

Rating apps for people who have IDD: What we learned

Over the past two decades, technology has made the use of mobile devices a universal way of life, including the lives of people intellectual and developmental disabilities (IDD). Applications tools, commonly called “apps,” are readily available to download on a smartphone, tablet or similar device. These apps can provide people with IDD with tools to develop the daily living skills to become independent at home and at work. Therefore, The Arc Tennessee, in collaboration with Vanderbilt University, designed a project with self-advocates in mind.

The project’s goal was to download, use, evaluate, assess and rate a series of apps that will support individuals with IDD. The project’s goal was to develop an evaluation system that includes a rating scale system, protocol, and training that is user-friendly, easily implemented, grounded in research evidence, and yielded consistent results.

The project settled on four rating dimensions: Content, usability, individualization and overall impression. To make the rating system accessible for individuals with IDD (so they could independently evaluate apps), the research team next created an adapted version.

A rating scale from 0 to 4 emerged, and The Arc Tennessee hired and trained nine evaluators and gave them an opportunity to practice rating an app (Wunderlist). Divided into two groups, the evaluators rated and gave feedback on four apps: Picture Scheduler, Pictello, ONEder and iModeling.

Evaluating iModeling

About the app. iModeling is a video modeling application designed to teach new skills to people with developmental disabilities. The iModeling app allows users to create videos to teach new skills to an individual who is a visual learner. This app is designed to create customized videos or models that can support learning of a skill.

Cost. The cost of the iModeling is \$14.99.

General Set-up Information. iModeling does not come with any content readily available to use. Once downloaded, the user must create a “parent account” with a picture, username, and password. Following this initial set-up, the user can then create the “child account,” with a picture and username. The “child” must then be given or have access to this account information in order to access the videos. Using the parent account, the user can then begin creating videos. That is, all videos must be created by the primary account holder (parent account). Videos can be recorded on the app or uploaded from the iPad’s camera roll. The parent account must select the user(s) that can view each of the videos to provide access

to the child account. The child account can only view the videos that the parent account has created and given access to. The child account cannot change or make edits to the videos.

Set-up time for iModeling

1. Film video 15 min
 2. Create “parent account” using name and photo 2 min
 3. Create “child account” using name and photo 2 min
 4. On parent account, upload video 1 min
 5. Add text, color, and reward 2 min
- 1 hour and 11 minutes

Evaluating ONEder

About the app. ONEder enables educators to efficiently create, download or adapt lessons and activities that are aligned to academic standards (prek-12). According to the manufacture, the target audiences for this application are individuals with unique learning needs. This application offers the possibility to progress monitor the individual’s ability to complete presented task. ONEder offers a free 30-day trial. This trial does provide the user with full functionality of the product. After the 30-day trial, the user still has access the account; howev-

er, the user will no longer be able to add new students or create and add their own lessons.

Cost. To continue to have full access, the user must pay \$14.99 monthly or \$149.00 yearly.

General Set-up Information. To use ONEder, the user must create an account on the website (online). Signing up online is a step that the user must complete, as this cannot be done through the app. This app is intended to be used by parents, teachers, or other trained professionals such as administrator or other service provide (i.e., programmer). The target for this app is an individual from pre-kindergarten through higher education age (i.e., user); ONEder is not intended for adult learners. It considers five content domains, including: (1) math; (2) English language arts; (3) science; (4) social studies; and (5) functional skills (i.e., activities of daily living, communication, vocational, transition services, transportation, behavior management, and other). On the dashboard, the programmer can create or assign a lesson or activity from the library to the user. When assigning the lesson, the programmer will give the user access to the specific lesson, and will identify the setting of the lesson will

take place. This library is generated from the initial information given during the set-up of the account. Also represented on the dashboard is the students' progress on each domain (the programmer must input this information). The library contains 16,621 lessons and activities in the math domain; 10,659 in English language arts; 30,927 in science; 0 in social studies, and 45 in functional skills.

Set-up time for ONEder

1. Set up "programmer account" online
5 min

2. Log into account on iPad for student
1 min

13 minutes‡

‡ = ONEder set up would take additional time if the user of the "parent account" became fully familiar with the website.

Evaluating Pictello

About the app. Pictello is a visual storytelling app that allows users to create stories and schedules. The target audience for this app is for children with autism. The programmer has the possibility to create pages within a story and add photo or video and text, which can be read aloud by text-to-speech or recorded speech.

Cost. Pictello costs \$19.99.

