

The Story of Core

Snap™ + Core First® offers the premier approach to core words based on current research. Let's take a look at how we got here and where it can take you.

Origins of Core Words

The foundation of research on language can be traced back before Socrates to the 5th century BC (Hickey, 2013). Don't worry, we won't go back that far in our exploration! Instead, let's start in 1921 and Thorndike's *The Teacher's Word Book*. This volume was an alphabetical list of the 10,000 most frequently used words in American English writing. He compiled it for the purpose of assisting teachers in selecting words for literacy instruction (p. iii). Interestingly, Thorndike suggested that teachers rely not on frequency alone to determine importance of words, but reminded them that "a word may be very important for a pupil or graduate to know and yet not figure largely in the world's reading" (p. iii-iv). This sounds like our modern idea of core words versus personal core words to me (e.g., names of family and friends, favorite places, hobbies, etc.).

The study of frequency of use did not stop there. In 1967, "Computational Analysis of Present-Day American English" (known broadly as the Brown Corpus) was published (Francis & Kucera, 1967). This much-cited resource showed that "the", "of" and "to" comprised approximately 10% (Brown Corpus, n.d.) of the 1,014,312 words in the Corpus (Francis & Kucera, 1979). It is no wonder these are almost always among the words that appear in core word strategies.

Klare summed up the role of frequency pretty well in 1968 in writing, "... humans tend to use some words much more often than others..." (Dubay, 2004, p.12). This also explains why such words are included in the vocabulary of many augmentative and alternative communication (AAC) systems today.



Core Word Strategies in AAC

Frequency of use was reflected in early AAC primarily with the inclusion of common written/typed single words, words of personal importance, and social phrases added to an alphabet display. However, the set of single words was often relatively small and the augmented communicator relied primarily on spelling for communication. This compromised broad use of AAC for those with limited literacy skills.

In 1971, a team led by Shirley McNaughton at Ontario Crippled Children's Centre (now Holland Bloorview Kids Rehabilitation Hospital) introduced Blissymbolics as a way to represent single words that individuals with physical disabilities could combine into sentences (Blissymbolics-Canada, n.d.). The success of this approach spurred on the use of core words in AAC using Bliss Symbols and then individually drawn line drawings and photographs for those who found Bliss symbols too abstract. In the 1980s, several large sets of picture symbols were published, with Picture Communication Symbols (Johnson, 1981) emerging as the most widely used (Glennen & DeCoste, 1997).

Please	Thank you	You're welcome	Sorry	Excuse me	Wait	[name]	[name]	[name]	[name]
My name is [name].	My birthday is [date].	My address is [address].	My phone number is [phone].	My birthday is [date].	Ask my [family member].	My doctor is [doctor].	It is an emergency.	Help me!	I need something.
A	B	C	D	Delete Letter	.	Hold on	I	Am	An
E	F	G	H	Space	That's not all I want to say.	Start over	You	Are	The
I	J	K	L	M	N	I'm finished	It	Is	That
O	P	QU	R	S	T	?	He	Do	This
U	V	W	X	Y	Z	!	She	Want	Here
							They	Need	There
							We	Like	And
							My	Look	But
							Your	Get	Now
							Me	Give	Later
1	2	3	4	5	6	7	8	9	0



More about Blissymbolics:

Blissymbolics were developed by Charles Bliss in the 1940s as a writing strategy to cross language barriers, but they found their greatest application was in expanding the communication of individuals with communication impairments (Blissymbolics-Canada, n.d.).

Sentence-based word order and color-coding has been part of the story of core from very early on. Ms. McNaughton recalled that she and her team began to use **color coding** on their displays in 1972. Symbols were color-coded based on their part of speech (S. McNaughton, personal communication, March 29, 2011). She and her team applied a modified-version of the Fitzgerald Key organization upon learning of it from Eugene T. McDonald in approximately 1975 (S. McNaughton, personal communication, March 29, 2011).

What is the Fitzgerald Key? It is an organization of words in declarative sentence order (subject phrase + verb phrase + object phrase) developed by **Edith Fitzgerald** in 1929 as a means of teaching grammatical language to children who were deaf and hearing impaired. McDonald and Schultz suggested some modifications in their 1973 article and applied it to AAC (1973, p. 78-79). It has subsequently become the default layout for core words used in AAC.

Since these beginnings, the use and study of core words in AAC has broadened. Core words have been included in communication books and boards as well as high-tech communication devices and now apps. We have seen studies focusing on what people say based on age (Banajee, 2003; Beukelman, Jones & Rowan, 1989; Holland, 1975; Lahey & Bloom, 1977), type of disability/diagnosis (Fried-Oken & Bardach, 2005; Holland, Halper, & Cherney, 2010), environment (Williams, Beukelman, & Ulman, 2012), and culture (Bornman & Bryen, 2013). These studies have expanded our knowledge of the words people use and how they are used, and informed the decision-making process we use in selecting words.

