

MIND APPs, learning to use touch-screen devices (iPad®) & educational apps for a parent-child interaction

Below we present a helpful guide of educational applications to assist in the design of a comprehensive program of apps for children with neurodevelopmental disorders that can be used by parents at home or by professionals at clinical setting.

All the apps have been reviewed and applied to children with fragile x syndrome and autism, 2-to-12 years of age, as part of the psychosocial clinical trial about the use of technology for interaction at home (MIND APPs, 2013-14) developed at the *Fragile X Research and Treatment Center*, UC Davis MIND Institute.

Parent Support Applications

Application Name: Care Circles
Targeted Age: Parents/Adults
Targets Skills: social networking & community support
Developer/ Website: SAP AG/
<http://www.carecircles.com>
Device/Price: iPad/FREE



Clinical Summary:

Care Circles primarily meant to provide social support to families caring for a loved one. This application aims to connect families with the best experts and provide the best knowledge about a loved one's life condition. This serves as a community of family, friends, and professionals from around the world meant to connect and educate people. There are private and shared places within this application where individuals can talk and meet with others in the professional field or with people going through similar life situations.

It is really useful to parents who are simultaneously working with professionals from several disciplines to establish common objectives and track child's behavior and progress in a comprehensive way so all efforts can be brought together in benefit of the family.

Care Circles is an application created for the community, it allows families and professionals to generate a journal, tracking progress, establishing objectives, and generate resources to help other people with common characteristics, needs and health care. Families can create a profile and invite other family members and professionals to be part of their circle so they communicate to each other and work in the same page. MIND APPs clinical trial used Care Circles to collect data from families' performance at home so their progress across the intervention was nearly followed and assisted.

Application Name: iPrompts Pro
Targeted Age: Parents/Adults
Targets Skills: help your child through the use of prompts
Developer/ Website: Handhold Adaptive LLC/
<http://www.handholdadaptive.com>
Device/Price: iPad/\$99.99



Clinical Summary:

iPrompts Pro is a 3-in-1 application provides parents and educators with great tools. It is an application that provides visual cues for individuals with autism and other developmental

disorders such as fragile x syndrome and language delays. This can include timers, choices, visual schedules, audio prompts and many other useful tools used to provide consistency and structure. Story maker is another application provided that can help increase communication and social interaction. Finally, Speech prompts provide tools to practice verbal language and follow visual prompts which can be set as video modeling strategies. The developers' website offers writing guidance and videos to fully understand the application and know its possibilities and applicability in daily life activities. It is useful for scheduling and creating social stories following Carol Gray's approach.

Parents with children 2 to 12 years old can really manage the app as a behavioral tool to regulate children's behavior and timing. Around the age of 10-12 children can also use the app themselves especially for social purposes. Parents may need to invest time personalizing the profile according to their needs and understanding how features work in order to take the app to best. There are video tutorials to handle the app properly

Social applications

Application Name: Social Express
Targeted Age: children and young adults
Targeted Skills/Behaviors: Social competency through successful social interactions
Developer/Website: The Language Express, Inc./ <http://thesocialexpress.com>
Device/Price: iPad/FREE + in apps purchases



Clinical Summary:

Social Express is meant for individuals with social and emotional challenges. Also, this application should be played with an adult who can encourage conversations and help the child think of alternate solutions to the problems presented. Teaching tips are provided throughout to help the adults appropriately facilitate discussions. In addition to the teaching tips, adults are given access to printable teaching supplies which include: certificates, feeling charts, hidden social keys, and other supplemental learning tools to help the child extend what he or she is learning, through the application, to the real world. The child can choose to play one single lesson, and if more time is available, the child can choose to play an entire set of lessons continually.

Social Express is an application with two levels. The first level is one that teaches children to find the hidden social keys in everyday situations that they may encounter. The second level allows children to practice the application of the previously taught hidden social keys. The skills taught through these two levels give children the potential to better engage in social situations, use their eye contact when thinking about the environment and those people around them, and learn to more appropriately use both verbal and nonverbal cues to navigate through their social world.

Application Name: Let's Be Social
Targeted Age: Kindergarten through high school
Targeted Skills/Behaviors: Social skills and retention
Developer/ Website: Everyday Speech/
<http://www.myeverydayspeech.com>
Device/Price: iPad/ \$14.99



Clinical Summary:

Let's Be Social presents children with a variety of social skill sets that include: personal interactions, navigating the community, school behavior, handling change, and social relationships. Each of these skills sets are then broken down into individual lesson plans which present the child with a social situation, such as taking turns in a conversation, that allow the child to apply the skills previously taught. The child's retention of these skills is tested after each social situation is presented. It is very important to facilitate conversations with your child throughout, to ensure the child understands each social situation and the targeted skill set.

The unique aspect of this application enables parents to add their own skill sets, social situations, and customize their own questions as children come across new social situations every day. This allows for a more individualized and relevant program for the child to help them navigate through their personal social world. Being able to customize your own skills sets not only allows you to provide your child with endless learning opportunities, it also allows your child to reference the social situations that he encounters on a daily life activities to help them recall and continually apply the social skill they have learned by sharing the application with you.

