

## **Children Acquiring Literacy Naturally**

From Dom Massaro

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Dear Parents of children enrolled at ACR Academy:

As you know, my student researchers and I have been interacting with your children at various times during the preschool day. We are testing the hypothesis that reading can be acquired naturally if print is constantly available at an early age in the same manner as spoken language. If an appropriate form of written text is made available before formal schooling begins, reading should also be learned inductively and emerge naturally, with no negative consequences. This research advances our knowledge and understanding because it challenges the commonly held belief that written language requires formal instruction and schooling. Our work at the ACR is potentially transformative because its success would change current views of literacy and schooling. By utilizing developments in behavioral science and technology, we believe we can enable pre-literate children to accurately perceive and learn various properties of written language by simply exposing them to the written form.

We are immersing your children in written language using a variety of enjoyable interactive experiences using iPads. Our guiding principle is that the children enjoy these interactions and are engaged in the written language experience. To do this, we use several applications. One is called "Read With Me." It automatically recognizes caregivers' speech as they read picture books, presenting easy-to-read written text to the child. In a related application, we have created picture books on the iPad with engaging stories and pictures and—most importantly—easy-to-read text.

Other applications allow the children to gain familiarity with written letters and words. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name.

Another method we use, especially for the younger ones, is to watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, if the child is playing with a toy frog, we spell the word "frog" on the iPad in big letters and show the word to the child.

We are also using several other iPad apps that allow the child to trace letters and words and to spell out letters and words. Our games allow us to determine how much the child knows about writing and the progress they are making. Each family will receive periodic reports about their child.

It should be emphasized that we never require the child to interact with these applications if they don't show any interest. Our experience has been that the children enjoy the interactions and value their time with the student researchers.

Positive outcomes of our research will show that children are capable of learning to read when easy-to-read written language is present in their meaningful interactions.

Please email me or call me if you have any questions or simply want to learn more about the research and your child.

Sincerely,

Dom Massaro

## **Amauri Océnne Roe**

When Amauri started at the ACR, she was very interested in the iPads. On her first turn with the technology around February 8, she played an alphabet matching game. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In Amauri’s instance, she did well matching letters to letters, with sound to help out. For example, she would press an “a,” hear the word “a,” and then hunt for another “a.”

Amuari is still working on learning all her letters, and is doing very well. She can quickly and easily finish the alphabet matching game now if she is not distracted. We will be moving her up to a more challenging level; matching an icon vocalizing the letter to the letter itself. She will still have a verbal prompt to help her match. She is also learning to match the words from two books we’ve read: Goodnight Moon and Goodnight Gorilla. She enjoys tracing her name in an app that we use called “Little Writers.” It is challenging for her, but she sticks through tracing each letter and is always very proud and satisfied after she completes a letter. She also has fun pointing out letters in her environment. For example, after she traces an “x,” she points to the Exit sign and shows us the letter. When she is focused, her excitement about letters is contagious and other students get interested in letters too! Amauri also thoroughly enjoys reading books with the letters enlarged on the iPads.

When she is less interested in the iPads (all kids need time to run around!) she easily makes friends with other students and runs around having fun. All the researchers enjoy her company. They noticed that on the first day she was already holding two girls’ hands and saying she had made friends. She is so pleasant to work with!

## **Arianna Gomez**

When we first arrived at the ACR in October we noticed how outgoing Arianna is and how drawn to the iPads and literature in general she seemed to be! Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In Arianna’s instance, she did well matching letters to letters, not even needing sound to help out. She really enjoyed the stars that fall across the screen after a match has been made. She was also able to quickly match words to words (for example, she could match the word “gorilla” to the word “gorilla.”). While this isn’t reading, it is an important first step; she distinguished between words and letters very quickly and efficiently. It became clear that she loved the games; she would quietly and patiently wait her turn to use the iPad.

