



Taking the Pulse of Augmentative and Alternative Communication on iOS

David Niemeijer, Ph.D. (AssistiveWare)

Prof. Anne M. Donnellan, Ph.D. (University of San Diego)

Prof. Jodi A. Robledo, Ph.D. (California State University at San Marcos)

16 April 2012

Table of Contents

Summary of Findings	3
Introduction	3
About the survey	3
Key findings	4
Impacts	4
Challenges	4
Mobile AAC use	4
Key conclusions	5
Impacts	5
Challenges	5
Mobile AAC use	5
Family members and caregivers	6
Introduction	6
Who are the AAC users?	7
How were today's AAC users communicating before?	7
How are AAC users communicating today?	7
Who is customizing and teaching AAC use?	8
How is the AAC solution used?	9
Where is the AAC solution used?	10
Is the iOS device used for things beyond AAC?	10

What is the impact of having access to AAC on iOS devices?	11
AAC users	14
Introduction	14
Who are the AAC users?	15
How were today's AAC users communicating before?	15
How are AAC users communicating today?	15
Who is customizing and teaching AAC use?	16
How is the AAC solution used?	16
Where is the AAC solution used?	16
Is the iOS device used for things beyond AAC?	17
What is the impact of having access to AAC on iOS devices?	17
Professionals	20
Introduction	20
Who responded?	21
Who are the AAC users?	21
How were today's AAC users communicating before?	22
How are AAC users communicating today?	22
Who is customizing and teaching AAC use?	23
Is the iOS device used for things beyond AAC?	23
What is the impact of having access to AAC on iOS devices?	24

Summary of Findings

Introduction

During Autism Awareness Month, an exploratory survey on Augmentative and Alternative Communication (AAC) and iPads, iPod touches and iPhones was distributed as part of research collaboration between AssistiveWare and professors from the University of San Diego and the California State University at San Marcos.

In this white paper we provide an overview of the key facts and findings of the survey that among others revealed that in the opinion of respondents, Proloquo2Go and other full-featured AAC Apps together with Apple's iPad, iPhone and iPod touch can deliver an AAC solution that supports considerable improvements in key areas such as independence, behavior, interaction with others and learning.

About the survey

Topic of the survey: Augmentative and Alternative Communication (AAC) and iPads, iPod touches and iPhones

Why was the survey conducted?: This initial exploratory survey was conducted to identify interesting trends about the user community and the benefits of AAC on consumer devices.

Who conducted the survey: The survey is part of research collaboration between AssistiveWare and professors from the University of San Diego and the California State University at San Marcos.

How was the survey distributed: The online survey was distributed through Facebook, Twitter and newsletters targeting users, family members and professionals in the Proloquo2Go and AAC on iOS user communities.

Who responded to the survey: 232 people: 17 AAC Users, 98 family members, caregivers and friends of AAC users, and 117 professionals working with AAC users. All the respondents were people who had previously shown an interest in AAC for iOS devices.

Disclaimer: The survey is of a preliminary, exploratory nature with a relatively small sample size and a "convenience" sample. Nonetheless, a number of patterns emerge across all three groups of respondents providing confidence in emerging trends and support for larger and more in-depth research on this important topic.

Key findings

Impacts

- 60% to 80% of the AAC users and families reported improvements in communication with others, in independence, in behavior, in the atmosphere at home, and in general wellbeing since starting with Proloquo2Go or another full-featured AAC App.
- About 50% of the adult AAC users and over 55% of the family members and caregivers report an improvement of verbalization and speech for the AAC user.
- 40-70% of respondents report use of an iOS AAC app to communicate in a variety of other settings beyond the home.

Challenges

- Less than 10% of adult AAC users and less than 25% of family members and caregivers of AAC users report receiving professional support to effectively implement AAC.
- Close to 20% of the professionals and close to 30% of the family members and caregivers consider the professional supporting the AAC user not or only slightly knowledgeable on AAC.
- Family members and caregivers report that only 20% of the AAC users in their care use AAC for the full range of communication functions, such as starting and changing a conversation.

Mobile AAC use

- One third of the AAC users reported that three years ago they used a high-tech dedicated AAC device. Today, virtually all (also) use an iOS device for AAC.
- Close to 60% of the family members and caregivers and over 65% of the adult AAC users reported that they started working with a full-featured AAC app less than 1 year ago.
- Adult AAC users and family members of AAC users report that 90% use an iPad for communication, while over 25% also uses an iPhone or iPod touch. Additionally, 15% to 20% also use a dedicated communication device.
- AAC apps on iOS devices are used across all ages. More than 55% of the professionals reporting the use of AAC apps with preschoolers and 10% working with individuals over 65 years old.
- Family members and caregivers report that over 90% of the AAC users they care for use the device for non-AAC activities, with the most frequent categories of use being entertainment (85%) and learning (70%).

One of the most exciting results from the survey is that an overwhelming majority – as many as 60% to 80% of the AAC users and families – are seeing real-life benefits of this technology. Improvements not just in communication, but also in independence, behavior, atmosphere at home and general wellbeing are observed since using Proloquo2Go. This is a great source of inspiration.”

David Niemeijer, founder and CEO of AssistiveWare.

Key conclusions

Impacts

- In the opinion of respondents, Proloquo2Go and other full-featured AAC Apps together with Apple's iPad, iPhone and iPod touch can deliver an AAC solution that provides considerable improvements in key areas such as independence, behavior, interaction with others and learning.
- Despite the limited nature of our data, we are hopeful that a wider availability of AAC might enhance speech development for many individuals.
- It appears that AAC apps on iOS devices provide a flexible, mobile communication solution that is being used in many different environments.

Challenges

- It appears there may be a serious shortage of knowledgeable professionals capable of assisting families with effective AAC use.
- The preliminary data suggests the potential of many AAC users to access a fuller range of communication functions is as yet insufficiently tapped, with less than 20% using the full spectrum of communication functions.

Mobile AAC use

- It appears that Apple's iOS devices and AAC apps have brought AAC within reach of a much larger population than was traditionally served with dedicated devices.
- Apple's iPad, iPhone and iPod touch appear to be used as an AAC solution by a variety of age groups ranging from those receiving early intervention to seniors.
- Many users benefit from having access to more than one iOS device for AAC, perhaps because of the affordability of the devices and the benefits of the different form factors.
- Adoption of iOS devices for AAC use appears to be accelerating.
- The multipurpose nature of the iOS devices and available apps make the devices useful for many purposes beyond AAC.

Our survey reinforced what I've been hearing from the field - parents, teachers and Speech and Language Professionals realize that SLP's need more training in AAC. They need to know how to use these cool new devices and apps to take advantage of the potential communication improvements. Often the broad range of communication benefits is not fully realized because too many kids and clients are stuck on labeling, requesting and answering endless repetitive questions. SLP's can help us change that. I hope the American Speech and Hearing Association will lead the way again and support their members to bring even more of their language and communication expertise into the 21st century world of communication options that give new meaning to "freedom of speech".

Anne M. Donnellan, PhD, professor University of San Diego and Director, USD Autism Institute

Family members and caregivers

Introduction

We are happy to share the results of the initial exploratory survey on Augmentative and Alternative Communication (AAC) and iPads, iPod touches and iPhones that we distributed as part of our Autism Awareness month activities. This survey is part of a research collaboration between AssistiveWare, Professor Anne M. Donnellan, PhD, University of San Diego, and Professor Jodi A. Robledo, California State University at San Marcos. We distributed this survey to learn more about the user community and the benefits of AAC on consumer devices. The sample size is small. All the respondents were people who had previously shown an interest in AAC for IOS devices. The survey is of a preliminary, explorative nature. Nonetheless, some interesting trends are emerging.

