

Technology and Aphasia Review



Completed in 2018 by:



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This report has been designed to meet accessibility standards and guidelines with support from Aphasia Friendly Resources.

Introduction:

This study aimed to explore:



What **technology** is being used with **aphasia**?



What technology is being used for aphasia **therapy**?



What technology is being used to **support communication**?



How is technology being used **socially** in relation to aphasia?



Is there any difference between use of technology by
people with aphasia,
their family and friends
speech and language professionals
and others

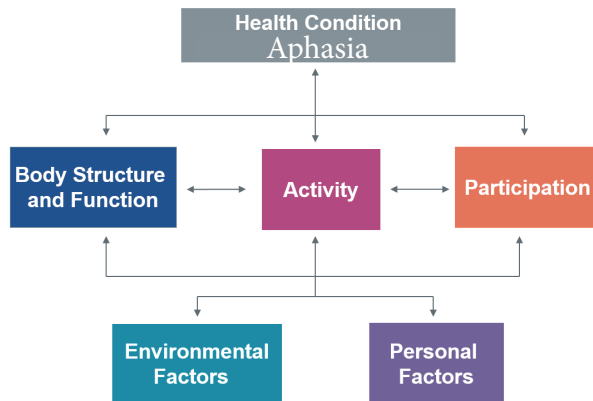


What are the barriers to using technology?



Method:

We used the World Health Organisation ICF framework to think about aphasia and how technology interfaces with it.



The ICF is a:

- **universal** model – for all people, not just people with disabilities
- **holistic** model - focuses on the whole person + their environment
- **strengths-based** model – highlights what people can do!
- **interactive** model – shows the interaction between a person + their environment

International Classification of Functioning, Disability and Health (2002)

We asked **7 key questions** about technology:

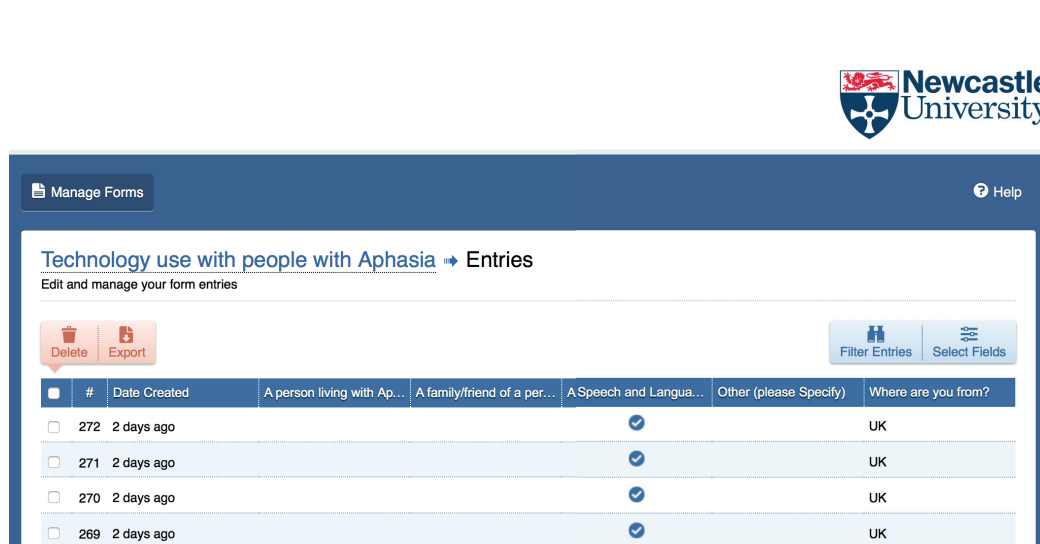


- What **hardware** you used
- Which apps you used for **therapy**
- Which apps you used to **support communication**
- If any **accessibility functions** were helpful
- What online tools you use to **access information**
- If you use **social media** and if so; what and how
- Are there any **barriers** that stop you using technology



We used our experiences at CDDFT NHS Trust to frame our questions. We encouraged you to share your experiences via free text boxes.