She was also very drawn to literature in general. She enjoyed reading one-on-one, seeing the words from books in enlarged letters. She was enthralled with a Dr. Seuss app that we used, where she was able to press on words from a Dr. Seuss book and hear them. I distinctly remember that she took several days to work her way through a very long Dr. Seuss book, “Oh, the Places You’ll Go,” checking with me to make sure she understood each word and remembering where she was each time I returned to the ACR.

Now, Arianna has mastered her old levels of matching games, and is on a new level. She hears the words or letter vocalized by an icon, and then has to hunt down the written text. With words, she has audible feedback helping her if she makes an error, but she gets no such help on the alphabet game and quickly succeeds without assistance. Matching the words is challenging, but she is making quite a bit of progress.

She very much enjoys a game called “Little Writers,” which allows her to trace letters and words. She gets to play it as a reward, and she is always very excited when she earns it. Sometimes she picks words from her favorite books to trace. She still enjoys reading, and has fun participating in circle time. In circle time, we read books to children and display the words enlarged on the iPad.

She can quickly spell her whole name on the iPad, and can quickly find her name from a list. We use an application called “Word Wizard,” where she gets to use a sparkly QWERTY keyboard to type out words. After she has typed a word, she can press it and hear it sounded out. It is very rewarding for her to get to hear the word that she worked so hard to spell! When researchers arrive, she is usually one of the first to run up asking to use the iPad.

## **Britt Guo**

We are so excited to begin working with Britt. He has lots of fun reading books on the iPad. We use an application where he can see pictures of his favorite books. When he touches the screen large, written words come up and a voice narrates the books. His favorites are books with bright pictures. He loves the food pages and the butterfly page from the book "The Very Hungry Caterpillar."

Another method we use, especially for the younger ones, is to watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, a researcher was bouncing a blue ball with Britt, and he really seemed to enjoy it. So she spelled the word "ball" on the iPad in big letters to show him.

## **Chloe Shantz**

From the beginning, Chloe was most interested in our “Word Experiment” and “Write My World” applications. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Chloe loves dressing up in costumes and also dressing up dolls. So, on Halloween she was especially excited to see the names of the costumes of all the kids in the ACR. Chloe has also shown a great deal of interest in having various items around the ACR labeled, and pays close attention to what each looks like on the iPad.

At first, Chloe had a difficult time completing My Matching Games. Now, she can match all the letters in her name and enjoys seeing stars fall across the screen rewarding her for a successful match. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. The procedure follows our other matching games by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name.

She is now learning to type her name using a kid-friendly QWERTY keyboard we have called “Word Wizard,” which will say her name back to her after she types it successfully. She is also in the process of learning to trace her name in an app called “Little Writers.” We continue reflecting her world back to her by showing her written text using “Word Experiment” and “Write My World.”

## **Clive Lin**

We are so excited to begin working with Clive. He has had fun reading books on the iPad. We use an application where he can see pictures of his favorite books. When he touches the screen, large written words come up and narrate the books. He really enjoyed a circle time with Naoko, other students, and a researcher reading a picture book.

Another method we use, especially for the younger ones, is to watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. Clive seems to really attend to the screen and show interest in having his world labeled. For example, a researcher saw he was playing with toy dishes. He spelled the words “cup,” “plate,” “blue,” and “pan” out in the applications “Write My World” or “Word Experiment. Clive became excited, and pressed the screen with his toy cup to see the word “cup.”

## **Daisy Gomez**

Daisy's first interaction with us was using Matching Games. Her first setting was matching letters of the alphabet to each other (for example, touching an "a" and then touching another "a") with no sound to help her out. She did excellently, which indicated she was already able to discriminate between different symbols without spoken help. She would also say many of the letters of the alphabet out loud, so we knew she knew some of her alphabet. To help her learn the rest of the letters, we decided to keep her at that level but give her speech as a feedback. She has since progressed quite far. She can match written letters to an animated talker saying the letters, a very advanced step. She is still learning to identify them without a verbal reminder, so the game is still fun for her. She is also learning to match the words from "Goodnight Moon" and "Goodnight Gorilla." She really enjoys the stars that fall across the screen after a match has been made.

