



## Introduction: what's the 'killer app' for AAC?

At the Inclusive Learning Technologies Conference 2012, Ian Bean gave a talk called “The Killer App”, about the *one* killer app that can truly make a difference to the life chances of all children with disabilities. The “Killer App”, he says, is not the technology we use, but the teachers and parents who apply these technologies to their children’s lives, and the therapy techniques they use.

We created this “Getting Started” manual to guide parents, teachers and educators to use Avaz with their kids, to make informed choices and decisions, so that there is a visible, measurable difference in their communication abilities that is permanent. We reiterate: it isn’t about the app, it’s about how it’s applied. The fundamentals are important, and we’d like to give a flavour of these fundamentals in this article.

## Out of the box: how do I familiarize myself with Avaz?

It’s important for the parent or care-giver to get familiar with Avaz before starting to use it with a child. Avaz is easy and fun to get familiar with.

1. *Launching the app:* Tap the “Avaz for Autism” icon to launch the app. The app may take a few moments to load the first time, and then presents a screen with 4 categories on it – Quick, Getting Started, Basic and Advanced.
2. *Categories and messages:* Tap any of the categories to go into it, and then tap on messages to speak them out and add them to the message box on top of the screen.
3. *Navigating back:* You can press the HOME button or the BACK button to navigate backwards.
4. *Keyboard:* After you’ve tried out the picture vocabulary, take a moment to explore the keyboard by pressing the KEYBOARD button on the top left corner of the screen. You can type anything on the keyboard, and use the prediction bar to accelerate your progress.
5. *Entering Edit mode:* Next, go back to picture mode and try customizing Avaz. Since Avaz works best when it is personalized for a child, this is an important step to try out. It’s really simple to add a new word or category in Avaz, though, so it should only take you a few moments. Go into any category and click the pencil icon on the top left corner (near the cog-wheel for Settings and the question mark for Help). Avaz switches into Edit Mode.



6. *Adding new words:* You can tap the “Add new” icon on the top left to add a new message or category, or tap “Edit” on the top right and then tap a message on the screen to edit it.
7. *Changing images:* In the Edit popup, you can type in a caption (label), search for a symbol (or take a photo), and customize the way the caption is read out. Click the “Done” button to complete the change. Press the pencil icon once again to leave Edit mode.
8. *Changing App settings:* You could also take a moment to look at some of the settings in Avaz. You may particularly want to look at the Picture size option (which allows you to control the number of pictures per screen) and the Starting Screen option (which allows you to control which category shows up as the Home screen). You can also adjust the voice and speed.
9. *Customizing reinforcements through App settings:* Also spend a few moments to check out the various reinforcements that can be turned on and off through the Settings menu. You can turn off animation by de-selecting “Enlarge on Select”, you can turn off speaking out every button you tap by de-selecting “Speak as you type”, and you can change the background colour to a dark gray by switching on “High contrast”. Spend some time in trying out the various options that are available under Settings. This will help you to individualize Avaz for your child.

## **How do I work with my child’s school or therapist to use Avaz?**

If your child is already using an assistive technology or aid for communication (such as a picture board or another app), we strongly recommend that you try to establish continuity between the older system and Avaz. Also, if you are consulting a speech therapist, or if your child is being given communication training at school, it’s important to check with the therapists and professionals who are working with your child to ensure that the work you are doing will not contradict their own approach. Avaz is easy to modify to align it with most systems that are already in use for your child – whether it’s another app, or a low-tech picture exchange system like PECS.

It is important to note that the suggestions given in this document should be treated as a general guideline to use an AAC device or app, and will need to be adapted to your child. A trained speech therapist will guide your child in using Avaz effectively, and combining Avaz use with other therapy techniques in different environments. **This guide is not a replacement for professional therapy services.**



## What are some general tips to introduce AAC?

### 1. Choose a familiar environment

It's highly recommended that Avaz be used in a single, controlled environment when it is first introduced. This could be a class, or at home, or in a therapy clinic; whichever you choose, ensure that the child is using Avaz consistently and successfully in this environment before using it in other environments.