More about color coding:

Color coding by part-of-speech has been used for many years to help individuals locate core words faster by decreasing memory demands. Various color coding schemes are used around the country to this day. However, recent research has revealed some interesting information about color-coding in AAC. Thistle & Wilkinson (2012) reported that use of background color appears to offer "no advantage or distraction." Oxley & Norris (2000) indicated that children tend to rely on simple repetition (particularly in real life situations) to memorize messages in AAC more than organizational strategies.

How do we respond to this research? We may choose not to color code anymore or we may continue to do so. It seems to me that the important point to learn from this research is not to rely on color coding for teaching use of core words. Instead, we need to focus on strategies backed by evidence such as:

- use in real life situations,
- modeling, and
- providing a positive communication environment.

More about Edith Fitzgerald:



Edith Fitzgerald (1877-1940), born hard of hearing and late-deafened, graduated as valedictorian from Gallaudet, Ms. Fitzgerald taught at a number of schools for the deaf and eventually became an Assistant Principal. From its first printing in 1929, her "Key" (in Straight Language for the Deaf) influenced the language and communication of several generations of individuals with hearing impairments as well as those who use AAC (Gallaudet University Alumni Cards, n.d.; Hurwitz, 2007, p. 6).

Recent Developments in Core Words

In 2012, Karen Erickson and the Center for Literacy and Disability Studies at the University of North Carolina at Chapel Hill reported that they had been exploring the “language of students in academic settings” which had previously not been done (Hatch, Erickson, Dennis, & Cummings, 2012). It was their purpose to:

...identify a comprehensive list of core vocabulary words, spanning grades K-12, which reflect the research in core vocabulary in AAC and the vocabulary that is needed to successfully communicate while in academic settings where the Common Core Essential Elements are being taught (DLM Professional Development Team, 2013, p.4).

This exciting research resulted in a suggested set of core words that heavily informed the content, layout and systematic growth of core in Snap + Core First. Ongoing research from this team, found at www.project-core.com, reinforces the value of adding core systematically over time as well as the role of modeling its use.

More about Dynamic Learning Maps Core Vocabulary:

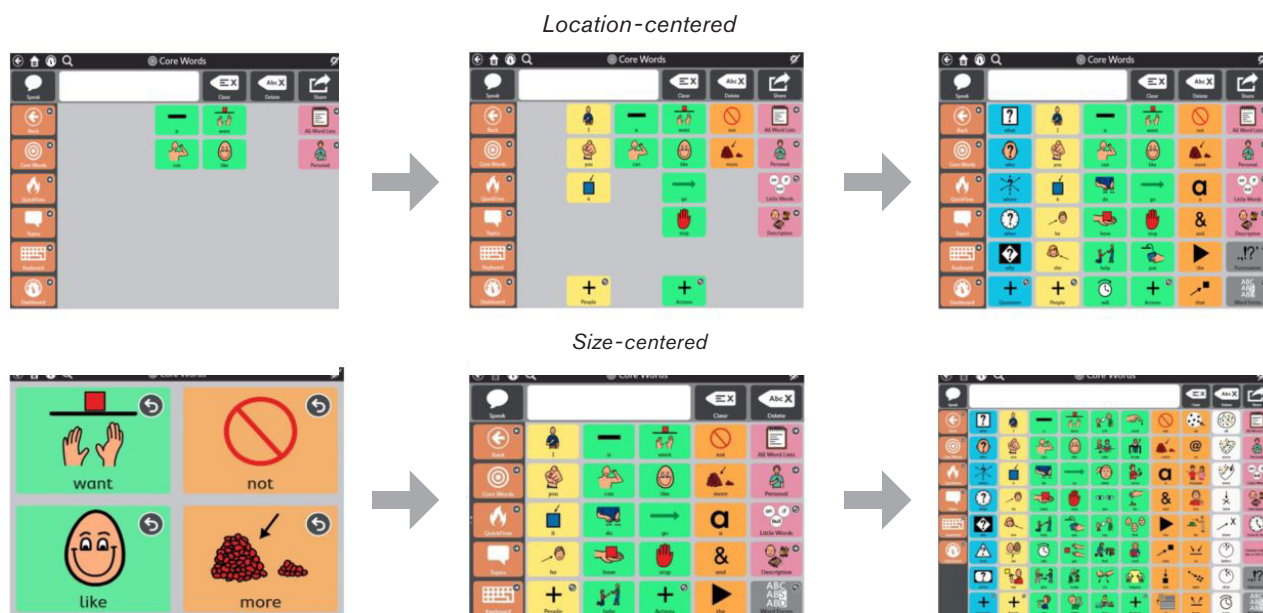
This team of researchers lead by Karen Erickson began their quest by reviewing the research related to AAC core and vocabulary lists from school districts, AAC specialists and commercially available AAC systems. Words were analyzed based on frequency and breadth of use in elementary school written texts and within the Common Core State Standards for English Language Arts and Mathematics. A weighting and ranking process followed, resulting in the suggested set of required words as well as their systematic introduction in prioritized groups (DLM Professional Development Team, 2013; Hatch et al., 2012).