Daisy was absent from the ACR for some time, but when she came back she was very excited about reading and using the iPad. She would gravitate towards impromptu reading circles that we held, and enjoy looking at the words enlarged on the iPad as well as the colorful pictures in the application "Read My Books." Daisy is a big fan of reading, and will ask to read many different books in a row. She now uses the iPad herself to turn the page and to read all the words.

At that time, Daisy was learning to identify her name from a list and also learning to type it. She knew all the letters, but usually put them into our "Word Wizard" application out of order ("Word Wizard" is a fun QWERTY keyboard that rewards kids for spelling out words by saying the words they spelled). Now, she is an expert at writing her name and can quickly identify it from a list by reading it left to right.

Daisy also enjoys a tracing game called "Little Writers" where she gets to trace various words and hear what she has spelled at the end.



## **Desta Dawson**

Desta is new to the Early Read program, and we are very excited to work with her. She will crawl over to impromptu reading circles to hear and see books. We use an application called "Read My Books" during many circle times, where she can see pictures from special books. When she touches the screen, large written words come up and a voice narrates the books.

A researcher noticed she is very good for her age at "My Matching Games." Our My Matching Games is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. Desta surprised a researcher by being able to match letters (for example, pressing "a," and then hunting and searching for another letter "a.") for up to three levels of difficulty, without assistance from the researcher.

Desta also has fun using an application called "Little Writers" where she gets to practice tracing letters on the iPad. As with all toddlers, she needs assistance on this game.

Another method we use, especially for the younger ones, is to watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. We will continue exposing Desta to the words associated with her world.

## **Dumakude Dawson**

From the beginning, Duma was most interested in our “Word Experiment” and “Write My World” applications. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Duma is a big fan of superheroes, so he frequently asks to see the names of superheroes spelled out. In one of my first interactions with Duma, he voluntarily sat in a circle with a group of two other children and patiently waited to see words from a favorite book spelled out.

When Duma came back from Japan, he was ready to play more interactive iPad games. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name.

The first level we tried with him was the alphabet matching game, where he would match letters with sound to help out. He was able to get about half of his letters correct during the first game we played. He also plays a matching game where he can match pictures of vehicles to the names of the vehicles (with sound to help on the vehicle names), and another where he can do the same thing with the animal words from “Goodnight Gorilla.”

He has recently become a fan of our “Little Writers” app, where he has the opportunity to trace his name and other words, and then see it displayed and hear it read out loud. It is challenging for him, but he does it on his own and is extremely proud when he hears the word he accomplished read out.

## **Eirin O'Neill**

Eirin is an expert at Matching Games. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name.

Eirin began unable to read any words but able to easily discriminate between different symbols and combinations of symbols (for example, she could tell that "gorilla" is not "giraffe," but couldn't read them). Now, she can read all the words from the book "Goodnight Gorilla" without sound to help her, and match the words to another tile with just an icon saying the word. She can do the same with all her letters and with most of the words from the book "Goodnight Moon." She is at the most advanced level in the class.

Eirin also expertly uses a tracing application called "Little Writers." She can now recognize most of the words that she commonly traces, and proudly shouts them out before they are announced by the iPad. Her vocabulary of the words she can quickly recognize by sight is growing rapidly. She is very cooperative, and after tracing a set amount of words, she will voluntarily share the iPad with other students. She enjoys standing by the iPad, giving the other students a chance to try, and announce the words to help the other students if they are unable to read it on their own.

She is also very drawn to literature in general. She enjoys reading one-on-one and seeing the words from books in enlarged letters. She asks for specific books to be read on the iPad and tries actively to learn the words shown on the screen.

