board of core words to help in the creation of real communication. Finally, I am hopeful that my scanning student will use a simple set of words to say what is on his mind on a variety of topics of his own choosing. Whatever may happen, my scanning student taught me about the power of core vocabulary on the day that he was given core vocabulary to use. He made his first sentence, and it was, "I want go fast." I wheeled him out of the classroom and into the hall where we whizzed past classrooms at a blinding rate of speed. He laughed a deep laugh of contentment and I thought to myself, "It good."

References

Adamson, L., Romski, M., Deffebach, K. & Sevcik, R. (1992) Symbol Vocabulary and the Focus of Conversations: Augmenting Language Development for Youth with Mental Retardation. *Journal of Speech and Research, 35, 1333-1343.*

Baker, B., Hill, K. & Devylder, R. (2000). Core Vocabulary is the same across environments. http://www.csun.edu/cod/conf/2000/proceedings/0259Baker.htm

Benajee, M., Dicarlo, C. & Stricklin, B. (2003). Core Vocabulary Determination for Toddlers. *Augmentative and Alternative Communication*, 19, 67-73.

Beukelman, D.(1991). Magic and Cost of Communicative Competence. *Augmentative and Alternative Communication, 7, pp. 2-10.*

Beukelman, D., Jones, R. & Rowan, M. (1989). Frequency of Word Usage by Nondisabled Peers in Integrated Preschool Classrooms. *Augmentative and Alternative Communication*, 5, 243-248.

Boose, M. & Stinnett, T. (1999). Indirect Language Stimulation (ILS): AAC Techniques To Promote Communication Competence. *Paper presented at the Annual Southeast Augmentative Communication Conference*.

Cross, R., Baker, B., Klotz, L., & Badman, A. Static and dynamic keyboards: Semantic Compaction in worlds. *Retrieved June, 2006 from. http://www.prentrom.com/printed/paper.pdf.*

Fallon, K., Light, J. & Achenbach, A. (2003). The Semantic Organization Patterns of Young Children: Implications for Augmentative and Alternative Communication. *Augmentative and Alternative Communication, 19(2), 74-85.*

Goossens', C. (1989). Aided Communication Intervention Before Assessment: A Case Study of a Child with Cerebral Palsy. *Augmentative and Alternative Communication*, 5 (1), 14-26

Light, J., Drager, K., McCarthy, J., Mellott, S., Millar, D., Parrish, C., Parsons, A., Rhoads, S., Ward, M. & Welliver, M. (2004). Performance of Typically Developing Four-and Five-Year-Old Children with AAC Systems using Different Language Organization Techniques. *Augmentative and Alternative Communication* (2), 63-88.

Stubbs, M. (1986). Language Development, Lexical Competence and Nuclear Vocabulary. Kevin Durkin, ed (1986 *Language Development in the School Years*. Croom Helm.

Van Tatenhove, Gail (2006). Stop the Madness and Start Communicating. Workshop, Spotsylvania VA.

Yorkston, K., Honsinger, M., Dowden, P. & Marriner, N. (1989). Vocabulary selection: A Case Report.

Augmentative and Alternative Communication, 5, pp. 101-108.

Yorkston, K., Dowden, P., Honsinger, M., Marriner, N. & Smith, K. (1988). A comparison of standard and user vocabulary lists. *Augmentative and Alternative Communication*, 4, 189-210.

Appendix A

Toddler Vocabulary Arranged by Frequency
Benajee, Dicarlo & Stricklin
Augmentative an Alternative Communication, 19, 67-73.

Words	**Percentage**
I	9.5
No	8.5
Yes/yea	7.6
my	5.8
the	5.2
want	5.0
is	4.9
it	4.9
that	4.9
a	4.6
go	4.4
mine	3.8
you	3.2
what	3.1
on	2.8
in	2.7
here	2.7
more	2.6
out	2.4
off	2.3
some	2.3
help	2.1
all done/finished	1.0
	96. 3%

Appendix B

Gail Van Tatenhove's Clinical Lists
derived from user diaries and standard lists by
Benajee, M., DiCarlo, C., & Buras-Stricklin, S. (2003)
Core Vocabulary Determination for Toddlers.
Augmentative and Alternative Communication, 2, 67-73.