Application Name: Social Quest
Targeted Age: older elementary through high school
Targeted Skills/Behaviors: comprehension and use of pragmatic language in social settings
Developer/ Website: Smarty Ears/
<http://smartyearsapps.com>
Device/Price: iPad/\$21.99



Clinical Summary:

Social Quest provides real-world social situations within the context of home, school, and the community to help children learn the appropriate use of pragmatic language according to social situations. This application is a story based theme incorporating targeted skills including: perspective taking, conversational maintenance and transitions, understanding the actions of others, taking turns, understanding humor, greetings, self-talk, and scripts for social situations. *Social Quest* has both receptive and expressive activities to test children's knowledge. The receptive function allows the child to answer individual questions, and the expressive function provides more open-ended questions to allow further application of the skills being taught.

As the child goes through each context and situation they are presented with questions about what one should do, say, and think about each different example. Parents can chose to limit answer options to allow for higher probability of answering the question correctly and allow for attainable reinforcement. As reinforcement for correct answers, children are given rewards and report cards to track their progress.

Application Name: Social Skill Builder
Targeted Age: programs available for preschool - high school
Targeted Skills: each program targets different social skills beginning with basic manners though academic and compliance skills
Developer/ Website: Social Skill Builder, Inc/
<http://www.socialskillbuilder.com>
Device/Price: iPad/\$19.99



Clinical Summary:

Social Skills Builder is an application that was designed by speech pathologists for individuals with a variety of social learning challenges. Because this application is developmentally appropriate for the preschool ages through high school, children not only learn crucial social skills but they also are able to practice maintenance and application of these skills. This program provides reinforcement, assessment, and the ability to track one's progress.

Social areas including, friendship/life skills, understanding emotions, problems solving, critical thinking, and perspective taking are found throughout each of the programs. Every program focuses on the categories of self-management skills, assertion skills, academic skills, and compliance skills. Each program encompasses the aforementioned categories through a developmentally appropriate context.

Application Name: Find Me
Targeted Age: 18 months to 3.5 years
Targets Skills: attending to people
Developer/Website: Tigerface Games/
<http://tigerfacegames.com>
Device/Price: iPad/FREE



Clinical Summary:

FindMe focuses on a basic and simple social skill: attending to people (also known as social reference). Children as young as 18 months can use this application to find and point at the person in the photograph by touching the screen. The game begins with a person placed in a scene by him or herself, but as the levels increases the character will be accompanied by objects (plants, toys, etc.), making finding the person increasingly more difficult. This application allows the child to use their eye contact and attention skills to locate the target person and share it with the caregiver facilitating the learning experience. Toddlers will practice forms of communication by encouraging them to focus on other people and their needs and it is designed to simply monitor their progress. Rewards are warranted but across the screens, however the best prize will be parent's social reinforcement.

The app is part of the output for the Click East Project (www.clickeast.co.uk) led by Dr Sue Fletcher-Watson at the School of Education at Edinburgh University.

Application Name: The Electric Company: Feel Electric
Targeted Age: elementary through high school
Targets Skills: learning about emotions and building vocabulary; self-awareness
Developer/Website: Sesame Street/
<https://www.familiesnearandfar.org/resources/mobileapps/>
Device/Price: iPad, Android/FREE



Clinical Summary:

From the PBS show *The Electric Company* the hosts Danny and Jessica lead children and preteens through the application while helping them to learn more about their own, as well as other people's feelings. Three sections: My Life, Games, and My Stuff allow children to engage in a variety of activities through the context of emotions and self-awareness. My life includes mood dude, mood tales, and *moodsphere*. This section allows children to create stories, practice identifying facial expression and the corresponding emotions, and keep track of their own emotions over time. The *moodsphere* allows the children to pick 3 emotions that

describe how they are feeling that day, and the application provides an easy definition to build and enlarge the child’s emotional vocabulary. The games section provides games to test and reinforce what the child has been being taught (ie: matching the correct emotion to the given facial expression).

Allowing children with social deficits time to learn about emotions, facial expressions, and self-awareness may improve their ability to communicate how they are feeling, as well as, being able to more accurately understand the emotions of others. This application can be given a personal touch by providing an external link to their pictures, videos, and music.

Parents can easily engaged their children in social conversation and also contribute to the different screens in the app by talking about their social experiences and feelings.

Application Name: Between the Lines (levels 1 and 2)
Targeted Age: at least 7 years old in cognitive functioning; higher levels can be used through high school
Targets Skills: a variety of social language tasks
Developer/Website: Hamaguchi Apps/
<http://www.hamaguchiapps.com>
Device/Price: iPad/\$15.99 EACH



Clinical Summary:

Between the Lines uses a variety of social language tasks including: perspective taking, understanding common expressions, auditory processing, and interpreting vocal intonation. Settings for these tasks include: shopping mall, kitchen, restaurant, park, school, and other environments you child is likely to frequent. The child or young adult is shown social contexts, photographs, or videos and then is asked questions about the social situation. Some of these questions are *who said it?*, *what is he or she thinking?*, and *what does that mean?*. The title between the lines is very appropriate because its aim is to teach children to see the message that is not as obvious and therefore “read between the lines”.