## **Evelyn Alvarez**

Evelyn's favorite part of our work at the ACR has always been any type of story time. She would gravitate towards impromptu reading circles that we held, and enjoys looking at the words enlarged on the iPad as well as the colorful pictures in the application "Read My Books." She is a big fan of reading, and will ask to read many different books in a row. She now uses the iPad herself to turn the page and to read all the words.

She enjoys official circle times too, as well as reading books that are not stored in the iPad. To read books not officially in the iPad, we type key words from each book into the iPad using applications called "Write My World" and "Word Experiment." She patiently waits for the words to be typed in, notices them, and goes back to the book. She enjoys reading in English and Spanish.

Overall, she is incredibly enthusiastic about written word and is very persistent in trying to get researchers to read with her. Even after all the other kids want to move on to a new activity, she will beg to have another book.

She also enjoys another application called "Word Wizard" where she gets to use a sparkly, child-friendly QWERTY keyboard to spell things out, and then gets to press the completed words and hear them read out. She gets help to spell out various favorite words, especially words from her favorite books.

## **Gabriel Joly-Patterson**

Gabriel enjoys applications that we use called “Word Experiment” and “Write My World.” We watch the kids and then use these applications to show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Gabriel is a big fan of playing with trucks. When we offer to show him the word “truck,” on the iPad, he usually enthusiastically agrees and looks at the screen.

One researcher works with him to show him the words for different things he can build with blocks on the iPad. For example, he loves seeing the word “plane” and then designing a plane using the blocks.

He also enjoys small group reading circles. He enjoys looking at the written words enlarged on the iPad as well as the colorful pictures in the application “Read My Books.” He loves to use the iPad himself to turn the page and to see all the words. His favorite books are “Are You My Mother?” and “Alexander and the Horrible, Terrible, No Good, Very Bad Day.”

He has recently become a fan of our “Little Writers” app, where he has the opportunity to trace his name and other words, and then see it displayed and hear it read out loud. It is challenging for him to pay attention all the way through all the letters of a word, but he always asks for this application and has a try. He loves it when we make the noises of the animal names he is tracing out.

## **Isabella Rolphe**

Isabella has lots of fun reading books on the iPad. We use an application where she can see pictures, and then when she touches the screen large words come up and narrate the books. She has responded really well to some traditional board books turned into iPad books, like "Goodnight Gorilla" and "Goodnight Moon."

Another method we use, especially for the younger ones, is to watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, we show her the words "ball" and "truck" when she is playing with a ball and a truck. She enjoys seeing the words displayed and gets very excited to push on the iPad screen.

Isabella has played matching games several times. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter "a," say the letter "a," and then the researcher will match it to another letter "a." Isabella will watch her letters this way for quite some time.

## **Jewell Teeple**

Jewell's first experience with our research was with matching games. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. Jewell quickly showed she understood the basic task of matching and moved on to matching letters to letters or words to words. This was learning to discriminate between symbols. For a while she struggled to differentiate challenging letters like p, q, b, and d. She worked on this very diligently and enthusiastically, and now has mastered this level in the alphabet game (though she still sometimes struggles to differentiate those four letters). She has moved on to matching the sound of the letters to the letters themselves, with no verbal prompting. She is now working on learning how to read the words from the books "Goodnight Moon" and "Goodnight Gorilla."

To continue to work on her alphabet, we use a program called "Little Writers," where she gets to trace letters and announce them if she knows them. She is great at the tracing, and makes very nice letters. She can identify many of the letters in this context but is still learning more.

Jewell really enjoys every aspect of the iPad games. She is usually one of the first to ask to play with it, and is always curious about how words work and which letters create which words. We use two applications to help her see words from her environment called "Word Experiment" and "Write My World." We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. In Jewell's case, she proactively seeks out words that are interesting to her. For example, in one interaction, she voluntarily sat in a circle with a group of two other children and patiently waited to see her favorite words spelled out.