The survey was built in the Newcastle University form builder



The screenshot shows the 'Manage Forms' interface for a survey titled 'Technology use with people with Aphasia'. It displays a table of entries with columns for ID, Date Created, and various survey questions. The table shows four entries, all created 2 days ago, with 'UK' as the location.

#	Date Created	A person living with Ap...	A family/friend of a per...	A Speech and Langua...	Other (please Specify)	Where are you from?
272	2 days ago			✓		UK
271	2 days ago			✓		UK
270	2 days ago			✓		UK
269	2 days ago			✓		UK

and disseminated by:



Email to CDDFT staff and other Trusts in the UK



Face to face with conversational support via the CDDFT, Aspire groups and friends and family.



Twitter:
@KathyCann1

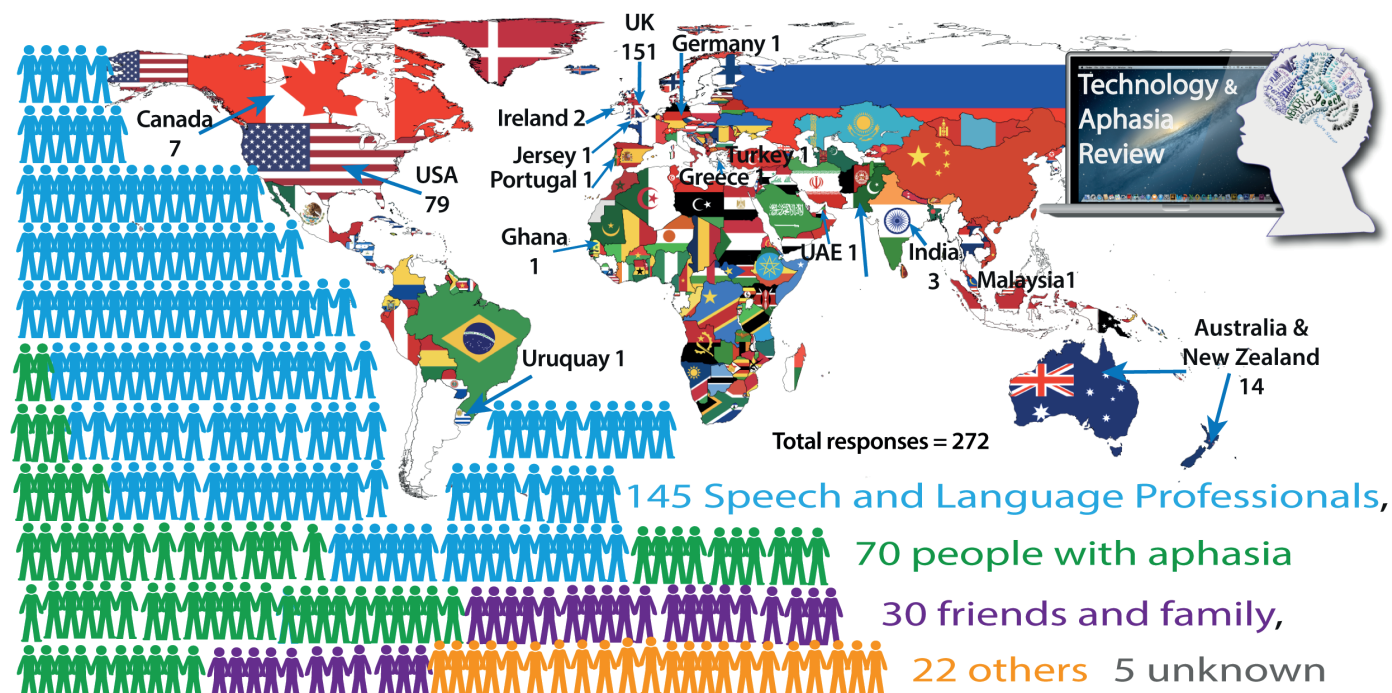


Facebook pages:
Aphasia Friendly Resources and Aphasia Recovery Connection

November 2018						
M	T	W	T	F	S	S
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2

We promoted the survey for **4 weeks** between the 5th November and 1st of December 2018:

Two hundred and seventy two people replied from all over the world.