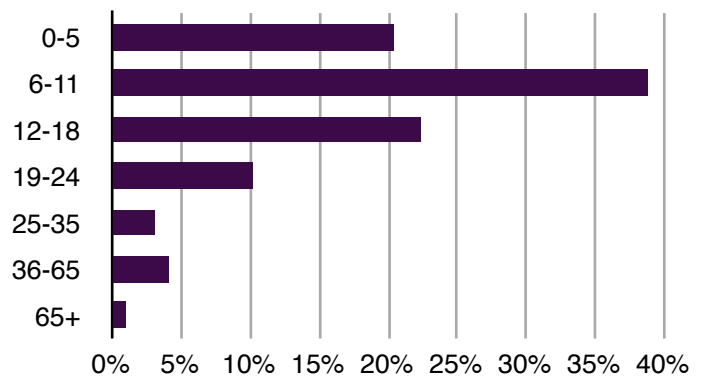
In the survey we asked three categories of people to tell us more about their AAC usage and the impact of using AAC apps: AAC Users, Family members and caregivers, and finally Professionals working with AAC users.

This chapter shares the results of the responses provided by family members and caregivers. We opened the survey on 31 March 2012 and closed it on 15 April 2012 after receiving 98 responses from family members, caregivers and friends of AAC users.

Who are the AAC users?

Respondents report that about 20% of the AAC users they are caring for are in the pre-school age, a little over 60% are school-aged, a little over 10% are young adults under 25, while the rest are older. This suggests that **not only are Apple's iPad, iPhone and iPod touch used as an AAC solution by a variety of age groups, AAC apps are also used regularly for early intervention.**

Age of AAC users respondents are caring for



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

Respondents report that almost 70% of the AAC users they are caring for are male. One-third are on the autism spectrum, over 10%

have cerebral palsy, close to 15% have a label of down syndrome, and close to 15% have a developmental delay. In total, almost 90% have a developmental disability rather than an acquired disability. Judging by the age of the AAC users, it seems likely that most of the respondents are parents but we do not know this for a fact. In this sample, it appears that **people with a wide variety of diagnoses use AAC Apps.**

How were today's AAC users communicating before?

Respondents report that close to 30% of the AAC users they are caring for that are currently over 5 years of age were using a large dedicated high-tech, AAC device before Proloquo2Go, the first AAC app on the iPhone, was introduced 3 years ago. About 15% were using a high-tech portable device at that time. However, two-thirds of AAC users only had access to low-tech (e.g. communication books) or unaided communication (such as sign-language and gestures) before solutions on consumer devices were introduced. Perhaps, **Apple's iOS devices and AAC apps have brought AAC within reach of a much larger population than was traditionally served with high tech dedicated devices.**

How are AAC users communicating today?

Virtually all respondents (98%) report that they are currently working with an iOS device and AAC app. In about 80% of the cases this is the only high tech AAC solution they are using, but close to 20% combine this with the use of a dedicated device (in most cases from Prentke Romich Company and Dynavox). Many of those combining the use of an iOS device with a dedicated device were already users of dedicated devices three years ago. Yet, over half of those who were using a dedicated device in the past now exclusively use an iOS device. At the same time several people who were using low tech solutions now use dedicated devices in addition to iOS devices. Apparently, the **over two-thirds of the AAC users in the care of these respondents rely exclusively on AAC apps on iOS devices, but some combine iOS device use with use of a dedicated device. There seems to be a place for both types of devices.**

Respondents report that close to 90% of the AAC users they are caring for use an iPad for communication, while over 20% use an iPhone and over 40% use an iPod touch. **It appears that many are benefitting from having access to more than one iOS device for AAC perhaps because of the affordability of the devices and the benefits of the different form factors.**

Respondents report that close to 95% of the AAC users they are caring for are using Proloquo2Go from AssistiveWare. This is not surprising as the survey was distributed through various channels connected in one way or another with AssistiveWare. Even though Proloquo2Go is the most popular AAC app this does not suggest that Proloquo2Go has a 95% market share. Other apps that were mentioned are TouchChat and TapToTalk.

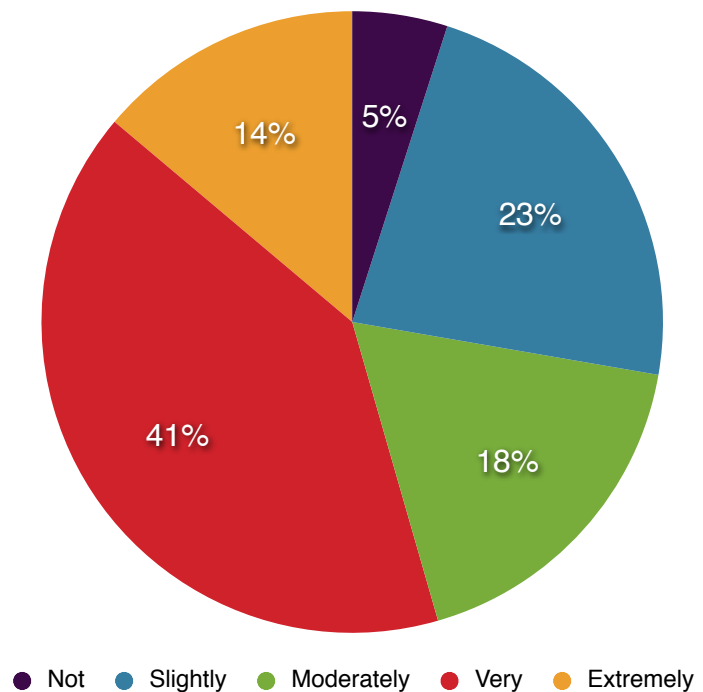
Adoption of iOS devices for AAC use appears to be accelerating. Close to 60% of the respondents reported that they started working with the primary AAC app they are using less than 1 a year ago. Close to 25% started between 1 and 2 years ago and a little over to 15% started more than 2 years ago. Almost one-third started less than 6 months ago.

Who is customizing and teaching AAC use?

Over 75% of the respondents report that family members, caregivers and friends are the primary group of people customizing the AAC app for the user. Where a professional is the primary person customizing, it is most often (10%) a Speech Language Pathologist (SLP). When it comes to teaching AAC use, almost 10% report getting no support and close to 70% reports this task falls on family members, caregivers and friends. At least in this sample, **fewer than 25% of respondents receive professional support in effectively implementing AAC.**

From the responses it appears that in those cases where professionals do provide support the respondents do not always consider them very knowledgeable. Almost 30% of the respondents consider the professional not knowledgeable or only slightly knowledgeable. About 55% consider the professional helping them very or extremely knowledgeable. It appears **there may be a serious shortage of knowledgeable professionals capable of assisting families with effective AAC use.**

Knowledgeability of the professional supporting the AAC user according to the respondents