More than anyone in the class, Jewell actively tries to learn letters and words when she is using the iPad, and celebrates triumphantly anytime she notices a connection. For example, she used to use her nametag to notice if letters from her favorite books were in her name. For this reason, she loves the application "Word Wizard," a kid-friendly QWERTY keyboard that says the words after they are typed in. She studiously hunts for the letters to her favorite words and types them in, with help from the researchers.

She also enjoys reading circles. She loves looking at the words enlarged on the iPad as well as the colorful pictures in the application "Read My Books," and enjoys using the iPad herself to turn the page and to see all the words. She likes to have every word pointed out when she sees it on the screen.

## **Kaleah Landrum**

We are so excited to begin working with Kaleah!

Kaleah has played matching games several times. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants and toddlers, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter “a,” say the letter “a,” and then the researcher will match it to another letter “a.” Kaleah is able to manipulate the iPad herself, and completes matches with the help of a researcher.

Another method we use, especially for the younger children, is to watch the child and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, we show her the word “ball” when she is playing with a ball. She is attentive to the words displayed. Rather than gravitate toward intense one-on-one time, Kaleah prefers to have the iPad reflect her world in written text as she plays.

Recently, Kaleah has shown interest in reading. We use an application where she can see pictures of special books. When she touches the screen, large words come up and a voice narrates the books. She has responded well to some traditional board books turned into iPad books, such as “The Very Hungry Caterpillar” and “Are You My Mother?”



## **Katherine Brinly**

The first applications we began using with Katie were “Write My World” and “Word Experiment,” applications that we tend to use with the younger children. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Katie was having fun playing with toy farm animals. So a researcher spelled the words “pig,” “cow,” “sheep,” “moo,” and “baaah” on the iPad in big letters to show her. She is very attentive and enjoys watching the words zoom in on the screen. Katie is now talking quite a bit, and is having fun learning to say new words. As we prompt her to say new words, we use the iPad to show her what she is saying, which thrills her. Researchers have noticed she is very drawn to the iPad and seeks out toys to see spelled.

Katie has lots of fun reading books on the iPad. We use an application where she can see pictures, and then when she touches the screen large words come up and narrate the books. She has responded well to some traditional board books turned into iPad books. “Goodnight Gorilla” is her favorite so far. She also loves reading directly from board books, and we use the iPad to enlarge key words from these books. She is such an avid reader that she has read up to ten books in a row with us and still requested an eleventh!

Katie has played matching games several times. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. In one game for example, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants and toddlers, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter “a,” say the letter “a,” and then the researcher will match it to another letter “a.” Katie is able to manipulate the iPad herself, and completes matches with the help of a researcher. She occasionally makes perfect matches with no assistance. We noticed that she is often paying attention to the general shape of letters even when she has errors. For example, she matched “n” and “h” ... while an error, this is a big step because she is not just randomly hitting tiles but looking at shapes that are similar.

## **Kaydin O'Neill**

We were very excited to begin working with Kaydin this February. The first applications we began using with him were "Write My World" and "Word Experiment," applications that we tend to use with the younger ones. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Kaydin was having fun playing with a ball with a researcher, so he got to see the word "ball" on the iPad in big letters. The researcher noted that he is very energetic so displaying the word "ball" was perfect for him, because he got to see the word while rolling something around.

Other researchers have noticed the same thing; he is very active and intelligent, and likes to identify objects, roam around, look out the window, and play. He can be a great listener and, when focused, pays attention to what the iPad says. He also knows how to say several words, so he gets to watch the words he speaks on the iPad, like "dog," one of his favorite words.

Kaydin has played matching games several times. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants and toddlers, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter "a," say the letter "a," and then the researcher will match it to another letter "a." Kaydin is able to manipulate the iPad himself, and completes matches with the help of a researcher. Since he loves vehicles, we use a matching game that lets him see different fun vehicle pictures and their spellings.