Benajee List:
Top Words Used by Toddlers

1. a
2. all gone/finished
3. go
4. help
5. here
6. I
7. in
8. is
9. it
10. mine
11. more
12 my
13. no
14. off
15. on
16. out
17. some
18. that
19. the
20. want
21. what
22. yes/ yea
23. you

CLINICAL APPLICATION OF BENAJEE LIST

First 8 Words:

1. all done
2. help
3. want
4. mine
5. more
6. stop
7. that
8. what

First 15 words:

1. all gone
2. away
3. go
4. help
5. here
6. I
7. it
8. like
9. have
10. more
11. Stop
12. that
13. want
14. what
15. you

First 30 Words

1. again
2. all gone
3. away
4. big
5. do
6. down
7. get
8. go
9. help
10. here
11. 1
12. in
13. it
14. like
15. little
16. mine
17. more
18. my
19. off
20. on
21. out
22. put
23. some
24. stop
25. that
26. there
27. up
28. want
29. what
30. you

First 50 Words

1. again	14. get	27. mine	40. stop
2. all	15. go	28. more	41. tell
3. all done	16. good	29. my	42. that
4. away	17. happy	30. not	43. there
5. bad	18. help	31. now	44. turn
6. big	19. here	32. off	45. up
7. come	20. I	33. on	46. want
8. do	21. in	34. out	47. what
9. don't	22. it	35. play	48. where
10 down	23. like	36. put	49. who
11. drink	24. little	37. read	50. why
12. eat	25. make	38. sad	51. you
13. feel	26. me	39. some	

Adding to the Top 50

1. +ed	26. have	51. one	76. they
2. +ing	27. he	52. other	77. think
3. +s	28. hear	53. over	78. thirsty
4. after	29. hi	54. place	79. those
5. almost	30. hot	55. please	80. time
6. another	31. how	56. pretty	81. tired
7.any	32 hungry	57. problem	82. together
8. ask	33. idea	58. ready	83. try
9. be	34. is	59. ride	84. under
10. before	35. job	60. same	85. very
11. body	36. know	61. say	86. walk
12. can	37. later	62. she	87. way
13. cold	38. we	63. sick	88. we
14. color	39. let	64. silly	89. when
15. did	40. listen	65. sing	90. win
16. different	41. live	66. sit	91. with
17. dress	42. lose	67. sleep	92. work
18. fall	43. love	68. slow	93. write
19. fast	44. maybe	69. sorry	94. wrong
20. favorite	45. much	70. start	95. your
21. for	46. myself	71. surprise	96.
22. fun	47. name	72. swim	97.
23. give	48. need	73. take	98.
24. goodbye	49. nice	74. thank you	99.
25. guess	50. of	75. these	100.