The others:

Twenty two people checked the other box.

They included:

Stroke Practitioner Nurses - 3x

Staff Nurses - 5x

Occupational Therapists - 2x

Stroke Co-ordinators - 4x

AT Specialist - 1x

Volunteers - 2x

Students - 1x

Case manager - 1x

Therapy assistant - 1x

Researcher - 1x

Music Therapy student - 1x

Because of how the survey was formatted the 'other' professional has been included with speech and language professionals. However, 'other' free text responses have been analysed separately.



This survey was circulated via face to face sessions and email but most of our respondents were from the UK and sourced via social media. Therefore, there is a bias towards english speaking users who are already familiar with technology. Ideally this data should be bench marked against other sources of data on this subject .

The following sections contain the results, evidence and discussion for each question asked in the survey:

What hardware is being used?	Page 6
What apps/ software is being used for therapy?	Page 8
What apps/ software is being used to support communication?	Page 10
Do you use any accessibility functions on device?	Page 12
Where do you source information online?	Page 13
Do you use social media?	Page 14
What barriers are there to using technology	Page 17

Appendices - disclaimer and key	Page 19
Appendix 1: List/ links to apps/ software is being used for therapy.	Page 20
Appendix 2: List/ links to apps/ software used to support communication.	Page 24
Appendix 3: List/links to social media referenced	Page 29
References	Page 30



Contributions from people with aphasia are in a green text box



Contributions from friends and family of people with aphasia are in a purple text box



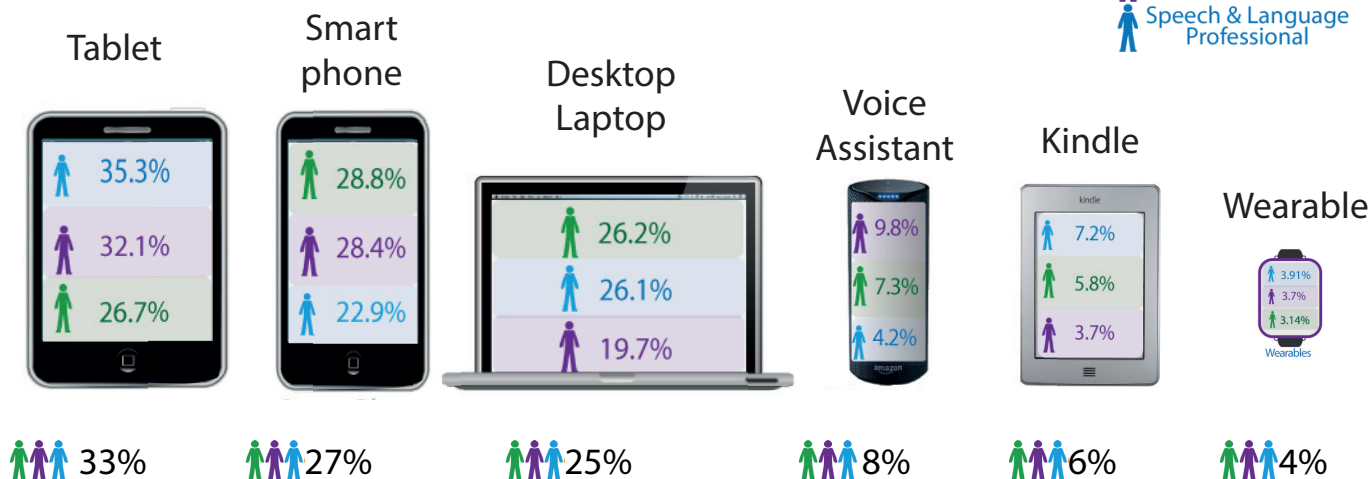
Contributions from speech and language professionals are in a blue text box



Contributions from other people are in an orange text box

What hardware is being used?