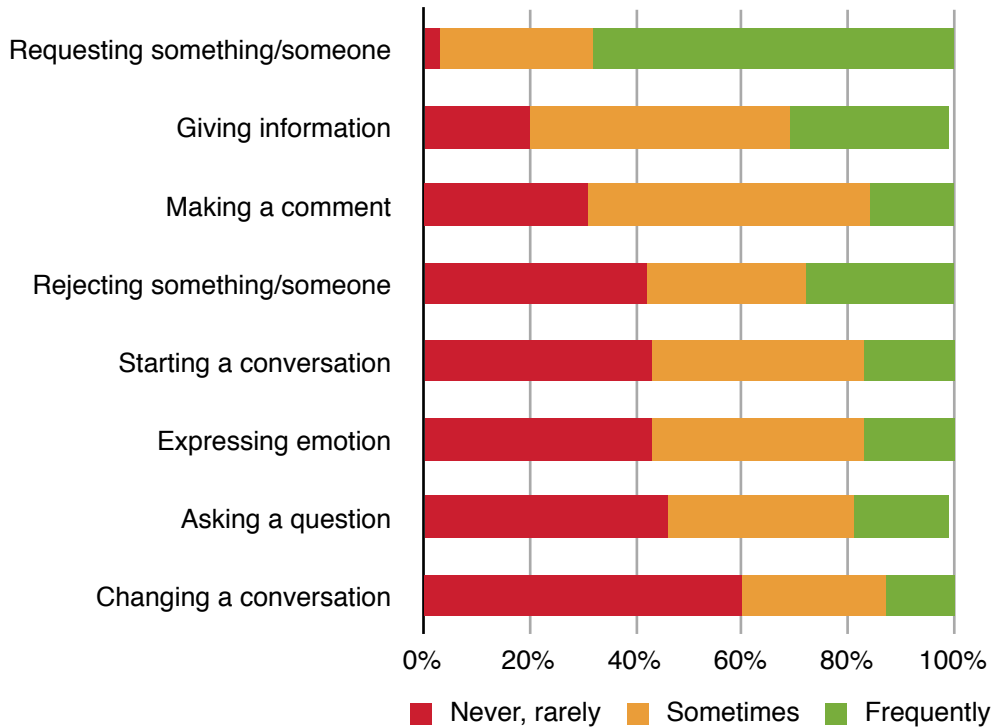
● Not ● Slightly ● Moderately ● Very ● Extremely

Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

How is the AAC solution used?

The limited amount of knowledgeable support reported by families in customizing and teaching AAC use raises questions about whether AAC is being effectively implemented. One way to look at that question is to analyze how AAC is being used. For what functions of communication is AAC being used? Respondents report that the AAC user they are caring for uses AAC mostly for

How is the iPad, iPhone, iPod touched used for communication?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

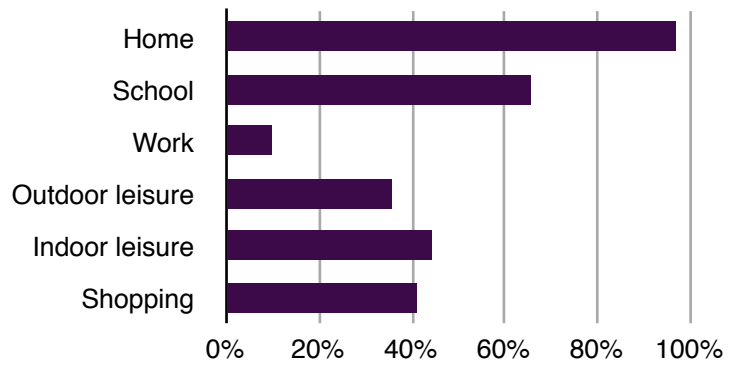
requesting something or someone (close to 70% uses AAC frequently for this purpose). Almost 20% of the AAC users reported on, never or rarely use the AAC solution for anything else. Question answering is the second most commonly used function of communication according to respondents, with one-third doing this frequently and about 50% doing this sometimes. The prevalence of requesting and answering questions is not surprising as these are the most common functions of communication taught to the AAC user at home and in schools. Some have argued that these are cultural matters irrespective of disability issues. Nonetheless, it may be that supporters often lack the knowledge and experience to effectively teach other functions of communication. Only near 20% of the AAC users respondents are caring for use AAC for the full range of communication functions, including starting and changing a conversation. It may be that many more are likely to be able to get beyond where they are now with support from knowledgeable AAC professionals.

These preliminary data suggest **the potential of many AAC users to access a fuller range of communication functions is as yet insufficiently tapped with less than 20% using a broad spectrum of communication functions.**

Where is the AAC solution used?

Another relevant question in terms of how effectively AAC is being used is where it is being used. Over 95% of the respondents report that the AAC user they are caring for is using AAC at home. And, 40-60% of respondents report use in a variety of other settings. Younger users are using it in school (about 80%) and older users are using it at work (close to 45%). Many are using it for indoor and outdoor leisure and for shopping). It appears that **AAC apps on iOS devices provide a flexible mobile communication solution that is being used in many different environments.**

Where is the iOS-based AAC solution used?

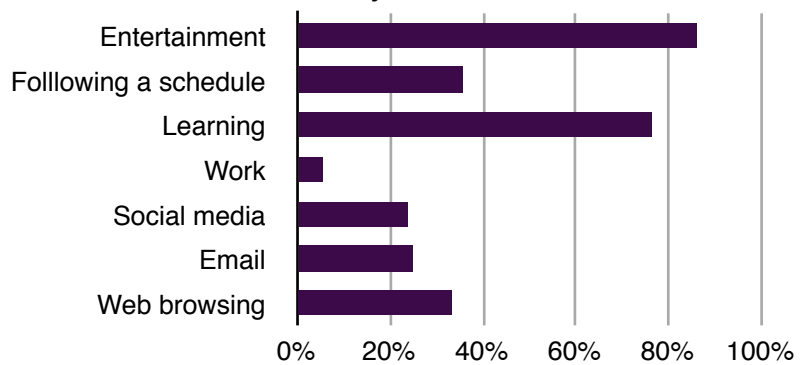


Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

Is the iOS device used for things beyond AAC?

Respondents report that over 90% of the AAC users they are caring for handle the multipurpose nature of the iOS devices well to very well. Many are using the device for a variety of other activities beyond AAC, with the most frequent categories of use being entertainment (over 85%) and learning (over 75%). Note that we neglected to ask about one particular category: voice and video calling (phone, Skype, Facetime).

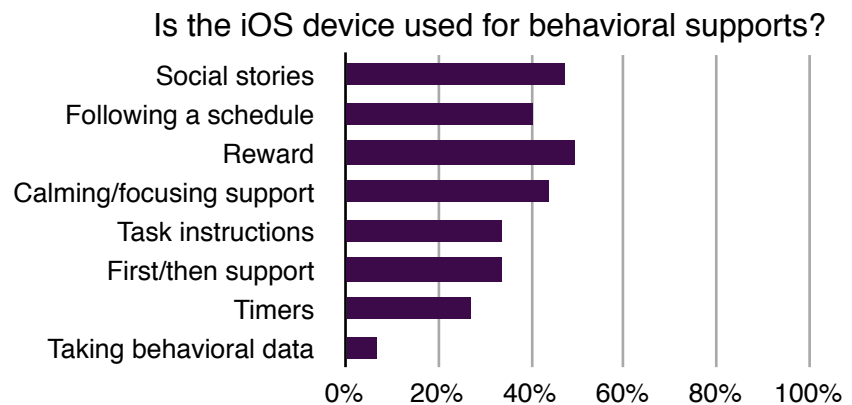
In what other ways is the iOS device used?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

“The [dedicated device] we used worked great but we could not afford warranty/repairs and the portability was an issue. Plus only having her voice on one device was extremely stressful, worrying about it being dropped or just not working correctly. Sending it in for repairs was awful, so stressful. We have Proloquo2Go on multiple devices and it is an incredible peace of mind to know if one stops working, we’ve got a back up!” Melissa B. (parent)

In addition to the above activities respondents also report that iPads, iPhones and iPod Touches are being used for behavioral supports for close to 50% of the AAC users. Social stories (with apps such as Pictello), scheduling, and rewarding (often using entertainment apps) are the most common behavioral supports being used.