Tobii Dynavox Core First

Core First is the premier pageset in Snap + Core First software. It is:

- founded on previous research into core words,
- heavily informed by state-of-the art findings,
- systematically expanded,
- seamlessly integrated with Core First's extensive Word Lists and other communication tools, and
- supported by training resources including Pathways for Core First, Core First Learning and more.

Since initial introduction as part of Compass in 2014, Tobii Dynavox Core has offered systematic growth by growing big and filling in and by starting small and growing big which Dukhovny and Zhou (2016) labeled location-centered and size-centered respectively.



In their published study (Dukhovny & Zhou, 2016), the researchers found that adults without disabilities demonstrated greater accuracy and speed following location-based training. They reported that typically developing children did not demonstrate significant differences between the two training approaches in a presentation at the American Speech Language Hearing Association Convention in 2016 (Meneses, Reyes, Siobal, & Dukhovny, 2016). We look forward to continued research on this subject.

As you can see, Tobii Dynavox has taken what we have known about core words for years, integrated new research and steps for growth. ...but that isn't all; the story of core continues at Tobii Dynavox with resources for teaching and support.

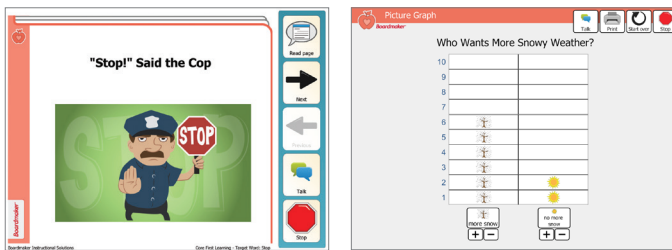
The Story of Core Continues

Previous and ongoing research efforts reinforce the need for intentional and systematic teaching of core vocabulary through modeling, use in daily activities and especially literacy activities. Tobii Dynavox puts this evidence into action with supports such as:

Core First Learning

Boardmaker Core First Learning is a web-based program available through Boardmaker Online that helps your students learn the meaning, use, and placement of high frequency core words on their AAC system. The instructional sequence includes a series of reading, writing, and language activities that complement each other.

www.boardmakeronline.com/Subscription/CoreFirstLearning



Core First Books & Lessons

Our popular Core First Books and Lessons are available to you in print format! Discover 36 beautifully illustrated books that are designed to support you in teaching your student specific core words.

www.mayer-johnson.com/core-first-books-lessons-set-1

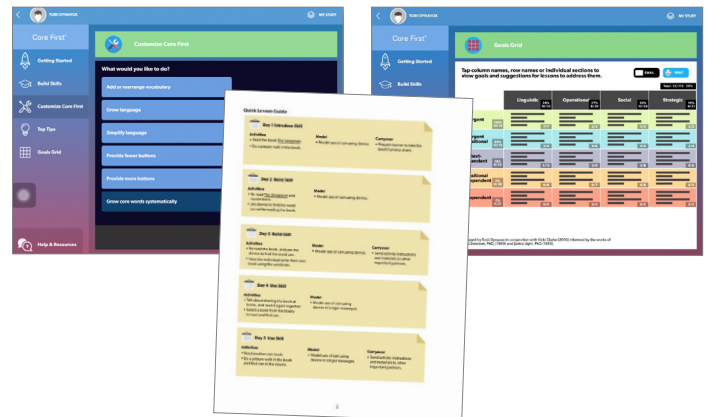


Pathways for Core First

Free companion to Core First, Pathways offers goals, lessons, and instructions in growing and teaching core vocabulary and growing language skills.

www.tobiidynavox.com/software/free-resources/pathways-for-core-first/?MarketPopupClicked=true

Based on evidence, Tobii Dynavox Core First and supports provide a complete package to continue the story of core for augmented communicators.



Localization to Additional Languages

You will notice that we used the word localization rather than translation. What is the difference? Translation is substituting one language for another. Localization includes not only changing the language but adjusting location and organization based on the unique features of the language. For example, "is" is one word in English but two in Spanish (i.e., está, es). Both need to be included in Spanish core. Also in Spanish, the word for "I" ("yo") is not used as frequently as it is in English. Therefore, it should be considered lower priority in organization and growth. A straight translation would not accommodate these issues whereas localization does. Localization of core words in Snap + Core First is based on scientific research such as word frequency lists and language samples (where available), clinical expertise/expert opinion, and client/patient/caregiver feedback.

Tobii Dynavox is committed to providing evidence-based AAC. Continuing reliance on current research and feedback will allow us to do so.

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