KEY
 Person with aphasia
 Friends/ family
 Speech & Language Professional

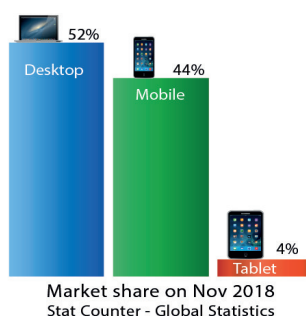


Tablets are the most commonly used device across all surveyed groups. Phones, desktop computers and laptops were also popular.

General population statistics

show desktop and mobile ownership is much more common than tablet.

However, this survey suggested people with aphasia are most likely to have access to a tablet.

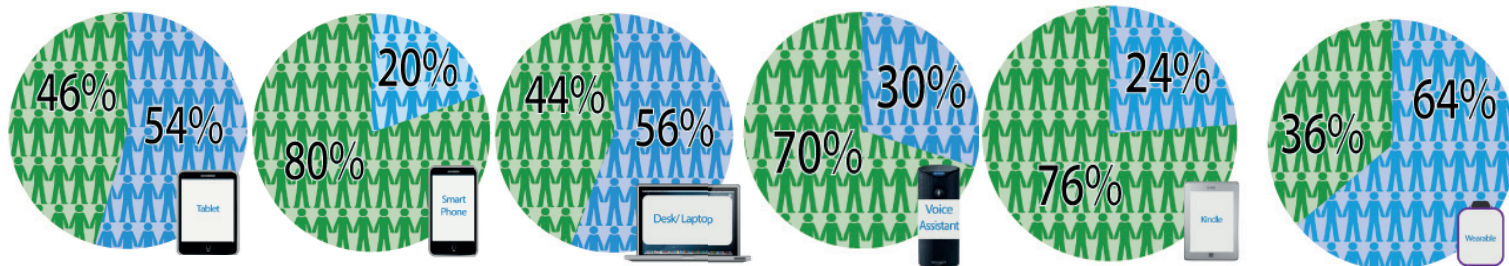


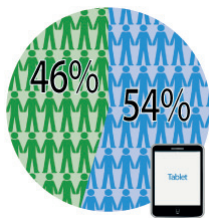
Further analysis suggests this discrepancy is linked to device ownership. Privately owned device stats reflect global statistics whereas service provider owned devices do not.



Are speech and language professionals using devices which are service provider owned or service user owned?

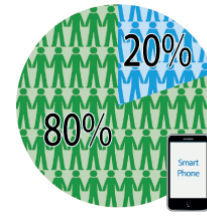
Service user owned
 Service provider owned





Speech and language professionals reported service providers owned over half of all the tablets being used by people with aphasia

However 80% of smart phones were owned by the person with aphasia.



Service providers may prefer tablets due to

- finance and security constraints
- larger screen size maximizing accessibility for multiple users with varying visual/ motor skills
- specific aim of speech and language therapy activity use and ability to 'lock down' to this use
- more speech and language specific apps being available on tablet than mobile.

Research exploring whether device type has an impact on accessibility for people with aphasia is limited.

- Manzoor et al (2018) explored which digital services facilitate social integration for people with various disabilities. A literature review of papers over 6 years, found no concrete patterns regarding the type of technology or technological trends supporting individuals with disabilities.
- Greig, C. et al (2008) explored barriers and facilitators to mobile phone use for people with aphasia. Results indicated design was a key factor but also written support, access to training, and communication partners had a significant impact.



10.7% of people reported using wearable technologies.

This survey did not clarify how wearables are being used to support communication. However, research is showing they are potentially a useful means to promote participation by increasing motivation/ awareness of the time spent communicating.

For example:

- CommFit paired with bluetooth headphone; Bradenburg et al (2015)
- Stretchable sensors that can provide feedback on daily communication habits, Mischke (2018).