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

From this sample, it appears that

the multipurpose nature of the iOS devices and available apps can make the devices useful for AAC users beyond communication. Over 80% of the respondents report using the devices for other purposes including entertainment and learning.

What is the impact of having access to AAC on iOS devices?

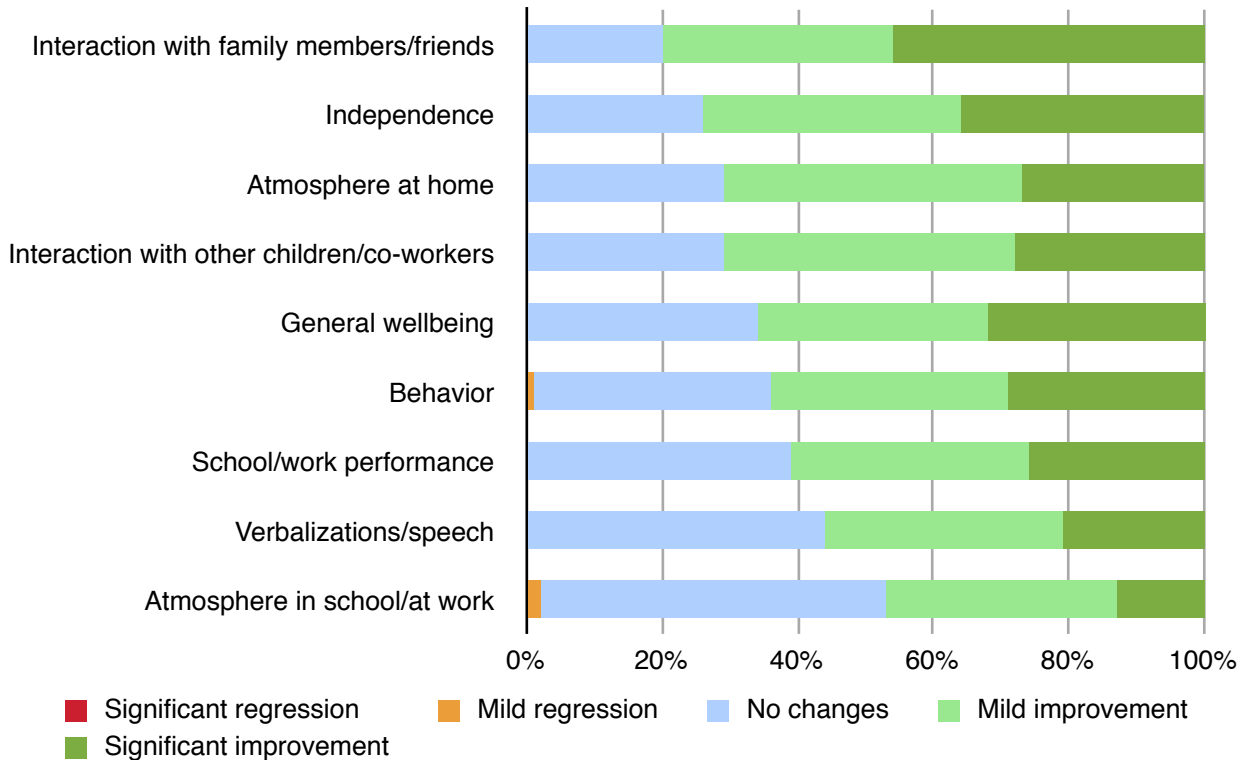
One of the reasons we initiated this survey was that we were receiving a lot of anecdotal evidence that for many people having access to AAC on Apple's iOS devices was leading to more benefits than "just" the ability to communicate, or put differently, that with the ability to communicate many other benefits were achieved.

"It is so wonderful for him to be able to tell us what he needs and has definitely reduced frustrations. He also uses his iPad as a learning tool and does extremely well navigating the iPad and Proloquo2Go." Stephanie B. (parent)

The results supported anecdotal reports. Respondents were reporting many benefits. Over 80% reported improvements in the interaction and communication with family members and friends, around 75% reported improvements in independence, over 70% reported improvements in the atmosphere at home, interaction with other children or co-workers, in behavior and in general wellbeing. In not a single case were significant regressions reported and only for atmosphere in school/at work did 2 respondents report a mild regression. In many cases the improvements were reported to be considerable. For example, close to 50% reported "significant improvements"¹ in interaction and communication with family members and friends, over 35% reported "significant improvement" in independence and over 30% reported "significant improvements" in behavior, and general wellbeing.

¹ The term "significant improvement" was a response option and does not mean to imply significance in the statistic sense.

What changes have been noticed since the user started using the preferred AAC App?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

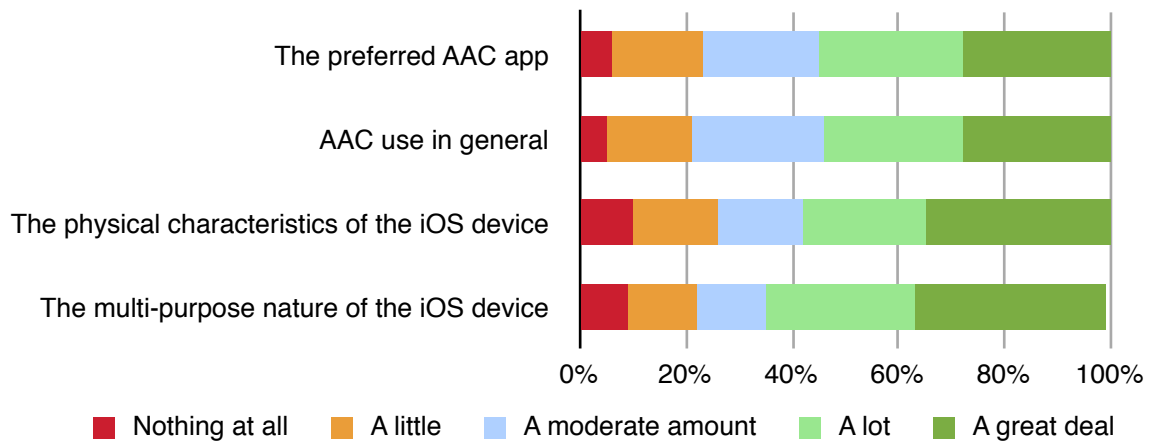
Another interesting finding is that in contrast to a still widespread misconception about alternative communication inhibiting speech, use of an AAC solution increased verbalizations and speech for many in our sample. Over 55% report an improvement in verbalization and speech. **Despite the limited nature of our data, we are hopeful that a wider availability of AAC might enhance speech development for many individuals.**

“Proloquo2Go has bridged my daughters world to ours” Bonita M. (parent)

From the above it is clear that AAC apps on iOS devices can offer considerable benefits to many in need of AAC. But, how much is attributable to the preferred AAC app (in 95% of the cases Proloquo2Go), to using AAC in general, to the physical characteristics of Apple’s iOS devices (in almost 90% of the cases an iPad) and finally to the multipurpose nature of those iOS devices? We asked this exact question to the respondents and about 80% attributed a moderate amount to a great deal to each of these factors. Obviously, these are questions deserving much more in-depth study.