The three levels of difficulty are level 1, level 2, and Advance. Each level builds on the skills previously taught, and are aimed at older children who can complete the skill sets in the early levels. This application allows you to track progress, provides reinforcement through encouragement, and it also allows the user to choose between 2 and 4 answer options, depending on how well the child is doing answering the questions.

Parents are called to mediate between their child and the screen in order to increase social thinking and emphasize the non-obvious mental states and non-verbal clues.

Application Name: Happy Geese
Targeted Age: young children, children with special needs, and their friends and families
Targets Skills: Turn Taking
Developer/Website: Appically/
<http://www.happygeese.com/index.php/eng/>
Device/Price: iPad, Android/FREE



Clinical Summary:

Happy Geese is a very simple version of two classic turn taking board games. They can be made more difficult as the child progresses. The person who’s turn it is has the dice positioned on their side and the respective pawn becomes highlighted making it easy for the child to see whose turn it is (this features can be customized). The parents or educators are

able to set who will “win” the games to avoid disappointment (one wins/all win). The dice and game pieces come in a variety of shapes, colors, letters, and numbers providing plenty of language and learning opportunities in addition to the goal of turn taking and accepting losing.

This game can also be used as reinforcement after working on other more complex applications. Happy Geese is a very comprehensive app to be used together with peers and siblings so parents can moderate social skills in real context.

Application Name: Flummox Vision
Targeted Age: 6-12 years
Targets Skills: identifying one’s place in a group
Developer: Karbon (Flummox Labs LLC)
Website: <http://flummoxandfriends.com>
Mind App Category: Social Interaction
Device/Price: iPad/FREE



Clinical Summary:

Flummox Vision is aimed at helping children and young adults navigate through their social and emotional world. The setting is a laboratory and three scientists help to discover ways to understand other people and the world around them. The application has a built in function that provides prompts to facilitate discussion between child and adult/parent. The application comes with one free 23-minute episode with the option to purchase additional stories.

The free episode’s setting is a party and the goal is to tell the difference between being “in the group” or “out of the group”, and one does this by not only being physically present but mentally present as well. Making eye contact, having your body turned towards the person talking, using your ears to listen, and being tuned into the conversation with others are all ways this application tries to teach children how to be engaged in the group. There are a few songs, so a child with auditory sensitivity may need to be informed that there is music before playing with the application. The emphasis on science makes this very child friendly and engaging, especially for children and young adults with autism or any kind of social deficits.

Application Name: Emotions iLW collection
Targeted Age: 3-6 years old
Targets Skills: art and identifying emotions
Developer/Website: Tribal Nova/
<http://www.ilearnwith.com>
Device/Price: iPad/FREE



Clinical Summary:

Emotions iLW focuses on two main skills one of which is accurately identifying the character’s emotions, and the other skill is creating a painting with primary colors. The emotional targets are taught through a series of short clips, and the child then correctly identifies the emotion of the character and helps the characters to navigate through their social situations. Parents or caregivers can facilitate discrimination among faces and help the child to focus on the chapter in order to discriminate why the characters are experiencing those emotions. Theory of Mind can be enhanced through this app since it provides parents with videos about taking the perspective of others. The art function requires the child to create a painting that matches the exemplar and can be used as a prize after taking about emotions.

The parent center allows parents to track their child’s progress, check each subject, and have up to four children per account. Children earn rewards and are able to have some free time playing in “Planet Boing” as reinforcement.

Application Name: Moody Monsters
Targeted Age: 3-8
Targets Skills: identification and understanding of emotions
Developer/Website: ALEX toys / <http://www.alextoys.com>
Device/Price: iPad/FREE



Clinical Summary:

Moody Monsters teaches children about emotions. To begin with you can make your own monster and allow the children to be creative and share the process together. This activity provides an abundance of language opportunities as the child picks body parts, places them in the correct location, and when they pick their monsters name. There are many activities inside of Moody Manor that further teach children about emotions, like meet the monsters. This activity shows the entire list of monsters and their corresponding name and emotion. Other games include: following simple directions to make silly snacks, helping the monsters ward off bad dreams, and help the monsters with their simple homework.

Ribbons and points are given as reinforcement and encouragement. Brightly colored with magical music to attract children and keep them engaged. This can also be used to show that monsters are imaginary, and sometimes fun, creatures that do not need to be feared.