### 2. Gradual progression is key

Avaz has features that will 'grow with the user' – with appropriate use, it could be a lasting communication tool for your child. That's why it's important to begin well, and progress smoothly. In the beginning, a highly structured environment is invaluable to making swift progress. The use of Avaz, and the use of the iPad itself, must be restricted to short, structured learning sessions, till the child can confidently and easily navigate through the app to make requests.

### 3. Reinforcement is important

In the initial sessions, reinforce every request that the child makes using Avaz immediately and consistently. This is critical to establishing the cause and effect relationship that is core to communication. Especially ensure that the child does not use the iPad as a toy during Avaz sessions, or randomly tap pictures and categories. This is likely to have an adverse impact on the ability of the child to use Avaz for learning language and communication. The use of Guided Access, which is available in iOS 6, is likely to help the child remain focused on Avaz and communication during the session.

### 4. Teaching to seek attention

In children with autism, communication intent is the biggest challenge to effective use of AAC. The child is not motivated to communicate with a partner. Without developing communication intent gradually and purposefully, every communication session is likely to be a struggle.

Regardless of the request that the child is making, the care-giver must ensure that the child actively seeks the attention of the communication partner before making the request. This can be through eye contact, gestures, physical prompts or verbal prompts before making the request using Avaz.

### 5. Where do I start?

Assess the right level of Avaz that is suitable for the child before using Avaz. You should first decide whether to use text or pictures to communicate. A child who is able to express himself through words can start with the text mode. A child who is still learning alphabets and words, or who is using PECS, can start with picture mode and gradually be guided towards the text mode through a planned approach.



The following sections assume that the child is starting from a beginner’s level, having no prior experience with AAC or picture communication.

## Understanding prompts: how should I prompt my child?

Any new learning can be quite overwhelming for the child. Any child can benefit from prompting, regardless of age, communication skills, or cognitive ability. Prompts can be used to assist the child in successfully learning to perform a task - it is a method of guiding the child to give the correct response. If you don’t prompt, the child will continue an incorrect behaviour, and the motivation to learn will decrease.

### What is a prompt?

A prompt is a cue or instruction that is given before or during child’s action or response. There are different types of prompts that you can use to motivate the child to learn and succeed.

### What prompts should I use?

Start from the most intrusive (full physical guidance) and progress to the least intrusive type of prompt (indirect verbal), through a systematic method of fading each type of prompt until the child is able to respond independently, without any prompts.

The prompt hierarchy is given below. You should start with the one that is most appropriate for the child, but regardless of the prompt used, work towards making your child independent of the prompt.

Given below are different types of prompts that you can use. The example used below is to teach the child to tap the sentence box to speak the sentence.

Nature of prompt	Type of Prompt	Description	Example
	Independence	No guidance is needed	No guidance – child responds independently
Least intrusive	Indirect Verbal	Give a verbal hint about the next step or remind the child of the next step	“You need to tap somewhere to make it speak” OR “After you have written the sentence, where will you tap to make it speak?”
	Direct Verbal	Give a verbal instruction to the child telling him exactly what to do.	“After you write the sentence, you must tap the sentence box to speak.”
	Model	Show the child what to do by	After writing a sentence, tap



		modelling or demonstrating the action yourself.	the sentence box and explain to the child that by tapping the sentence box, Avaz speaks the sentence aloud.
	Gesturing	Use gestures, such as pointing, tapping, or head nod to point towards an item.	Point to the sentence box and gesture the tapping action.
	Partial Physical guidance	Provide gentle guidance to help the child complete the task.	Gently tap the elbow to prompt the child to respond correctly.
<b>Most intrusive</b>	Full Physical Guidance	Gentle guidance is provided to help the child complete the entire step or activity.	Hand-over-hand prompt – guide the child by doing the entire action yourself with the child’s hand. Tap the sentence box to make Avaz speak.

## How do I start AAC in a structured, systematic way?

The efficacy of Avaz, just like any other AAC tool, is dependent on its being taught in a structured, systematic way. The following 4 steps are generally used when training children with autism to communicate in pictures, which is what Avaz was designed for. Don’t forget to adapt these steps based on your child’s sensitivities and abilities!