Kaydin has lots of fun reading books on the iPad. We use an application where he can see pictures from special books. When he touches the screen, large words come up and narrate the books. He has responded really well to any book involving animals, including "Goodnight Gorilla" and "Fox on the Box." He also loves reading directly from board books with animals, and we use the iPad to enlarge key words from these books.

## **Laurel Vasseur**

The first applications we began using with Laurel were “Write My World” and “Word Experiment,” applications that we tend to use with the younger ones. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Laurel was having fun asking to go “up.” So I spelled the word “up” on the iPad in big letters to show her as I picked her up and put her down.

Laurel has lots of fun reading books on the iPad. We use an application where she can see pictures and enlarged words from books, and she enjoys pressing the screen and turning the page, and is delighted each time words come up. She has responded really well to traditional board books such as “Goodnight Gorilla” and “Goodnight Moon.” She is also a fan of real-life books. Her favorite is a farm animal book with animal cutouts. We use the iPad to enlarge key words from these books. Sometimes, she will recognize the word for “moo” when she sees it out of context on the iPad. This is very exciting and we may be creating a new game just for her to have more animal sounds.

Laurel sometimes enjoys playing matching games. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants and toddlers, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter “a,” say the letter “a,” and then the researcher will match it to another letter “a.” Laurel is able to manipulate the iPad herself, and also thoroughly enjoys grabbing the researchers’ fingers to touch the screen. She completes matches with our help.

## **Max Warnke**

For quite some time, Max was only interested in the applications that we use called “Word Experiment” and “Write My World.” We watch the kids and then use these applications to show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Max is a big fan of playing with trucks, so we show him the word on the iPad.

Then, we created a matching game with vehicles and a matching game with animals for Max. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In Max’s case, we at first only matched images to images to help him learn how to succeed at the game. Now, we have graduated to matching words to those images (with sound to help him identify the words).

He really loved this game, and his enthusiasm was infectious. He is one of the only kids in the class who is willing to happily and consistently share the iPad, so his excitement for the matching games carried over to his friends. He would teach them how to do the games. As another example of his altruism, he likes to see his friends’ names spelled on the iPad and show it to them (whereas all the other children compete to see their own names).

Within the last month, Max has become increasingly interested in other applications that we use. His current favorite is a tracing game called “Little Writers” where he gets to trace a word or a letter with his finger on the iPad. After he is done, the iPad shows him what he has spelled and says it out loud. He calls this game the “apple game,” because the game’s icon is an apple. The kids use various objects to trace words, and he only likes to do it if he can use a crab to do the tracing. Whenever he sees us walk in he runs up to us and asks for the game.

Max has lots of fun reading books on the iPad. We use an application where he can see pictures and enlarged words from books, and he has responded really well to traditional board books such as “Goodnight Gorilla” and “Goodnight Moon” that we loaded onto the iPad. He is also a fan of real-life books, and enjoys circle time that we regularly do with the whole class. His favorite is “Where the Wild Things Are,” which features a little boy with his name (we say the story is about him).

He also enjoys another application called “Word Wizard” where he gets to use a child-friendly QWERTY keyboard to spell things out, and then presses the word to hear it spelled out loud. He usually starts out by picking the first letter, and then we guide him

to finish a word that goes with that letter (for example, he types “p” so we guide him to create the word “puppy.”).

## **Mia Juarez**

We were very excited to begin working with Mia this February. The first applications we began using with her were “Write My World” and “Word Experiment,” applications that we tend to use with the younger ones. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Mia was playing with a shaker toy, so we showed her the word “shaker” on the iPad. Researchers have noted that on days when she is in a good mood, she really enjoys watching the words from her world come onto the screen, and has been known to squeal with excitement when a new word comes on.

Lately she has become fond of sitting on our laps to see stories and books on our iPads. We use an application where she can see pictures and enlarged words from books, and she has responded well to some traditional board books such as “Goodnight Gorilla” and “Goodnight Moon” that we loaded onto the iPad. She is also a fan of real-life books, and enjoys books that involve touchy-feely or sensory experiences. We use the iPad to highlight key words from these board books.