“Proloquo2Go has changed our lives. Our twin boys are three years old and started using P2G when they were 2.5. They were proficient PECs users but the system was lacking for us. During the last seven months they have transformed. Not only are they using their iPad to tell us what they want and need they are starting to vocalize and repeat. Their frustration levels have decreased SO much. Our family values Proloquo2Go so much. It is more than an app to us...it has given us the gift of getting to know our boys. I will never forget the shriek of delight when they heard their "voice" for the first time.” Allison S. (parent)

How much of the improvements are attributable to the following factors?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

In the opinion of many of these parents other family members and caretakers, Proloquo2Go and other full-featured AAC Apps together with Apple’s iPad, iPhone and iPod touch can deliver an AAC solution that supports improvements in key areas such as independence, behavior, interaction with others and learning. Part of these benefits are attributed to the use of AAC in general, part to the features of the apps, part to the device characteristics (especially the popular iPad) and part to the multipurpose nature of iOS and the available apps.

AAC users

Introduction

We are happy to share the second set of results of the Augmentative and Alternative Communication (AAC) and iPads, iPod touches and iPhones that we ran as part of our Autism Awareness month activities. This survey is a research collaboration between AssistiveWare, Professor Anne M. Donnellan, PhD, University of San Diego, and Professor Jodi A. Robledo, California State University at San Marcos. We ran this survey to learn more about the user community and the benefits of AAC on consumer devices.

In the survey we asked three categories of people to tell us more about their AAC usage and the impact of using AAC apps: AAC Users, Family members and caregivers, and finally Professionals working with AAC users.

This chapter shares the results of the responses provided by AAC users. We opened the survey on 31 March 2012 and closed it on 15 April 2012 after receiving 17 responses from AAC users. Given the small number of respondents the results should only be considered indicative and not too much attention should be given to small differences in percentage.

Who are the AAC users?

Only 17 people who identified themselves as AAC users returned the survey. Of these, the majority was between 35 and 65 years of age. Clearly, adults as well as children are using the devices and apps such as Proloquo2Go. Two-thirds of the respondents were female, the rest male.

Where the family member and caregiver respondents reported that they were caring for high numbers of AAC users with autism, the AAC users who completed the survey themselves were people diagnosed with cerebral palsy (30%), another 30% people with ALS and the remainder with a variety of other diagnoses. These adult AAC users are, in terms of diagnoses, about equally divided between developmental disability and acquired disability.

How were today's AAC users communicating before?

Close to 30% of the respondents were using a high tech (mainly portable) dedicated AAC device before Proloquo2Go, the first AAC app on the iPhone was introduced 3 years ago. None of them used mid-tech solutions and 70% were relying exclusively on low-tech (e.g. communication books) or unaided communication (such as sign-language and gestures) before affordable AAC solutions on consumer devices were introduced. These figures are quite similar to what was reported by the family members and caregivers on the AAC users they are caring for. It's possible that **Apple's iOS devices and the AAC apps have brought AAC within reach of a much broader population than was traditionally served with dedicated devices.**

How are AAC users communicating today?

All respondents reported that they are currently working with an iOS device and AAC app. In 85% of the cases this is the only high tech AAC solution they are using (one person reports using Android and one reports using a Dynavox device). Using multiple devices is less common in this group than among the mainly younger AAC users reported on by family members and caregivers.

90% of the AAC users are using an iPad for communication. 35% report using an iPhone and almost 20% use an iPod touch. These numbers are quite similar to the mainly younger AAC users reported on by family members and caregivers. The main difference is that the adult users more frequently use an iPhone than an iPod touch. Both groups use iPad extensively. Perhaps **many users are benefitting from having access to more than one iOS device for AAC because of the difference in device characteristics and sizes.**

All of the AAC users are using Proloquo2Go from AssistiveWare and one also used Speak It. This is not surprising as the survey was distributed through various channels connected in one way or another with AssistiveWare. Even though Proloquo2Go is the most popular AAC app this does not imply that Proloquo2Go has a 90% market share among adult AAC users.

Adoption of iOS devices for AAC use is accelerating. Over 65% of the respondents reported that they started working with the primary AAC app they are using less than 1 a year ago. Over 15% started between 1 and 2 years ago and some 15% started more than 2 years ago. Over one-third started less than 6 months ago. These numbers show an even stronger acceleration than was found for the AAC users the family members and caregivers reported on.

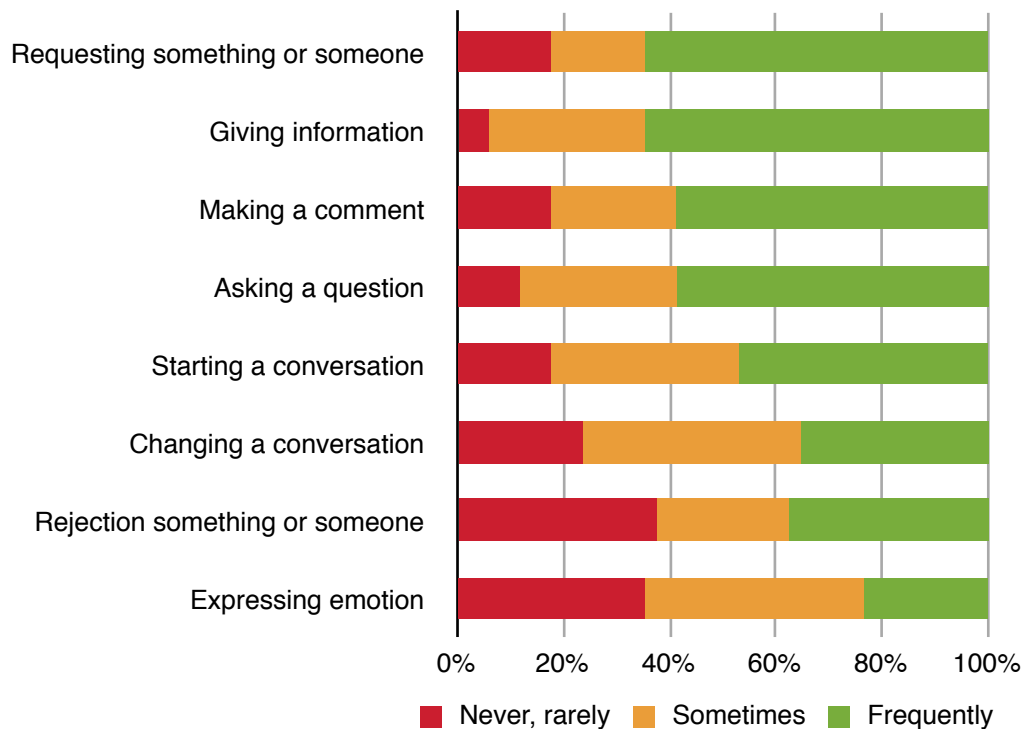
Who is customizing and teaching AAC use?

All of the user respondents report that they are customizing the AAC app themselves. When it comes to teaching AAC use, almost 90% report getting no support from professionals, only two people report having received assistance from a SLP. Though this sample is small, it does support anecdotal reports that **very few adult AAC users are receiving professional support in effectively implementing AAC.**

How is the AAC solution used?

The limited amount of professional support AAC users report they are getting to effectively customize and utilize AAC may impact the communicative functions used by adults AAC users. However, on the whole these self-reports by adults suggest use of a greater range of functions than that reported by the family members and caretakers about younger users. Over

How is the iPad, iPhone, iPod touched used for communication?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

60% of the respondents frequently use their iOS device to request something or give information, and nearly 60% use it frequently to comment and ask questions. Perhaps they have developed a degree of independence or, in the case of acquired disabilities, were used to independence. They may be more assertive than the younger users. Still, there is room for improvement which may come with more professional support in terms of communicative strategies and vocabulary organization.

It appears that adult AAC users use AAC for a wider range of communication functions than younger users.