### Step 1: Cause and effect

The first step of training a child to use AAC is to teach them the cause and effect relationship in communication, i.e. the concept that if they use a tool such as Avaz to communicate, it has a direct benefit to them.

Follow these steps to teach your child the ‘purpose’ behind Avaz:

1. Through the settings menu, switch the Picture Size to Huge (1 picture) and turn off the Message box.
2. Choose an item that is likely to motivate the child (e.g. chips / chocolate) and either create it or move it to the home screen (through the Edit mode).
3. Let the child see the actual item. But do not give the item to the child unless he or she requests it by touching the appropriate picture in Avaz.





*Switch Avaz to 1 picture, without the sentence box.*

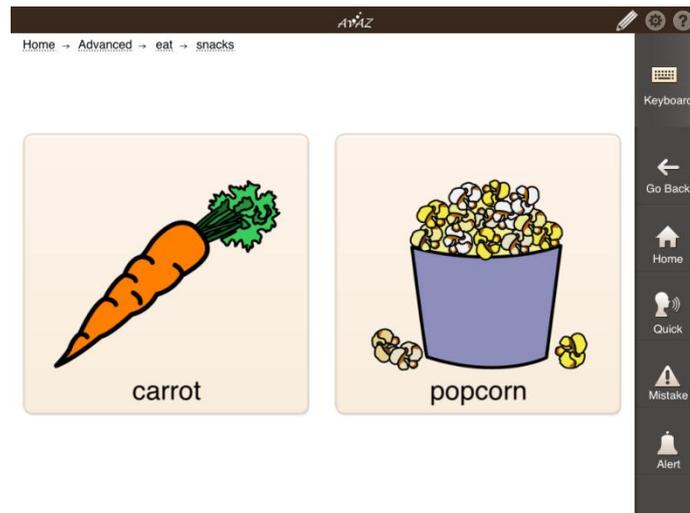
4. The first few times, you may have to guide the child's hand or finger physically to touch the picture in Avaz. Gradually, a tap on the arm may be sufficient to signal the child to touch the picture. If the child does not respond correctly, try using different types of prompts. Read more about prompts under "What types of prompts can I use?"
5. Change the item that is shown on the screen several times, to ensure that the child understands the cause (i.e. pressing the picture) and effect (i.e. giving the item to the child), without misunderstanding the purpose of the exercise. The child should not think that the purpose of Avaz is to request a specific food item or toy only.

## Step 2: Discrimination

After the child has learnt to establish cause and effect using Avaz, it is time to move on to teaching the child to make choices.

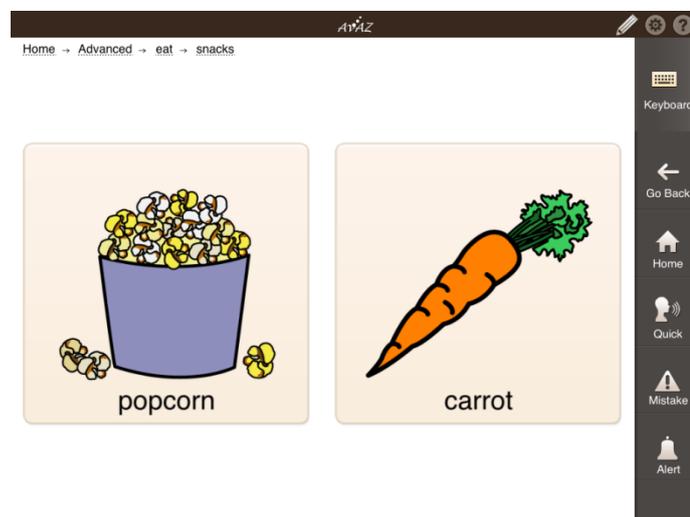
1. Through the settings menu, switch the Picture Size to Extra-large (2 pictures) and turn off the Message box. This gives a clean and uncluttered interface for the child to begin with. You can also use the Disable option from the Edit screen to temporarily remove other items (categories and messages) from the home screen, to avoid confusing the child.
2. Choose two items, one of which is highly reinforcing (e.g. chocolate or chips), and the other which is non-preferred (e.g. carrot). Both items should be placed in the field of view of the child.
3. Program Avaz with these two items, either by creating it or moving it to the home screen (through the Edit mode).