We have noticed that Mia is becoming more and more comfortable at the ACR, and so we will keep expanding our interactions with her and incorporating fun written words into her environment.

## **Nour Barouki**

The first applications we began using with Nour were “Write My World” and “Word Experiment,” applications that we tend to use with the younger ones. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Nour was very interested in a giant stuffed bear in the room, so a researcher put the word “bear” on the screen. Researchers have noted that he is very attentive to the screen and finds it extremely interesting. He will pay close attention as we cycle through the alphabet or display words from his environment.

Nour sometimes enjoys playing matching games. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants and toddlers, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter “a,” say the letter “a,” and then the researcher will match it to another letter “a.” A researcher noted that he is very adept at matching the alphabet for his age, and when he is attentive he is able to match with very minimal help.

Nour occasionally enjoys story time. We use an application where he can see pictures and enlarged words from books, and he has responded well to traditional board books such as “Goodnight Gorilla” and “Goodnight Moon” that we loaded onto the iPad. If he is uninterested, he crawls away for awhile, but often comes back to join the circle and see the words.

## **Reed Skelton**

For quite some time, Reed was only interested in the applications that we use called “Word Experiment” and “Write My World.” We watch the kids and then use these applications to show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Reed is a big fan of playing with trucks, so we show him the word on the iPad. He loves to see his own name displayed.

As our time at the ACR progressed, Reed became more and more interested in sitting still for stories. He also became more verbal, so he will now participate and give feedback about stories that we read (for example, “What animal is this?” “A caterpillar!”). He is a fan of real-life (hardcover rather than electronic) books, and enjoys circle time that we regularly do with the whole class. We use the iPad to highlight key words from these books, and if he can’t see the iPad he will ask to see the words. His favorite books are silly or funny books. He also likes “Where the Wild Things Are,” which features a little boy named Max (which is also the name of his good friend at the ACR).

Reed enjoys playing matching games. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. Reed’s current level involves matching pictures of either animals or vehicles to words, with sound to guide him on the words. He can do very well at this level. He has also been known to kindly and cooperatively assist two of his friends playing their games.



## **Roman Bomgren**

For quite some time, Roman was only interested in the applications that we use called “Word Experiment” and “Write My World.” We watch the kids and then use these applications to show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Roman is a big fan of playing with trucks, so we show him the word on the iPad.

Then Roman’s friend, Max, became more interested in using other applications, and Max and Roman being participating in reading games together. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. Roman’s first level involved matching pictures of either animals or vehicles to other pictures. The goal at that level is to understand how to succeed at matching games. He has recently succeeded at this, and now does the level one step above it, where he can match the images to words (with sound to help assist him on the words). Now, Roman is independent at the game and can play without his friend’s help.

Recently he has become excited about two things: seeing his name spelled and using a tracing game called “Little Writers.” He gets to trace a word or a letter with his finger on the iPad. After he is done, the iPad shows him what he has spelled and says it out loud. The tracing requires a high level of hand-eye coordination and is challenging, but Roman puts forth a great deal of effort to play the game and will wait patiently for his turn to trace a letter.

## **Ryland Beich**

We are very excited to begin working with Ryland! Ryland's first interaction with us was reading books on the iPad. We use an application where he can see pictures from special books. When he touches the screen, large words come up and a voice narrates the books. His first book was "Goodnight Moon." He also likes real-life board books, like "Five Little Ducks." We take key words from these books and display them on the iPad.

Other applications we use are "Write My World" and "Word Experiment," applications that we tend to use with the younger ones. We watch the children and show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, he was having lots of fun playing with blocks and knocking them down, so we showed him the word "blocks" on the iPad.

Ryland has had fun playing matching games. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants and toddlers, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter "a," say the letter "a," and then the researcher will match it to another letter "a." He can stay focused for quite some time and enjoys seeing the matches be successful.