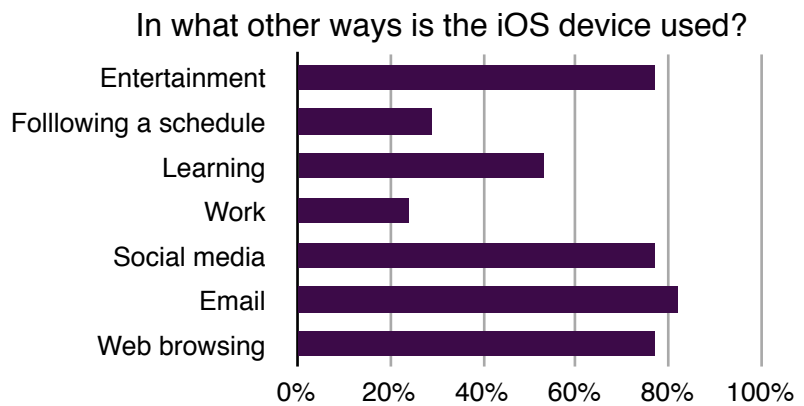
Where is the AAC solution used?

The AAC users report using their primary AAC app in a wide variety of settings from over 80% at home and 70% for indoor leisure, to close to 50% for shopping and outdoor leisure. Close to 30% use it for work and over 10% at school.

It appears that **AAC apps on iOS devices provide a flexible mobile communication solution that is being used in many different environments.**

Is the iOS device used for things beyond AAC?

Respondents report using the device for a variety of other activities beyond AAC with the most important categories being entertainment, social media, email and web browsing, all around 80%. This usage pattern is quite similar to what one may expect of the average iOS device users. Note that we forgot to ask about one particular category: voice and video calling (phone, Skype, Facetime).



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

It appears that the multipurpose nature of the iOS devices and the many available apps make the devices useful for many purposes beyond AAC. Around 80% of the respondents report using the devices for multiple purposes including entertainment, social media, email and web browsing.

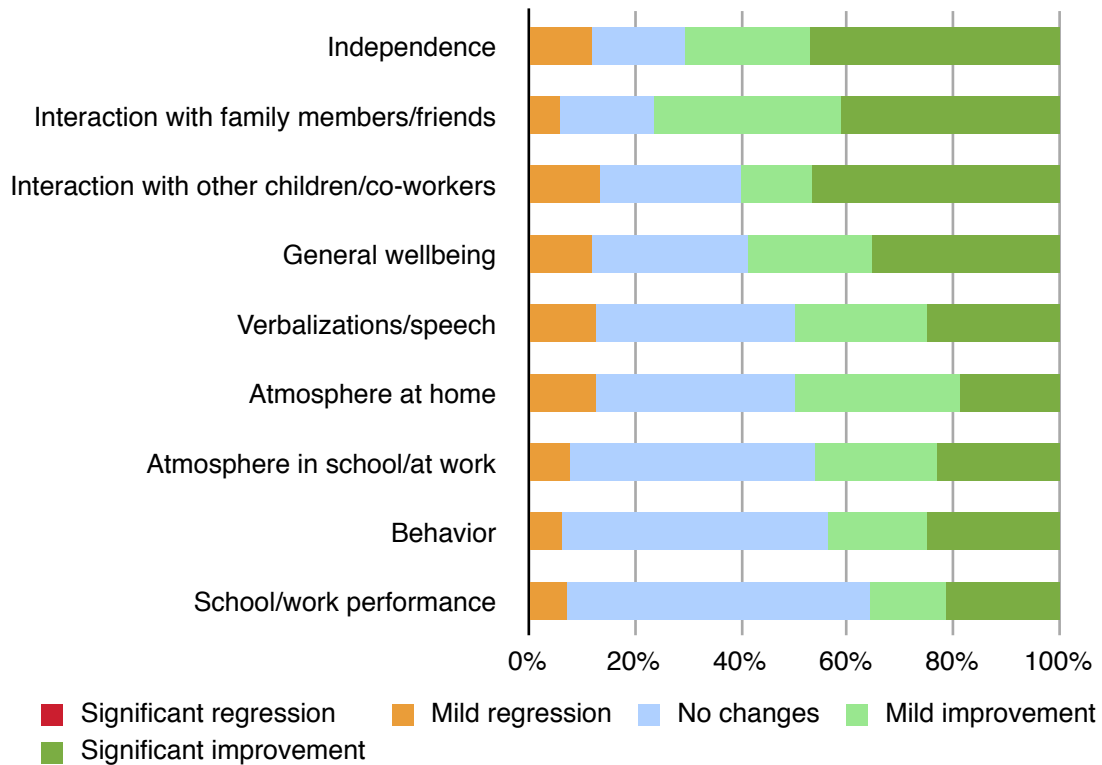
What is the impact of having access to AAC on iOS devices?

As with the mainly younger AAC users family members and caregivers reported on, the adult AAC users also observe “significant improvements”² in many areas. In some cases mild regressions are reported but those are related to the degenerative nature of the diagnosis (ALS) and not attributable to the device or software according to the respondents.

Over 70% report a mild to significant improvement in independence and interaction with family members, while 60% report a mild to significant improvement in interaction with children and/or co-workers and a similar level of improvement in general wellbeing. In 40-50% of these cases the improvement is considered significant. Also in other areas mild to significant improvements are observed.

² The term “significant improvement” was a response option and does not mean to imply significance in the statistic sense.

What changes have you noticed since starting to use your preferred AAC App?

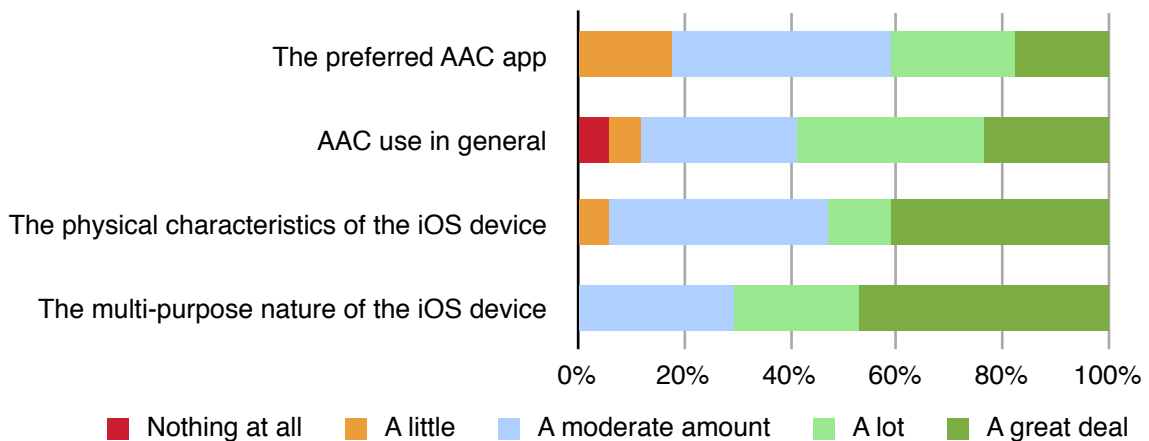


Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

All in all, the adult AAC users reported levels of improvement similar to the family members and caregivers reports about the mostly younger AAC users.

“I am grateful to the late Steve Jobs for his inventions, and text to speech apps, without which I would be unable to communicate.” Anonymous (AAC user)

How much of the improvements are attributable to the following factors?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

It appears from this survey that AAC apps on iOS devices can deliver considerable benefits to those in need of AAC. All respondents attribute a moderate amount to a great deal to the multipurpose nature of the device,

while over 90% pointed to the physical characteristics of the device and over 80% to the preferred AAC app and AAC in general. These numbers are slightly higher than those of the family members and caregivers.