*Two objects, one highly desirable and another that is not*

4. Use appropriate prompts to get the child to tap the one of the two items in Avaz to request it. If the child requests an item (even if you know it is the non-preferred one), give the actual item to the child immediately. It is important for the child to learn that a wrong choice was made and correct it. Provide the necessary prompts to enable the child to give the right response, followed by the appropriate reinforcement.
5. Change the position of the pictures frequently so that the child relies on visual discrimination between the images (and not position alone). In Avaz, you can enter the Edit mode and drag-and-drop the images to rearrange them.

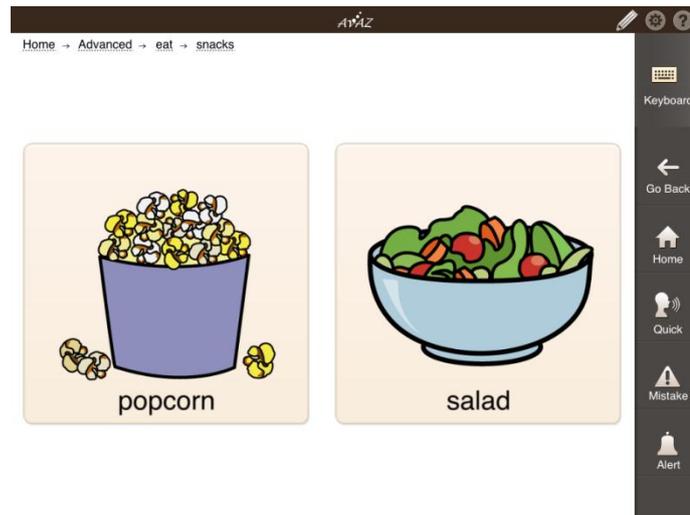


*Switch between the positions of the two images*

6. Try different combinations of preferred and non-preferred combinations, to ensure the child understands what is going on.
7. Once the child has learnt to consistently choose using 2 images, move gradually to 3 and then to 4 pictures per screen. Initially, you may wish to leave the 3<sup>rd</sup> and 4<sup>th</sup> images blank, so that the child gets used to the layout change before being introduced

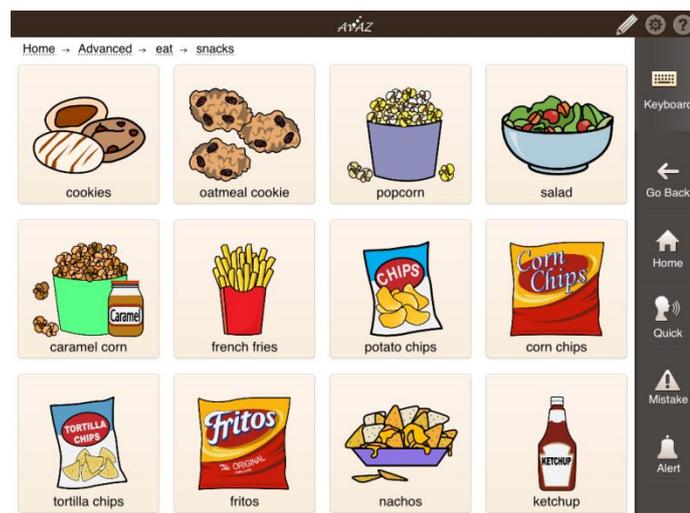


to new images. To start with, only one of the images should be a preferred item, all the others should be non-preferred items.



*Switch different non-preferred items to reinforce accurately*

8. When the child is able to consistently request the preferred item, you may want to introduce more than one preferred item, allowing the child to make a real choice. For example, if the child likes chips and pop-corn but dislikes carrots and salad, you may wish to start with chips and carrot, or chips and salad. Then progress onto chips, carrot and salad. Only after the child is able to select chips consistently would you progress to showing more items - chips, pop-corn and carrots.
9. Keep adding pictures to go to up to 12 pictures per screen (select “Large” from the Settings).