Application Name: Webber Photo Card: What Are They Thinking?
Targeted Age: elementary school
Targets Skills: Inference, reasoning, and conversational skills
Developer/Website: Super Duper Publications/ <http://www.superduperinc.com/Default.aspx>
Device/Price: iPad/\$1.99



Clinical Summary:

What Are They Thinking? by Super Duper gives children different images and the child’s job is to infer and answer the question “what are they thinking”. By answering these questions children are practicing their perspective taking, sentence structure, storytelling, and many other valuable cognitive and language skills. For example, one image is of a little boy sitting on the ground next to his bike, holding his knee. There is a bubble over his head, and the child’s target is to say what they person is thinking. There can be a variety of answers, but the correct answer must include that he is hurt, fell off his bike, etc.

Parents keep score by either tapping a green button for a correct answer or the red button for an incorrect answer. Use these cards to facilitate a more in depth conversation if the child is willing and engaged; there are many language opportunities with this application. The application has 60 cards that can be displayed one after another, or the parent can choose individual card. A very important aspect of this application is that after each game the score resets itself, so if you want to track progress, the parent needs to be sure to email the results to themselves or the data will be lost.

Application Name: Touch and Learn Emotions
Targeted Age: 2-5
Targets Skills: identifying emotions
Developer/Website: innovative mobile apps/
<http://www.alligatorapps.com>
Device/Price: iPad/FREE



Clinical Summary:

Touch and Learn Emotions helps children to match facial expressions to the appropriate emotion. The child is given a target emotion (ie: happy) and then given four images to choose from. The child’s target is to correctly identify which facial expression matches the target emotion. Correct answers are given verbal praise, and an incorrect answer will produce a buzzer sound. Parents can customize the application by turning different concepts on/off. This enables the children to learn one emotion at a time, or enables them to identify many emotions at once. Parents can play to mimic facial expressions and emotions so the practice extends out of the screen to real faces and emotions.

Language Applications

Application Name: Language Empires
Targeted Age: elementary aged (K-5)
Targets Skills: variety of comprehensive language skills
Developer/Website: Smarty Ears/
<http://smartyearsapps.com>
Device/Price: iPad/\$24.99

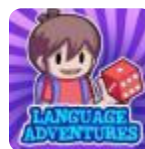


Clinical Summary:

Language Empires uses the setting of an empire of ancient civilizations to help children to learn a variety of language skills. Each empire represents a different target language category. The categories are: figurative speech (idioms, similes, and metaphors), how questions, vocabulary (definitions), predicting, inferences (what is being implied), sequencing (put in a specific order), which questions, and why questions. This game holds up to 5 players, and each player can be placed at any target they wish.

For parents, the application is very customizable. Within settings you can turn on/off the questions to focus auditory comprehension. One has the choice to either remove an item or have a buzzer go off if the child answers their question incorrectly. Also, you can choose whether to have the audio on or off. Rewards are given and the player can choose to email, copy, or print their results.

Application Name: Language Adventures
Targeted Age: elementary through high school
Targets Skills: categories, inferences, and “wh” questions
Developer/Website: Smarty Ears/
<http://smartyearsapps.com>
Device/Price: iPad/\$24.99



Clinical Summary:

Language Adventures is set up like a board game with turn taking, token moving, and player selection. Children choose their players and they can either use a picture of themselves or an avatar. The game while like a board game emphasizes a variety of language targets that include: Antonyms, synonyms, inferences, multiple meanings, categories, and wh-questions. This game has three levels that increase in difficulty, but that also make this game appropriate for elementary through high school.

This is another highly customizable application. Parents may choose to turn on/off the background music, visual feedback, audio read questions, what happens when questions are answered correctly, select the dice options to make the game go more quickly or more slowly, modify the database of questions to make the application as developmentally appropriate as possible. This game can be played as either a receptive or an expressive function and this virtually doubles the amount of available questions.

In addition to the two Smarty Ears applications included there is a large variety of convenient language application available; see website listed.

Application Name: Autism & PDD Yes/No Questions Lite
Targeted Age: 3-7 years
Targets Skills: Joint attention, reciprocity, early language skills
Developer/Website: Linguisystems/
<http://www.linguisystems.com/index/home>
Device/Price: iPad, Android/LITE is Free; Full is 14.99



Clinical Summary:

Buddy Bear Yes/No Questions is a great way to teach early communication skills. Buddy Bear sits on the screen in a very simple, non-distracting, setting and the child is asked very simple yes or no questions. The questions are framed within the contexts of home, the beach, the grocery store, the park, and school. After the question is asked the child looks to the side at the options. Visual cues are given to help the child know which answer is which. One bear is nodding and the other is shaking its head and these are the choices for yes and no, respectively. This application is very friendly for young children but can be used for older children if they are struggling with this concept. Parents are encouraged to regulate the answers by reading them aloud to their child and provide further social explanations on the use of language. It is really convenient that parents use this app as a basis for promoting conversation and a setting to increase child's level of expressive and receptive language.