In the opinion of these respondents Proloquo2Go and other full-featured AAC Apps together with Apple's iPad, iPhone and iPod touch deliver an AAC solution that can provide some adult AAC users with considerable improvements in key areas such as independence, interaction with others and general wellbeing. Part of these benefits are attributed to the use of AAC in general, part to the features of the apps, part to the characteristics of especially iPad and part to the multipurpose nature of iOS and the many available apps.

Professionals

Introduction

We are happy to share the second set of results of the Augmentative and Alternative Communication (AAC) and iPads, iPod touches and iPhones that we ran as part of our Autism Awareness month activities. This survey is a research collaboration between AssistiveWare, Professor Anne M. Donnellan, PhD, University of San Diego, and Professor Jodi A. Robledo, PhD, California State University at San Marcos. We ran this survey to learn more about the user community and the benefits of AAC on consumer devices.

In the survey we asked three categories of people to tell us more about their AAC usage and the impact of using AAC apps: AAC Users, Family members and caregivers, and finally Professionals working with AAC users.

This chapter shares the results of the responses provided by professionals working with AAC users. We opened the survey on 31 March 2012 and closed it on 15 April after receiving 117 responses from professionals working with AAC users.

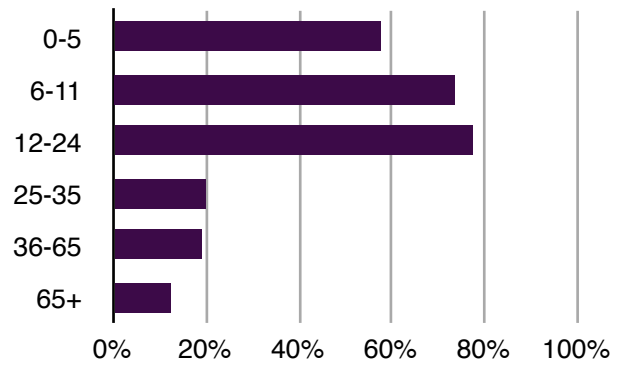
Who responded?

Of the professionals who responded to the survey, approximately 45% are Speech Language Pathologists (SLP's), 25% are Assistive Technology Specialists, and 15% special educators. The remainder were a variety of other educational and medical professionals.

Who are the AAC users?

Over 55% of the respondents indicated working with preschoolers, about 75% reported working with school-aged children and young adults, 20% indicated they were working with people between 25 and 65 years of age and just over 10% were working with individuals older than 65. This shows that **apps such as Proloquo2Go are used by a wide range of age groups.**

What is the age range of your clients/students?



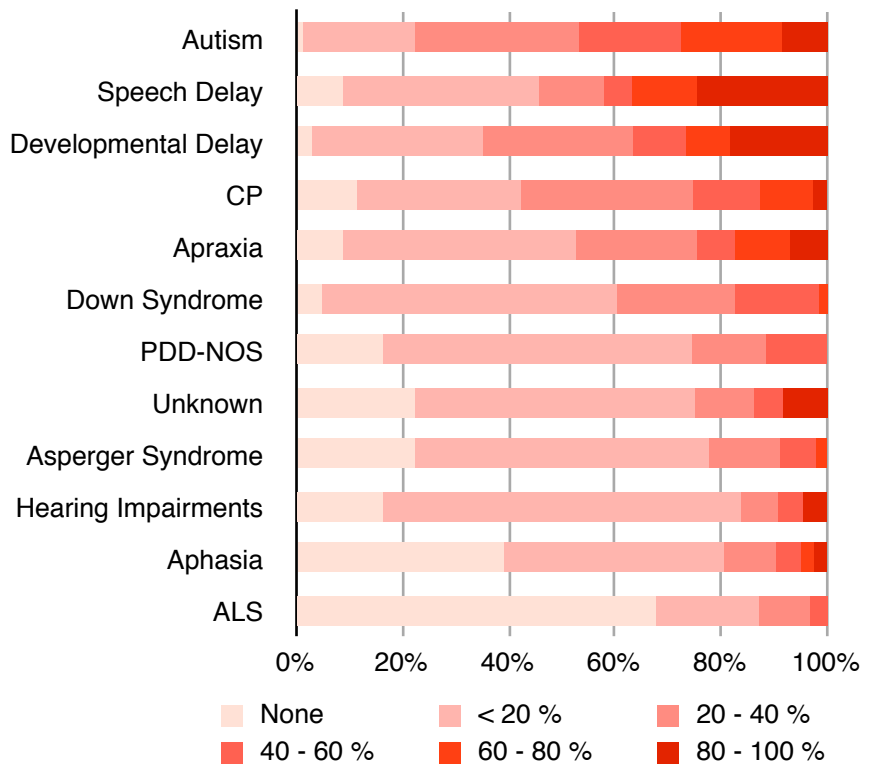
Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

The most common student/client diagnoses reported by the professionals was autism (with almost half of the professionals reporting a case load of more than 40% individuals with autism), speech delay, developmental delay, followed by cerebral palsy, apraxia and down syndrome.

The graph shows what percentage of the students or case load the professionals report for each of the diagnosis.

As was observed earlier in the analysis of the data from the family members there is a relatively high incidence of developmental disabilities (i.e. diagnoses during developmental years) compared with adult acquired disabilities such as ALS.

What are the primary diagnoses of your clients/students?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

How were today's AAC users communicating before?

We noted earlier that in the responses from the AAC users and the family members and caregivers it was clear that only a small number of today's iOS AAC users had access to a high-tech dedicated AAC device before Proloquo2Go, the first AAC app on the iPhone was introduced 3 years ago. Likewise, we found that in the responses of those who identified themselves as professionals over 60% reported that less than 20% of their students or clients had access to dedicated high-tech AAC devices three years ago. Around 25% of the professionals report that not even a single one of their students or clients had such access and about 15% reports that none of the students even had access to a mid-tech device (multiple button devices with interchangeable paper overlays and recorded voice output).

Additionally, about 50% of the professionals report that over 80% of their students and clients had access only to low-tech (e.g. communication books) or unaided communication (such as sign-language and gestures) before affordable AAC solutions on consumer devices were introduced. This reinforces the observation that **Apple's iOS devices and AAC apps seem to have brought AAC within reach of a larger population than was traditionally served with dedicated devices.**

How are AAC users communicating today?

Around 60% of the respondents report that fewer than 20% of their students are using a dedicated device. However, fewer than 5% report that they do not have a single student using an iPad for AAC. About 60% of the respondents report having 20% or more of their students or clients using iPads. In 15% of the cases over 80% of the students or clients are using an iPad. The iPod touch and especially iPhone look to be far less popular in this survey with about 80% of the respondents reporting that less than 20% of their students or clients uses one of these devices

These numbers support the earlier numbers from AAC users and family members and caregivers. Again, these data are part of an initial exploration of what is happening out there. The sample was limited and not random. Nonetheless, there is some evidence here that **iPads with AAC apps are a popular AAC solution among the students and clients of the responding professionals.**

Over 80% of the professionals report that Proloquo2Go from AssistiveWare is the most frequently used AAC app among their students or clients. Fewer than 5% reports they are not using Proloquo2Go, about 15% reports using several AAC apps frequently, including TouchChat (10%). These numbers are not surprising as the survey was distributed through various channels connected in one way or another with AssistiveWare. Even though Proloquo2Go is the most popular AAC app this is not meant to imply that Proloquo2Go has an 80% to 95% market share.