Adding Words to Get to 300+ Core Words

1. Add all the pronouns
2. Add more adjectives and adverbs
3. Expand verbs, with tense variations

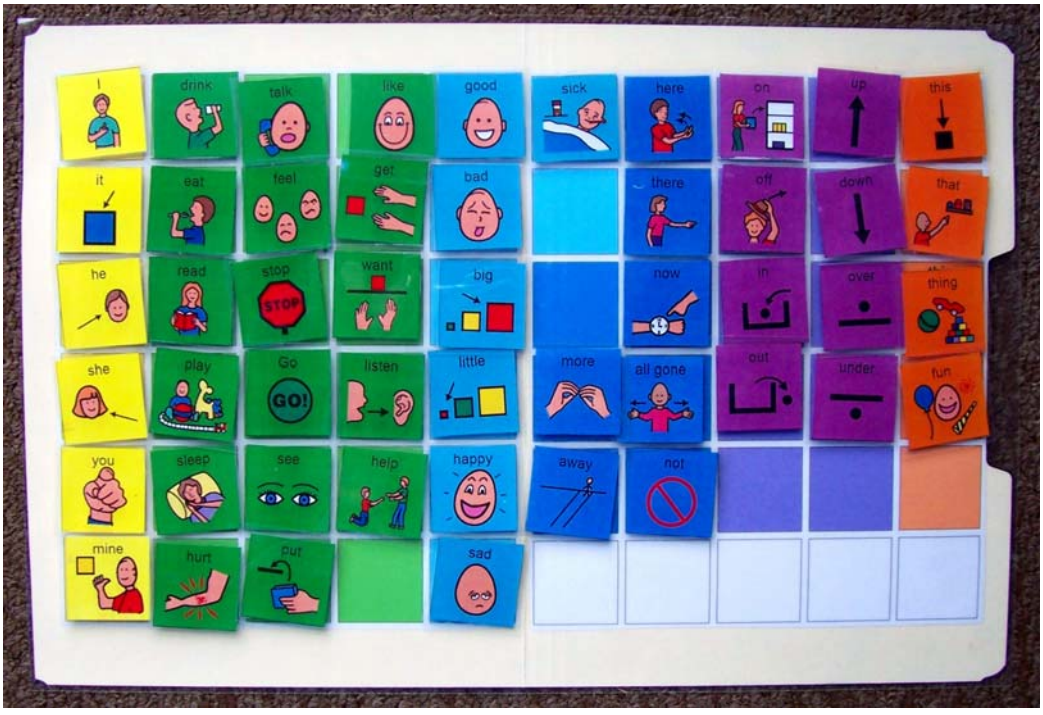
Appendix C

500 Most Frequently Occurring Words Produced By Five Adult Communication Augmentation System Users (listed from most to least frequently occurring)
Beukelman, Yorkston, Poblete, Naranjo, *Journal of Speech and Hearing Disorders*, 49, p. 360

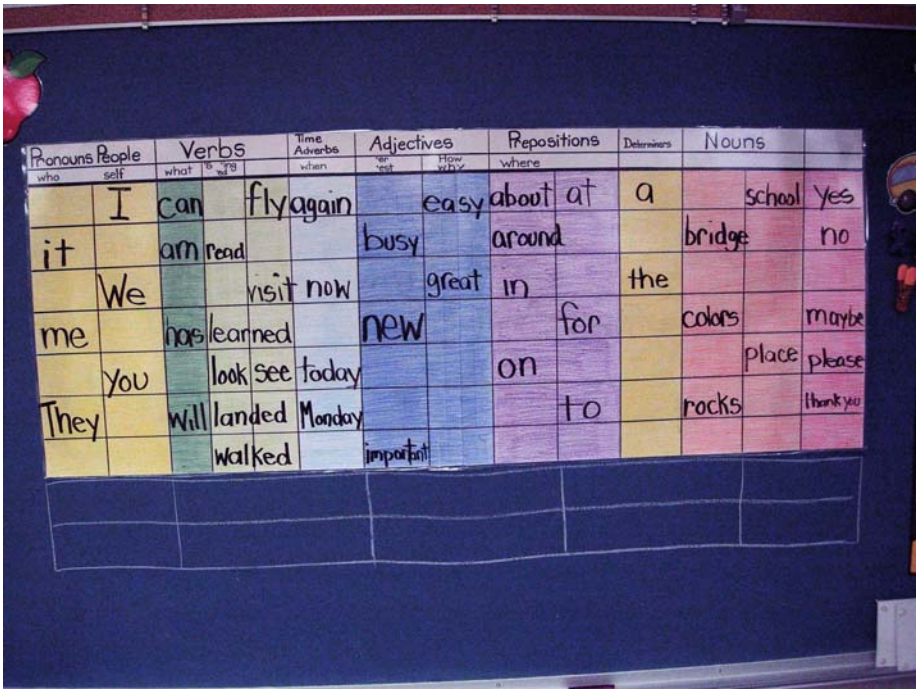
I	she	tonight	thought	noise	understand	feels
to	they	again	under	side	twenty	everything
you	about	only	pretty	check	girl	apple
the	no	feel	mean	pot	close	nothing
a	could	bag	kind	believe	lot	speed
it	down	eat	way	since	shirt	must
my	tell	has	crib	boy	myself	dead
and	home	find	might	damn	tube	piece
in	her	then	great	words	started	already
is	good	four	push	knee	least	late
me	too	maybe	even	gets	there's	part
on	why	left	head	talking	best	normal
have	ok	last	both	hurts	almost	wrap
do	because	those	wouldn't	problem	thank	type
of	from	dinner	far	mouth	through	sleep
that	much	doing	set	what's	minute	notes
get	car	first	things	nurse	later	insure
for	very	stand	game	while	cut	real
what	use	pleased	hurt	came	yourself	asked
but	can't	battery	stuff	write	morning	horn
if	work	said	music	cookies	listen	guy
can	now	people	wait	weight	wonder	might
don't	more	won't	next	into	miss	days
be	don't	a lot	done	bath	pay	tired
I'm	help	give	also	wrong	cars	slow
with	him	I'd	anyone	being	able	sitting
are	who	clean	our	you'd	these	nose
like	right	turn	sorry	years	clothes	lift
was	that's	watch	until	big	called	comes
mom	day	well	wear	radio	stop	card
how	tomorrow	remember	making	looking	show	coming
this	foot	other	book	happened	hand	thinking
so	long	yes	cave	told	haven't	month
will	were	anything	eyes	rather	save	sounds
go	an	new	skin	oh	broke	study
not	today	nice	paper	bring	sun	pins
or	by	pants	away	care	easy	read
want	over	never	TV	breakfast	second	feet
would	them	fix	enough	he'll	thanks	trying
when	I've	lunch	walking	life	pass	such
up	really	tape	school	six	moved	seeing
all	walk	call	move	hit	tapes	kept
out	two	used	heard	face	makes	he's
it's	any	been	hour	suppose	gone	stereo
your	let's	light	bad	huh	full	walked
at	chair	hope	using	most	gift	laundry
going	still	keep	working	looks	hair	instead
put	I'll	eye	once	forgot	tomorrow	job
take	look	went	shoes	it	leaving	door