*Adding up to 12 pictures, with a mixture of desired and non-desired objects*

10. Introduce the child to the concept of swiping or scrolling to reveal more items. Add more than 12 pictures, keeping the settings at Large. Ensure that the preferred



pictures are not initially visible in the screen, but can be revealed by swiping down. Prompt the child to swipe down and choose items from the next page also.

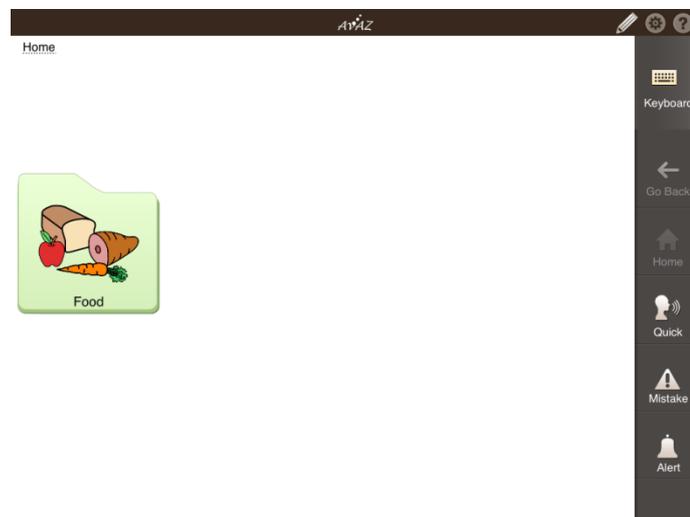
### Interlude: Tweaking settings

You may find that a child is not making progress with Avaz, or is showing a reluctance to use the iPad and Avaz. In many cases, this is because of sensory issues that the child has. You may try changing settings in either the iPad (e.g. decreasing the brightness of the screen, volume of the audio). You may also try to change the audio settings in Avaz such as Audio speed, Speak as you type, and Voice.

### Step 3: Categories and messages

One of the most effective ways to provide a child access to a large picture vocabulary is through *categorization*. That's why most AAC apps use some form of categories or folders to organize pictures. However, since this is a relatively abstract concept, it is important to introduce the child to it gradually.

1. Once the child gains the ability to select from up to 8 images, introduce the child to **categorization**.
2. The categories must be appropriate and meaningful to the child. For example, the child may immediately relate to 'Food' and 'Toys', but not to 'Indoor items' and 'Outdoor items'.



*One category, in the home screen*

3. Start with a single category in the home page. You can do this without deleting any of Avaz's vocabulary by creating a new empty category (called 'Test', for example) and setting that as the Starting Screen through Settings. Then create the desired category (such as 'Food') within that.
4. Using a physical prompt (such as guiding the child's finger or touching the child's arm), make the child tap the category to see the items inside that category. Use



prompts as appropriate to get the right response and gradually fade the prompts until the child is able to give an independent response.

5. After the child has tapped an item inside a category to make a request, use appropriate prompts to make the child touch the **'Back' button** to come back to the home screen.
6. You can now gradually introduce the child to other concepts of the app one at a time. For each concept start with the most intrusive prompt and progress to the least intrusive prompt until the responds is able to give the correct response independently. For example, you can teach the child to use the **"Mistake"** button or the **"Quick"** button.
7. Gradually **add more categories**. Ensure that each category is thoroughly mastered before adding new ones – it is important not to overwhelm the child with too much information!



#### *Gradually adding new categories*

8. Once you have a few categories added, you may want to introduce the concept of a sub-category. The child will have to navigate into a category, and then into a sub-category, to find the preferred item. Use appropriate prompts to guide the child to do this correctly and gradually progress to getting the child to give the correct response independently.
9. Next, teach the child the function of the **'home' button**, to quickly come out of a sub-category to the home screen.
10. After the child has learnt to navigate into a category to select an item, you may want to bring back the Message box from the Settings menu. This will help the child get familiar with a new element on the screen before it is used in actual communication.

### Step 4: From words to language

It is now commonly accepted that the goal of AAC should not be to teach the child a set of words to use in specific contexts, but stimulate "SNUG" – spontaneous novel utterance generation. This



means that the child does not learn sentences per se, but instead learns how to generalize parts of the sentence, and combine these parts to create an infinite variety of sentences.