Application Name: Autism & PDD Reasoning & Problem Solving
Targeted Age: 3-7 years
Targets Skills: joint attention, problem solving
Developer/Website: Linguisystems/
<http://www.linguisystems.com/index/home>
Device/Price: iPad, Android/LITE is Free; Full 14.99



Clinical Summary:

Very similar to the setup of Buddy Bear Yes/No questions, the *Reasoning and Problem Solving* application is very simple and not distracting. This application is slightly more advanced because it deals with a larger variety of questions. These questions include solving a problem

(what questions), cause and effect (why questions), Predicting (inferring), Sequencing (identify the next step), and comparing (how are two items the same). Correct answers are given verbal praise as reinforcement. In addition to the two Buddy Bear applications included in the list there are a variety of beautiful and helpful application available with Buddy Bear as the main character; see website listed.

Application Name: More Fun with Directions HD
Targeted Age: 4-7 years old
Targets Skills: listening skills, following simple directions, spatial concepts, auditory processing
Developer/Website: Hamaguchi Apps for Speech, Language & Auditory Development/
<http://www.hamaguchiapps.com/Home.html>
Device/Price: iPad/\$15.99



Clinical Summary:

More Fun with Directions instructs children with directions, ranging from easy to intermediate to advanced. The questions are straightforward and deal primarily with prepositions and spatial awareness. The concepts that are used include: above, behind, below, down, front, on, put it, take out, etc. You can choose to answer questions dealing with all concepts or the player can choose to answer questions about individual concepts. Auditory memory and auditory processing are a focus because the questions are spoken and not written. However, the player can choose to turn audio off and text on to assess reading comprehension.

Within the settings one can track their progress, choose to touch versus drag to object to its target, turn text and voice command on/off. An example of a simple question is “put the cake behind the couch” and an example of an advanced question is “Turn on water in the square green sink with the pink faucet”. There are an abundance of receptive language opportunities and ways to facilitate communication with this application.

Application Name: The Surprise
Targeted Age: older elementary school
Targets Skills: perspective taking, body language interpretation, grammar, and articulation
Developer/ Website: Hamaguchi Apps for Speech, Language & Auditory Development/
<http://www.hamaguchiapps.com/Home.html>
Device/Price: iPad/\$5.99

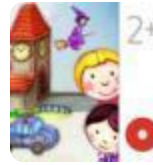


Clinical Summary:

The Surprise is a storytelling application that allows for a broad range of activities. The story contains 8 chapters and each chapter has three questions to test comprehension. For more advanced readers, each chapter also has targeted challenge words on which to focus. Children can record and even re-write their own story to practice their literacy skills. Within this application some of the concepts on which the player can focus are: Narrative language skills, body language interpretation, perspective taking, emotional labels, syntax & morphology, articulation, and fluency.

In addition to the two Hamaguchi applications included there is an extensive variety of high-quality learning application available; see website listed.

Application Name: My Little Town: Toddler's
Seek & find
Targeted Age: 2-5 years
Targets Skills: vocabulary skills, cause & effect
Developer/ Website: Wonderkind GmbH/
<http://www.wonderkind.de/en/>
Device/Price: iPad, Android/FREE



Clinical Summary:

My Little Town is a beautiful application for toddlers, but younger and older children will love the hand drawn pictures and soft music. This application has three different settings: morning, afternoon, and night. Early language is a focus as there are many opportunities to teach new vocabulary within the setting of everyday life. Cause and effect is also a focus because as the child taps different aspects of the community (fountains, cars, windows, etc.), they begin to come to life and the child is able to see the effect that their finger-taps have. Each animation has a matching musical effect as well. The *Seek&Find* collection is so convenient for sound effects imitation, new words acquisition, categories differentiation and interactive images reading.

Parents are welcome to explore other collections from the same developers developed under the same design.

Application Name: Special Words
Targeted Age: 3-7 years
Targets Skills: vocabulary, early reading
Developer/ Website: Special iApps/
http://www.specialiapps.com/en_us/
Device/Price: iPad, android/\$13.99



Clinical Summary:

Special Words helps children to build early vocabulary and focuses on having children identify simple written words. There are 96 vocabulary cards and four games of increasing difficulty. All games are matching games. The simplest game is matching one picture to its identical picture. The next game requires the child to match one written word to its next written word. The last two are the more challenging games in which the player matches a word to a picture or a picture to a word. Four cards are on the screen at anytime and with each correct match a card is deducted from the screen. Praise is given through applause once all four cards have been matched and the child has cleared the screen. The word list is in ABC order, and parents can edit the list in many ways in the settings section of this application. This application is also available in 20 different languages.

Application Name: Special Stories
Targeted Age: all ages
Targets Skills: social interaction, sequencing, spoken language skills
Developer/ Website: Special iApps/
http://www.specialiapps.com/en_us/
Device/Price: iPad, Android/\$13.99



Clinical Summary:

Special Stories is a story making application that has many practical uses. Each page of your story can hold 1 picture, a few lines of text, and up to 60 seconds of audio recording. Many languages can be used within the settings features of this application. Children with ASD can use this app as a fun way to connect with peers. Fun memories like a family vacation can be remembered and shared by quickly creating a story. Also, daily routines and schedules like getting reading for school or hand washing can be displayed step-by-step using this user-friendly application. Stories can be edited after they have been completed and saved. Parents can build social and daily life routines and use the stories as guides for especial events.