General Set-up Information. The programmer is able to upload and create video or picture schedule, complete with text-to-speech and speech output options. All stories are organized in the app's library, including four sample stories (i.e., Fairy Wings, How to Ride a Tram, Italian Vacation, and What I Like By Josh Harris). Three steps are needed to create personalized pages. The 'wizard guide' provides step-by-step directions to starting, adding more pages to the story, and completing the video. The programmer also has the possibility to create an account that allows them to share videos among accounts.

Set-up time for Pictello 0 min

* = no time was allocated to set up the Pictello app, however, if an individual wanted to create additional content, more time would be needed.

Evaluating Picture Scheduler

About the app. Picture Scheduler is a task organizer or task analysis for people with intellectual disabilities, memory

disabilities, or autism. The programmer can create multi-step tasks associated with a picture, text, video, or audio (or any combination of these media). The user will receive alerts (visual and auditory display) when a task is scheduled to be performed. This app is targeted to individuals who rely on visual and/or auditory supports to perform a tasks.

Cost. Picture Scheduler costs \$2.99.

General Set-up Information. The app does not come with any readily available content. When using Picture Scheduler, the programmer must assign each task to a domain. The task, which is a step of an activity (task analysis), must be created by the programmer. This can be done by creating a name, adding a picture(s), then adding audio or video along with the picture. The task can then be saved within the domain.

Set-up time for Picture Scheduler

1 Add new category 1 min

2 Add new task, including a photo, text and audio 2 min

3 Repeat for each additional task 20 min
(2min/per task)

3 hours and 4 minutes

Results

Based on the results from the evaluation sessions, the four apps can be compared across dimensions. The higher points an app received, the stronger it is in that dimension. The Arc hired raters rated Pictello the highest overall, and Picture Scheduler the lowest overall. In addition, they rated iModeling the highest in the dimensions of usability and quality.

Conclusions

While apps can provide individuals with intellectual and developmental disabilities support to independent living, they may not be as readily available as advertised. From the experiences of this project, we provide the following three main lessons.

1. The Application and Content: Set-up Needs

In evaluating these four apps, we discovered that commercially available apps—though often advertised as a major aid to foster the independent living of adults with IDD—were not as "off-the-shelf" ready as one might like. Indeed, while several apps did have room to include

specific training content, the content itself needed to be designed and created. That is, throughout this project, the apps evaluated did not come with pre-loaded content.

Developing specific content can be a daunting task. A first issue concern what, exactly is needed, by whom, and how to best represent this information. For purposes of this project, we decided to create a video centered on hand-washing. This skill, needed by many individuals with IDD, also has the benefit of being straightforward to demonstrate on a video and easily modeled by the learner. This process was not as easy as we thought it would be, it took longer and required more support than expected. To use apps more generally (i.e., beyond the use in this project), DIDD would need to identify and develop a set of skills—and corresponding tape library—to implement training on a wider scale. Tasks involved in creating the videos would include, (1) choosing skills to be videotaped, (2) recruiting and training staff and models, (3) determining and outlining the steps or task analysis to be followed, and (4) producing the individual skill tapes themselves.

Beyond issues of what and how instructional content will be videotaped and loaded onto these apps, one also needs to consider the individualization of the content itself. Different individuals with disabilities have varying needs and preferences on a daily basis. For at least certain more complex or multi-step skills, more than a single video recording might be required, and additional support will be needed. To determine the individual's abilities in each skill, ongoing evaluation will also be required. Such evaluations will help determine where in the multi-step process any individual may present challenges and require further training in the particular skill.

2. Appropriate Training: Development and Implementation Needs

In addition to creating the content to be uploaded onto the apps, other training materials also need to be created. For purposes of this project, the team developed a narrated PowerPoint training materials about the apps themselves, including the various dimensions upon which each app would be evaluated.