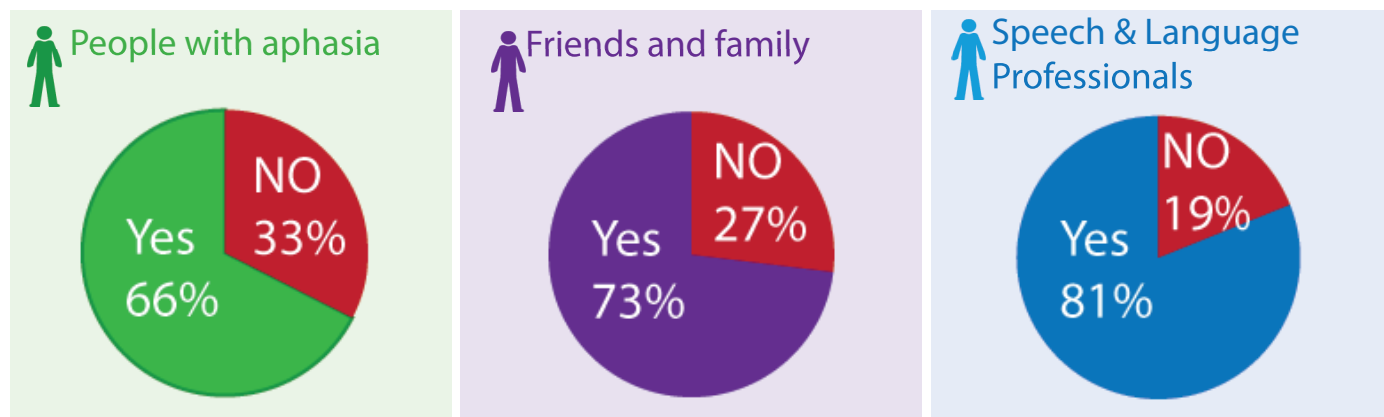


Using apps/ software for therapy:

Do you use apps/ software for therapy?

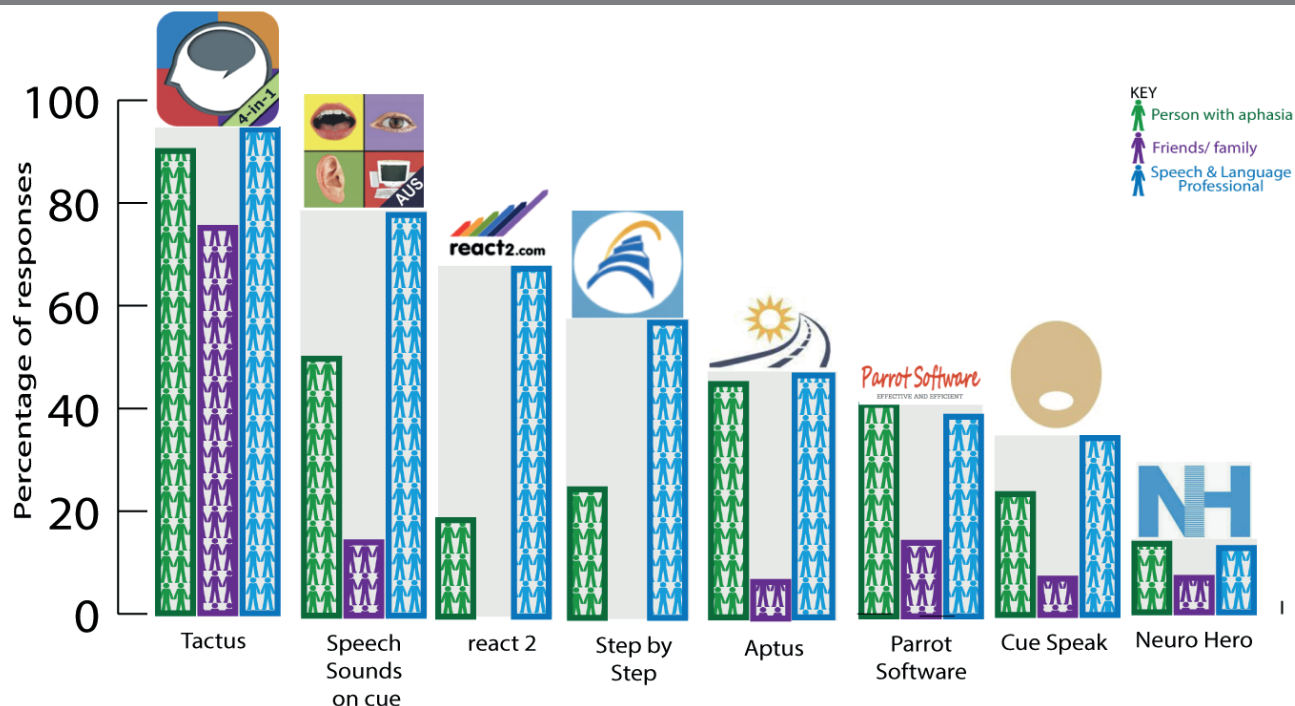
The use of apps/ software for therapy was most common amongst speech and language professionals (81%).