## **Sonny Santana**

Sonny's first experience with our research was with matching games. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. Sonny was immediately interested in all the iPads had to offer, including the matching games. He is very good at matching words to words and letters to letters. This shows the ability to discriminate between symbols, which is a very important step. We have sound on to guide him so that he can learn what each symbol represents.

He is also very drawn to literature in general. He enjoys reading one-on-one and seeing the words from books in enlarged letters. He asks for specific books to be read on the iPad and tries actively to learn the words shown on the screen. Recently, he has very much enjoyed a book that we created called "Sandy's Dream." If we are in a circle and he can't see the words he will ask to make sure he can read them.

He has recently become a fan of our "Little Writers" app, where he has the opportunity to trace his name and other words, and then see it displayed and hear it read out loud.

Sonny enjoys applications that we use called "Word Experiment" and "Write My World." We watch the kids and then use these applications to show them written words that correspond to the speech they are hearing or the objects they are playing with. For example, Sonny is a big fan of dress up. When we offer to show him the name of his animal disguise, he usually enthusiastically agrees and looks at the screen. He has also used this application to practice spelling his name and is very enthusiastic about learning it, and very proud when he memorizes a word. Now, when we walk in, he sometimes shouts "S O N N Y!" to us, to show that he remembers his name.

He also enjoys another application called "Word Wizard" where he gets to use a child-friendly QWERTY keyboard to spell things out, and then presses the word to hear it spelled out loud. He usually asks how to spell an interesting word in his environment.

## **Sylas Wallace**

Sylas' first interaction with us was reading books on the iPad. A researcher noted that he was an absolute joy to read with. We use an application where he can see pictures from special books. When he touches the screen, large words come up and a voice narrates the books. He also likes real-life board books. We take key words from these books and display them on the iPad. He has an usually long attention span for his age, and is very attentive to the screen.

Sylas enjoys applications that we use called "Word Experiment" and "Write My World." We watch the kids and then use these applications to show them written words that correspond to the speech they are hearing or the objects they are playing with. He will watch the screen for a very long time as we show him the words of the toys he is playing with or scroll through the alphabet. He will also interact with the screen, and touch it to get to the next letter.

Sylas sometimes enjoys playing matching games. Our "My Matching Games" is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In the case of infants and toddlers, we use it as a way to display letters and words. For example, the researcher will touch the screen, display the letter "a," say the letter "a," and then the researcher will match it to another letter "a." Sylas is able to manipulate the iPad himself, and also thoroughly enjoys grabbing the researchers' fingers to touch the screen. He completes some matches with our help and some matches on his own.

## **Veronika**

We are very excited to begin working with Veronica. The first game she played with us is called “Word Wizard.” It is a sparkly, child-friendly QWERTY keyboard to spell things out. She can spell her name and asks how to spell other fun things or favorite words. After she has spelled it, she can then press the word to hear it. She likes to spell out words that have the same letters as the words in her name. For example, she loves spelling out a researcher named Kevin’s name. At first, she had trouble with capital letters vs. lower case letters, but seemed totally fine with distinguishing between the two in her last interaction with researchers.

Veronika sometimes enjoys playing matching games. Our “My Matching Games” is played like other matching games in which the child matches two things that go together. Children participate by matching spoken words, images, and written letters or words. We can control all aspects of the game, so that it is tailored specifically to the ability of any child who plays the game. For example, in one game, children match written words from their favorite books with images of objects or with spoken words from a realistic animated talker. In another game, children learn the letters in their name. In Veronika’s case, she can match words to words or letters to letters with sound. The sound is to help her learn what the words are, but she can match words without it. If she makes errors, they still show she is thinking about the matches. For example, she confused “gorilla” with “giraffe” because she was paying attention to the first letter. This is actually a big step.

She has recently become a fan of our “Little Writers” app, where she has the opportunity to trace her name and other words, and then see it displayed and hear it read out loud.