Generalizing language is one of the most powerful features of Avaz, and you are strongly encouraged to use Avaz effectively to develop language skills.

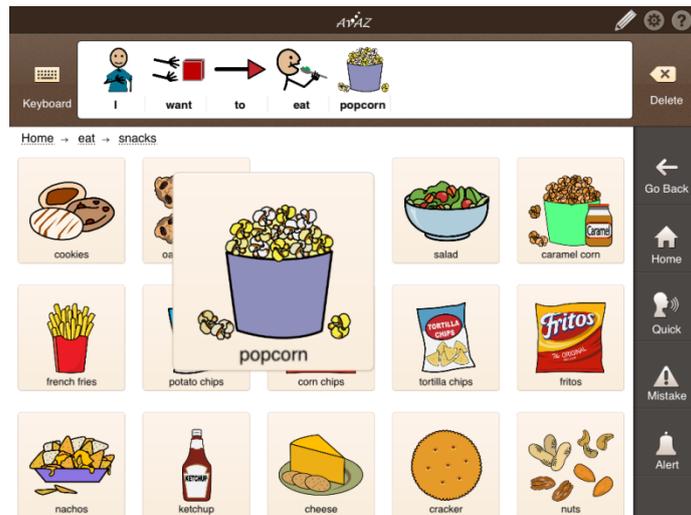
You may begin with the Getting Started vocabulary – it has a small vocabulary, with few categories and no sub-categories. As you increase the number of messages and categories, you may want to make a conscious effort to move towards one of the default vocabularies provided with Avaz (Basic or Advanced). There are more than 2,000 words in the Advanced vocabulary of Avaz, and it will save you a lot of time and effort if you can move towards the categorization shown there, instead of creating a completely new categorization that has to be built from the ground-up.

Language generalization is complex, and a systematic approach to it is beyond the scope of this manual due to its dependence on the needs and abilities of specific children. However, the general rules are:

1. Allow the children to learn a core vocabulary first, so that they will have enough words to form full sentences. Follow Steps 1 to 3 above to build a vocabulary of about 50 words before starting language development.
2. Prompt the child to move away from 1-word utterances. For example, if a child uses Avaz to say the word “popcorn” to request popcorn, prompt the child to instead use two words: “eat” and “popcorn” instead.
3. The child should be prompted to use the pattern “eat”+(food item) for a number of different food items.
4. Once this pattern has become established, the child learns an important generalization: how to use the word ‘eat’.
5. Now it is time to build further generalization for the child. The child must be encouraged to not just say “eat popcorn”, but “I want to eat popcorn”. This is made simple in Avaz because the words “I”, “want” and “to” are all present on the home page. The child will encounter all the words in the sentence ‘along the way’ to popcorn. This greatly simplifies the motor planning needed for constructing the complete sentence.
6. When the child has developed this generalization, it represents a very useful accomplishment, because the pattern “I want to” followed by an action is one of the most common patterns in language.
7. You will find that in all categories – travel, food, play, feelings, etc. – this same concept is followed in Avaz. The child begins by learning the central word of the sentence. Then the child is encouraged to add words that clarify meaning. Finally, the child is encouraged to make a complete, grammatical sentence. This is the manner in which natural language



develops, and it has been shown in several studies that the same technique can be followed, with great success, in children with autism also.



*Speaking a complete sentence using Avaz*

## Generalizing environment

Once a child is using Avaz to make choices consistently, a portion of each training session should include teaching the child to view Avaz as his/her “personal voice”. The child must be taught to generalize the use of Avaz beyond the classroom, and to establish ‘ownership’ with it.

1. Encourage the child to travel with the iPad from one place to another.
2. Assist the child to actively search for his/her words (i.e. the iPad) to convey a want or need when the device is out of sight. For example, if you are in the kitchen and the child is trying to convey to you that he/she wants popcorn. Suppose the iPad is in a different room. Encourage and redirect the child to bring the iPad, and use Avaz to effectively get the message across. (Make sure you have the popcorn or chips or chocolate ready to reinforce the communication!)