TECHNOLOGY APP EVALUATION SYSTEM FOR INDIVIDUALS WITH INTELLECTUAL DISABILITIES

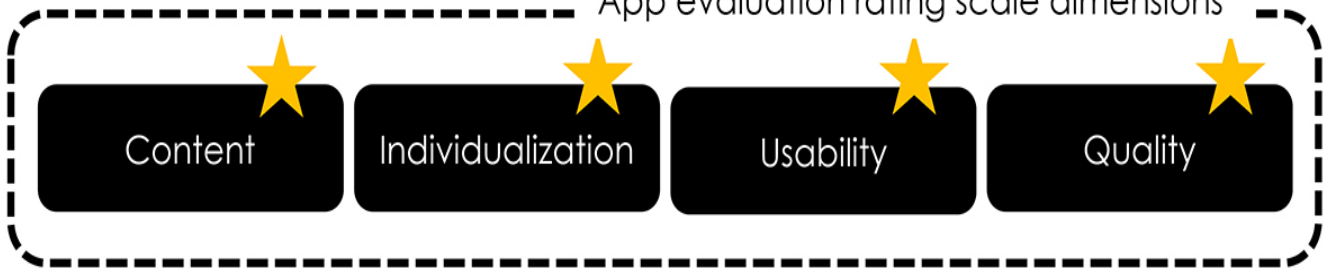
PURPOSE

1. Develop an app evaluation rating scale
2. Train individuals with intellectual disabilities to rate apps
3. Determine which app best met the needs of individuals with intellectual disabilities

COLLABORATION



App evaluation rating scale dimensions



3.25/4 stars



3/4 stars



2.5/4 stars



2/4 stars



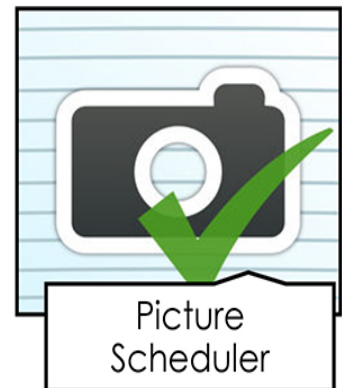
Pictello



iModeling



ONEder



Picture Scheduler

INSIDE THE NUMBERS

iModeling

Content	8.38 out of 12
Individualization	11.50 out of 24
Usability	15.57 out of 20
Quality	5.71 out of 8 ^z
Overall	41.16 out of 64

Pictello^{xy}

Content	8.50 out of 12 ^z
Individualization	15.17 out of 24
Usability	15.17 out of 20 ^z
Quality	5.0 out of 8 ^z
Overall	43.84 out of 64

ONEder

Content	7.88 out of 12
Individualization	10.71 out of 24 ^z
Usability	12.38 out of 20
Quality	4.63 out of 8
Overall	35.60 out of 64

Picture Scheduler^x

Content	8.00 out of 12
Individualization	5.33 out of 24
Usability	12.20 out of 20
Quality	4.20 out of 8
Overall	29.73 out of 64

Note: x = raters absent during these sessions (two during the evaluation of Pictello and one during the evaluation of Picture Scheduler)
y = one rater scribbled on the rating scale and the answer choices were unclear, and therefore this was excluded from the results
z = not all eight raters complete all sections of the rating scale, and therefore data were not included in the results

Even this relatively straightforward process involved many steps. In scaling up the content training throughout the state, multiple life skills would need both content and training materials. For training to be successful, one continues to need to know if training was implemented as designed (fidelity), as well as whether learners are indeed benefiting from the training (pre-post evaluations). Each evaluation must be linked to the training and, ideally, skill evaluation would also generalize to real-world use of any skill in the residence, work, or community environment in which the individual participates.

3. Self-Advocate Learners: The Need for Comprehensive Evaluation and Support

Finally, one must consider the eligibility of self-advocates themselves. In this project, the main concern was the extent to which different individuals with IDD were able to evaluate, in an independent and valid way, the four apps.

Practically in this project, we needed each individual to be able to understand questions being asked of them, follow directions, have the ability to read independently, and to write or have certain basic literacy skills (e.g., that, in English, writing works “left-to-right” and that the “better” points on the scale would most likely be on the rightmost side).

At the same time, the population of individuals served by DIDD includes many individuals who cannot read or understand basic literacy conventions (e.g., left-to-right). It will then be necessary to develop ways to support these individuals in their identification, selection, and use of apps.

Some supports may involve help from staff members or family, and support to be able to “build into” the apps themselves.

This is particularly important, as DIDD contemplates scaling up the use of apps to help foster skills acquisition and development, for individuals with IDD to live more independent. As a result, it

becomes critical to consider the fit of the app, the training, and the individual’s skills and characteristics.

Final Thoughts

After performing this project, we end with cautious but clear-eyed optimism. We do feel that, given the proliferation of apps and other technology, DIDD can capitalize on computer based advances to help foster more independence among adults with IDD.

At the conclusion of this project, the team determined Pictello to be the best app when comparing it to the other three DIDD identified apps. Much more work is needed to translate the promise of computer-based apps to the direct training of persons with IDD.

The future seems bright, but much more thought, training, and effort remains to translate the promise of apps into everyday routines and activities for those who benefit from the services provided by DIDD.