Application Name: Pictello
Targeted Age: all ages
Targets Skills: Communication, storytelling, sequencing
Developer/ Website: Alligator Apps/
<http://www.assistiveware.com>
Device/Price: iPad/\$18.99



Clinical Summary:

Pictello is another story telling application with a variety of uses. Each page can hold a picture, text, and audio recording. This application can be used to share stories of recent vacations, holidays, and events. Also, *Pictello* can be used to help a child remember schedules and routines, as well as help children navigate through social situations they encounter. All ages and skills levels can use this application. There are two settings to help create a story. The wizard setting provides templates to help create a story, and the expert setting allows the user to create a story completely on their own. One additional setting is that you can have individual stories that are marked with an orange ribbon, or one could have a group of similar stories or schedules that are kept in a folder that is marked by a rainbow ribbon. This application provides a lot of help to get the user started. Social Stories are easily composed combining visual and auditory prompts so parents can anticipate special situations to their children as well as remember the episodes from past experiences.

Application Name: Kid in Story
Targeted Age: all ages
Targets Skills: model expected behavior; reinforce routines, and early literacy
Developer/Website: Locomotive Apps/
<http://locomotivelabs.com>
Device/Price: iPad/\$6.99



Clinical Summary:

Kid in Story is yet another story telling application that allows for children to create their own story or allows them to use templates. This application has been designed to facilitate interest in reading, as well as, to reinforce routines for children with special needs. It can also be used for fun to make stories out of family events like vacations and holidays. One very cool aspect of this application is that children can take their picture and superimpose themselves into the story. The application is made to fit them into the picture is a visually pleasing way to further engage the child; this function can be used to motivate the child and generate creative stories based on dreams or desires (fly to the moon). The templates provided cover a broad range of concepts from routines like hand washing to a trip to San Francisco.

Once they are completed the children can share their stories with loved ones and friends. It is a really useful tool to work on children’s imagination and symbolic thought.

Application Name: Articulation Station Pro
Targeted Age: children and adults with speech delays
Targets Skills: articulation and pronunciation
Developer/ Website: Little Bee Speech/
<http://littlebeespeech.com/index.php>
Device/Price: iPad/\$49.99



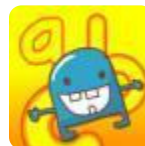
Clinical Summary:

Articulation Station Pro has its focus on helping children and adults to pronounce their words more clearly at the same time that they learn new vocabulary through meaningful and non-sense sentences and stories. There are 22 English language sounds that are targeted at the letter, word, and story levels. There are many activities within this application to help with the player’s expressive language and some of them include flashcards, matching, level 1 stories, level 2 stories, and comprehension questions. Parents can customize word and pictures lists to facilitate language development outside of the provided targets. Up to 6 children can play at one time and progress can be tracked over time. There are extra activities beyond the initial targets for the letter s, l, and r as these letters can be most problematic.

This app can be also used as a reading program for children with specific literacy difficulties since it addresses a great variety of articulation exercises and places words in context through both sentences and stories. There is a spin feature within reading activities that makes tasks more entertaining and motivating. You can record your own voice for practicing pronunciation as well as reading rhythm.

Learning (Reader) Applications

Application Name: Touch and Write
Targeted Age: 4-6 years
Targets Skills: beginning writing
Developer/ Website: Fizzbrain LLC/
<http://fizzbrain.com>
Device/Price: iPad/\$2.99



Clinical Summary:

Touch and Write is a great application for children learning to read and write and even just to explore and play with letters, sounds and tracing. Children can practice writing their ABC’s by tracing upper and lower case letters. Sight words are also available for children to practice tracing and learning to read. Lists can be customized to practice new words and children can practice writing their names and common words. The most fun aspect of this application is that children can choose their writing utensil from a variety of whacky options like ketchup, pudding, shaving cream, etc. They can also choose what they want to write on from fun options like patterns, animal print, nature papers, etc. A brief rewarded is given after correctly chasing. When children are tracing a little monster appears at the top of the letter as well as a trail of yummy treats. The child’s goal is to follow the trail of treats to correctly form the targeted letters. This option can be turned off if children know how to correctly form letters.

Parents can take turns and also trace letters together with their children as well as saying the letter to enhance oral-facial movements while playing with the app. They can also practice choices by selecting the best material to write with. This sort of features brings on a great variety of reciprocal opportunities to exercise social skills while learning literacy.