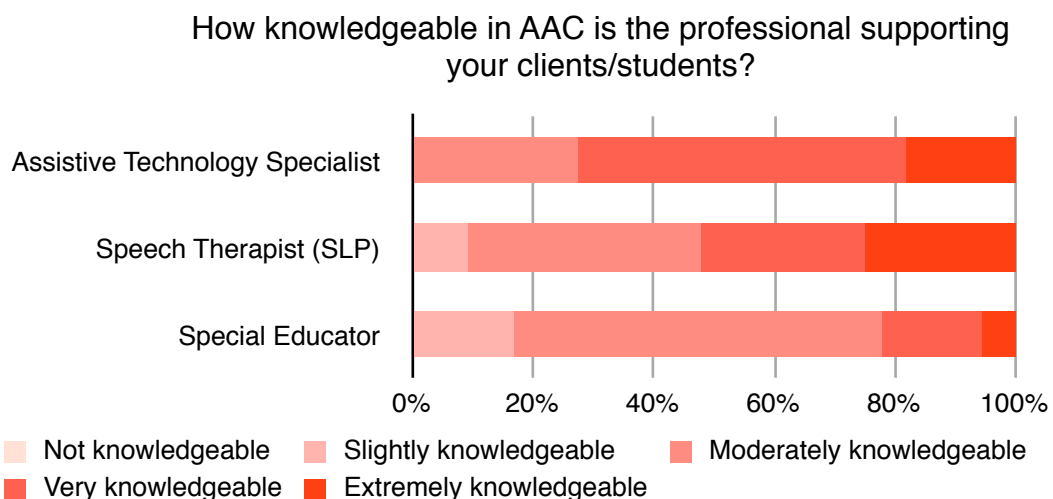
Adoption of iOS devices for AAC use is consolidating among professionals. Over 40% of the respondents reported that they started working with a full-featured AAC app less than 1 a year ago. Over 40% started between 1 and 2 years ago and close to 20% reported starting more than 2 years ago. a little over 10% started less than 6 months ago. These numbers suggest expansion in the use of iOS devices with full-featured AAC apps is now happening in terms of the number of students or clients that the professionals use it with.

Who is customizing and teaching AAC use?

About 20% of the professional respondents report that the AAC user or a family member or caregiver is the primary person customizing the AAC app. About 40% reports it is the SLP doing this work and about 20% report it is a special educator making the customizations. When it comes to teaching AAC, about 45% of the professionals indicate that an SLP is performing this task, 20% that it is a special educator and just over 10% goes to each of family members and assistive technology specialist.

These data suggest a far greater involvement of professionals than the results from family members and AAC users. This is not surprising as these professional respondents are most likely to be the professionals actively involved in AAC use and implementation. Had we only asked professionals about this topic we would have gotten a far too rosy picture of the amount of support family members, caregivers and AAC users are getting.

But, how do professionals judge the AAC knowledge level of their peers teaching AAC use? From the limited available data (only 11 cases) the Assistive Technology specialists score relatively well with all considered moderately to extremely knowledgeable about AAC. About 10% of the respondents consider the SLP implementing AAC for their students or clients only slightly knowledgeable on AAC, while around 50% report the SLPs to be very to extremely knowledgeable about implementing AAC. About 60% consider the special educator supporting their users moderately knowledgeable in AAC, but over 15% describe the special educator as only slightly knowledgeable.



These results suggest that not only are AAC users and family members and caregivers concerned with the lack of knowledge of professionals when it comes to implementing AAC, but that many professionals consider their peers only slightly to moderately knowledgeable on the topic. It is clear that **AAC users, family members of AAC users and professionals working with AAC users all share concerns about the knowledge level of professionals supporting AAC users. This topic is worthy of far deeper investigation as these initial results do suggest that lack of information may be hampering effective AAC implementation.**

Is the iOS device used for things beyond AAC?

About 20% of the professionals report that they consider the multipurpose nature of the iOS devices beneficial fewer than 20% of their students or clients. All others report that they consider it beneficial for a larger

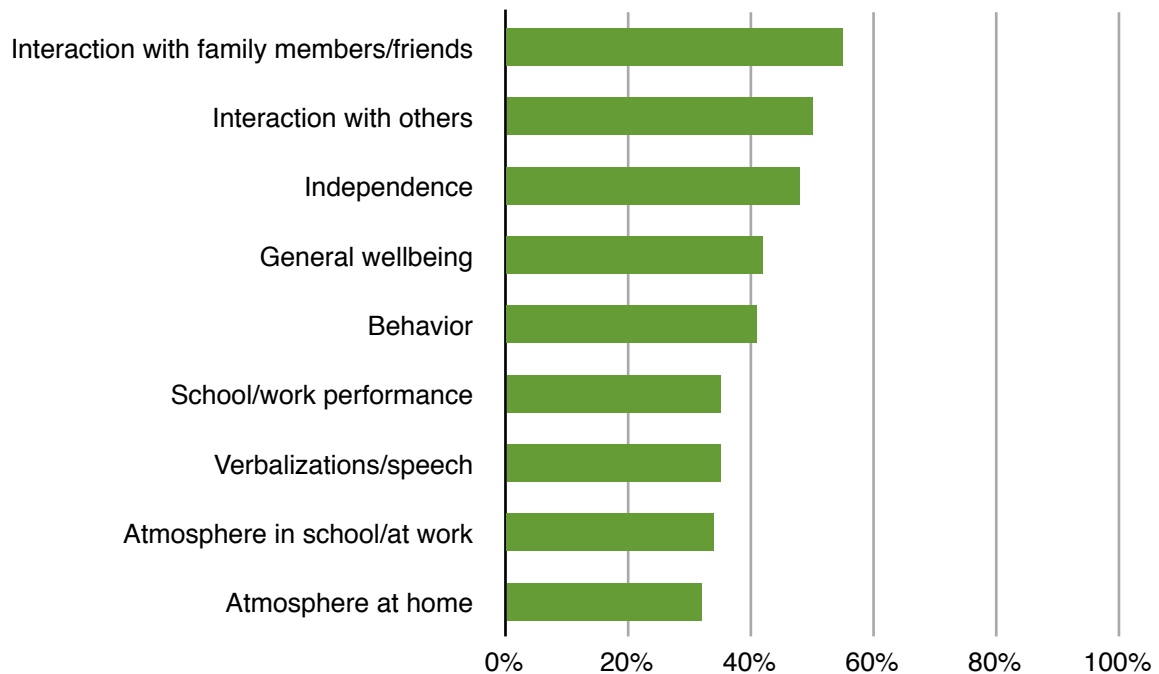
percentage of their students. More than 50% of the professionals report using the devices for various behavioral supports, with 70% reporting using it for following a schedule and 65% for rewards. The **professionals surveyed seem to consider the multipurpose nature of the iOS devices beneficial for most of their students and clients.**

What is the impact of having access to AAC on iOS devices?

Professionals, just like AAC users and family members and caregivers of AAC users report improvements in many areas.

More than 50% report improvements in interactions with family members and others as well as in independence for over 40% of their students and clients. More than 40% report improvements in behavior and general wellbeing for over 40% of their students and clients.

Improvements with over 40% of the students/clients since they started using the preferred AAC App?



Source: Pulse of AAC on iOS Survey April, 2012 © 2012 AssistiveWare

Over 70% of the respondents attributes at least a moderate amount of these improvements to the preferred AAC app, to AAC in general (85%) and the physical characteristics of the iOS device. About 60% also considers the multi-purpose nature of these devices an important factor.

In the opinion of the respondents Proloquo2Go and other full-featured AAC Apps together with Apple’s iPad, iPhone and iPod touch can deliver an AAC solution that provides many of their students and clients with significant improvements in key areas such as independence, interaction with others and general wellbeing.