we	bed	cold	plug	half	stay	wondering
did	play	hot	glad	saw	year	low
please	wish	water	many	nine	place	hello
time	may	always	whole	made	sit	toilet
know	sure	board	man	beautiful	plus	lap
one	something	which	yet	three	important	surgery
see	buy	hospital	took	therapy	mind	sound
just	night	love	red	program	months	probably
am	say	money	because	own	handle	clear
off	talk	getting	ago	building	juice	purse
as	his	pee	blue	open	track	Friday
think	should	hate	walker	every	food	cream
there	after	leave	block	two	afraid	brain
make	ask	arm	line	live	dumb	fall
had	try	pack	name	yesterday	word	tight
dad	little	old	hold	pick	between	diamond
need	than	garage	ever	anyway	run	awful
where	better	hard	fell	number	carry	shop
room	does	pop	towel	box	supper	free
here	computer	doctor	isn't	their	lay	
he	before	guess	floor	minutes	doctors	
back	thing	week	doesn't	she's	ice	
some	same	let	table	fine	cost	

Appendix D
Examples of Core Vocabulary Boards used in the Spotsylvania County Schools

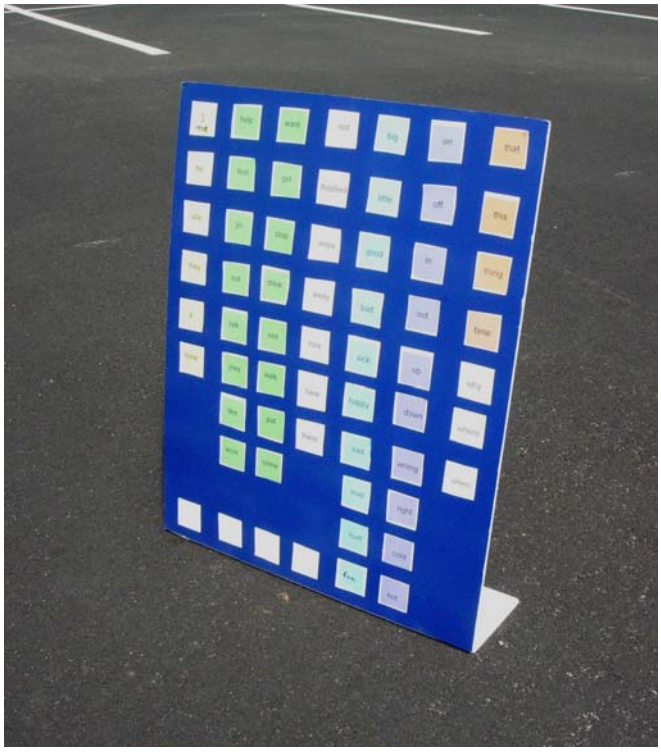


Spotsylvania County 50 Word File Folder Velcro Core Board
Can be used for pointing, for modeling and for making smaller boards as needed



Core Vocabulary Board Used for writing instruction in a primary autism classroom

Invented by Donna Cannavo, Courtland Elementary School



Core Vocabulary Board used for a student with intact language ability poor motor skills.

The board is used to supplement existing speech. Made by Barbara Cannon