Application Name: Touch and Write: Phonics
Targeted Age: 5-10 years
Targets Skills: beginning writing, phonetics
Developer/Website: Fizzbrain LLC
<http://fizzbrain.com>
Device/Price: iPad/\$2.99

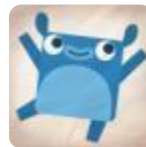


Clinical Summary:

Just like Touch and Write, *Touch and Write Phonics* allows children to practice their writing and they can choose to the same fun writing and paper options as listed above. The user can also individualize and edit the word list. This application goes beyond practicing letters and sight words and allows children and young adults to practice forming longer words. Specifically the focus of this application is on vowels, blends, and digraphs (wh, th, ch, etc.). The same technique of following the little monster down each letter is used to emphasize correct formation of letters, but this function can be turned off. After the child completes a word they are rewarded with a brief bubble popping game which can be also use to take turns and play together.

The time of this reinforcing game can be shortened or lengthened depending on how long you want to allow the child to have a reward. The parent or teacher can track the progress and see how many letters are being formed correctly and therefore know which letters need to be the focus in following lessons. When practicing literacy, particularly if the child does not enjoy the tracing and learning, it is recommend to establish short lessons so they can still be motivating to the child and enlarge the duration as they are becoming more confident and skillful.

Application Name: Endless ABC
Targeted Age: 3-6years
Targets Skills: letter identification, spelling, and vocabulary
Developer/ Website: Alligator Apps/
<http://originatorkids.com>
Device/Price: iPad, Android, Windows/\$6.99



Clinical Summary:

Endless ABC is a great and entertaining way to get children interested in reading and vocabulary with over 50 words to manipulate, listen to, and play. Each letter is placed on a card and once that card is selected the application becomes more interactive. The letters that make up the word on the card are scrambled all over the card and the child's goal is to place each individual letter in its appropriate place. The letters, as they are being placed in the puzzle, tell the children what phonetic sound they make within that specific word. The application sounds out the words as it is being built. This is like a puzzle and once completed a short animation is presented to the child that teaches the child the definition of the word. This application is bright and colorful with musical accompaniment that helps to keep the child focused and engaged. It is also possible to work on semantics as the app offers aloud the

meaning of the word and displays a performance on the word. Parents are encouraged to play out the scene with their children by imitating the gestures, sound effects and movements in the role play.

Application Name: Endless Reader
Targeted Age: 4-8 years
Targets Skills: identifying sight words, vocabulary, and sentence structure
Developer/ Website: Alligator Apps/
<http://originatorkids.com>
Device/Price: iPad, Android, Windows/FREE + in app purchases



Clinical Summary:

Endless Reader is the follow up application to Endless ABC, and has a lot of the same features. The focus of this application is on sight words in the context of a complete sentence. Children pick a card with a single word on it that they then sound out and read as described in endless ABC. The more advanced function of this application is that once the word is complete it is then placed within a sentence. This allows the child to see how the individual words can gain more meaning within the context of different sentences. The sentence that children are given is jumbled up like a puzzle and it is their job to put the sentence back together in order. Upon completion of this task visual reinforcement is given when the animation comes to life for the child to watch.

There are three levels in this application and each one increases in its difficulty. Level one is intended from preschool, level two is intended for K-2 grade, and the last level is intended for 2-3 grades. Each level has its own list of words in alphabetical order. Also see Endless Numbers from the same developers to gleefully learn numbers and counting.

Application Name: iwrite words
Targeted Age: 3-6 years
Targets Skills: early writing skills
Developer: gdiplus
Website: <http://www.gigglelab.com>
Device/Price: iPad/2.99



Clinical Summary:

iWrite Words is a well thought out application for beginning writers and toddlers. Lowercase letters, uppercase letters, and numbers 1-20 are the focus. Once a concept has been chosen (letters or numbers) a screen appears with the target on it. A little crab and some numbers also appear at the top of the writing target. The goal is to drag the crab to each number in chronological order to correctly form the letter or number. Once the letter, number, or word is complete a cute little drawing appears as a reward before moving onto the next target. The simple screen provides minimal distraction from the task at hand.

On the main screen there is a little music not that when clicked takes children to a fun activity. On this screen the alphabet song appears and as children tap the screen the song is played. While the focus is not on drawing for this part, it can serve as a fun reward during a break. Parents could apply the same learning strategies as in Touch and Write apps.

Application Name: Learn with Homer
Targeted Age: 2-7
Targets Skills: variety of early reading skills
Developer/ Website: Homer/
<https://learnwithhomer.com>
Device/Price: iPad/FREE



Clinical Summary:

Learn with Homer is a very comprehensive and recommended application for children to learn and develop a variety of reading skills. There are hundreds of hours of activities and over 50 reading skills. Some of those skills include: Letter sound recognition, pronunciation of letter sounds, blending, spelling, sight words, vocabulary, comprehension, and many more. The main page of this application is a carousel that allows you to meet each character and takes you to their corresponding activities like drawing, songs & nursery rhymes, story time, discover the world and learn to read. Each of those listed have a variety of literacy activities. Learning with Homer has a lot of fun extra features as well. The “Pigeon Post” is an area where the children can send and receive emails, including voice recording. This can be a way to share progress with family member and friends who do not live close by. Also, every Saturday a surprise will be sent to the child and this can be a huge incentive for them to practice their reading. Parents can also track progress and print out activities and certificates to keep the child motivated to learn. This is an excellent example of an application that spreads beyond the screen and facilitates activities to be done using regular materials (paper and pen) to also practice conventional literacy learning approach.

Application Name: Reading Comprehension Camp
Targeted Age: 7-12 years
Targets Skills: language growth, reading comprehension
Developer Website: Smarty Ears/
<http://smartyearsapps.com>
Device/Price: iPad/\$19.99



Clinical Summary:

Reading Comprehension Camp provides 50 stories with questions to assess reading comprehension. There are five different levels of increasing difficulty that allow children of many ages to enjoy. Level 1 is meant for second grade early readers and level 5 is much more advanced and can be used up to seventh grade (12 years). The types of questions used to assess comprehension include wh-questions, inferences, compare & contrast, vocabulary, context, and sequencing. An incorrect answer to a question is simply eliminated, narrowing the answer selection, and making success more attainable. Players can also create their own story and be creative. This function also serves as a means to test comprehension by asking children to retell the story they just read in their own words. The animations are fun and colorful. This application is highly customizable and it provides parents with many ways to individualize this program. Parents can customize stories by selecting by different levels, creating new stories, choosing whether to hide or display story tabs and rewards/medals. Quizzes can also be customized. Some quiz options include selecting question types, allowing the quiz to be read out loud, allowing for hints, and the number of answer choices given. One last customizable option is being able to increase or decrease the picture size. By increasing the picture there are less words shown on the screen and this can be helpful to early readers. A

more advanced reader could decrease the picture and allow more text to be displayed on the screen.

Other learning apps

Application Name: iSequences
Targeted Age: 5-10 years
Targets Skills: sequencing, perspective taking
Developer/ Website: FundacionPlanetainmaginario/
<http://www.planetainmaginario.org/en/>
Device/Price: iPad, Android/2.99



Clinical Summary:

iSequences helps children learn step-by-step instructions for most everyday activities like brushing teeth, getting dressed, and tying shoes, and it also helps children predict what happens in more fun situation like going to the beach, or playing a game. Children are given a target behavior (brushing teeth) and cards sequencing the steps of the target behavior. It is their job to put the cards in order step-by-step following the story meaningfully. There are 100 of these types of questions. Another focus is on emotions and the child is given a sequence of events and asked to predict how the character will feel immediately after the event takes place. There are 60 of these types of questions. The game is set in outer space and picture rewards are bright and colorful so children may want to be successful in order to see them after each trial.

Parents can also work on counting sequences (1, 2 and 3) as well as introducing the magic formula “First, Then and Finally” so children can start practicing order and waiting prompts.

It could be suitable to practice real skills right after the sequence trial play so children can perform actions in real context (really brushing teeth after completing the task) taking the cards order in mind. The application seems to be temporarily unavailable so please, review the Apple Store or Google Play before purchasing the full version. Lite version is a convenient attempt for testing the app.

Application Name: Abilipad
Targeted Age: 5-10 years (can be used by adults as AAC)
Targets Skills: Early reading, writing, and typing
Developer/ Website: Cheryl Bregman/
<http://appytherapy.com>
Device/Price: iPad/\$19.99



Clinical Summary:

Abilipad is a perfect application for students who are learning to read, write, and type and also for those who are acquiring an Alternative and Augmentative Communication (AAC) System. The application is centered around typing on a highly customizable keyboard. The player can assign sounds to keys that will play whenever the key is used. A variety of keyboards come with the application so that the student can practice many different literacy skills. As cited before this application can also be used as an augmentative and alternative communication system for children who cannot verbally communicate. The text-to-speech function comes in many other languages so children can hear a variety of languages from their text. The player can take text from emails, documents, and other previously written texts and

the application will read it to them. The user can also organize documents in folders, as well as share their work with others via email or dropbox.

It is a really useful tool for teaching many skills not only related to literacy or communication. Concepts can be taught since you can insert images from library and websites. It is a very intuitive application but still parents may need help and guidance in the process to implement it as an AAC as well as for creating customized keyboards.

Application Name: Eda Play
Targeted Age: 3-5 years (older children can use if needed)
Targets Skills: visual and fine motor skills; hand-eye coordination
Developer/ Website: RanaPece/
<http://www.edaplay.com>
Device/Price: iPad/\$4.99



Clinical Summary:

Eda Play allows children with visual and/or fine motor impairments ways to strengthen these skills. There are four visual levels as well as four task levels. The instructions can be read by a young child’s voice if that function is turned on. The contrast of the dark screen and the bright colors of the targets aim to grab a child’s attention long enough to help that child complete the task at hand. In addition to the attractive visual display there are interactive activities to facilitate the child’s use hand eye coordination. Parents can track the child’s progress over multiple sessions. The child cannot accidentally exit the application because the parents can set the game up this way. Also, children cannot easily alter the setting because the button is hidden and must be held down for a few seconds to access the settings aspect of this application.

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