People with aphasia were least likely to be accessing apps to support therapy (56%).



This may suggest technology use for therapy is most beneficial/ accessible/ preferred in conjunction with a speech and language therapist as suggested in some research.

Which of these therapy apps/ software do you use?



Amongst the apps surveyed, Tactus apps were used most by all groups.

Constant Therapy was also mentioned frequently in the comments.

Speech and language professionals were using online software packages such as React2 and Step by Step significantly more than people with aphasia. This maybe due to the subscription format for accessing these resources and higher/ repeated cost to individuals, compared to apps which are usually a lower and one off cost.

A huge variety of software and apps are being used to support aphasia therapy by all groups. Many of these apps are not specifically designed for use with aphasia - for example; Farmville for conversation opportunities, power point for creating interactive exercises, Lumosity, Elevate and Brain Yoga for cognitive and language activities.



Friends and family

You also use:

Constant Therapy
and TTRS with your
friend/ relative who
has aphasia



People with aphasia

You also use:

Constant Therapy
Bungalow software
Phasal verbs
Farmville
GEST
Eva Park



Speech & Language Professionals

You also told us you use:

aphasia software finder
Speech Cards pro
Lingraphia phonemes
Speak up
SWORD - propellor
Eva Park
Apraxia lite
aphasiathery online
Power point
Constant Therapy
Lumosity
Elevate
Brain Yoga
Chain of thought
4 pics one word
Neolexon
Look and Learn
Mytherappy apps
Word searches, word vault
British Council Starting Out
STAPP (dutch app)
AV phonetics

See Appendix 1 for
more information/links
to these resources.

Some software can be set up remotely by therapists and some provides feedback/ results.

Research into the effectiveness of online/ digital therapy is limited. Many of these resources are described as 'evidence based' but few have featured in research such as randomised control trials.

Exceptions include:

Constant Therapy which was used in a study exploring the effectiveness of impairment based individualized rehabilitation using a software platform (Roches et al (2017)) and provides preliminary evidence for the usefulness of a tablet based platform to deliver tailored language and cognitive therapy to individuals with aphasia

Lumosity showed improvement in trained tasks in research completed by Finn and McDonald 2011.

Step By Step used in the BIG Cactus study (Palmer et al 2015) showed improvement in word finding that lasted for at least 6 months post intervention. However, the study did not show carry over of improved use of words in conversation for most participants or change their perceived quality of life.

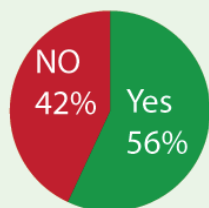
EVA Park a virtual reality software co-designed by people with aphasia in collaboration with researchers in human-computer interaction and speech and language therapy has shown some functional communication improvements in preliminary studies (Marshall 2016).

Some research highlights the benefits of therapist support when participating in computer therapy (Kurland et al 2014, Roches et al 2015), whilst others recognise self managed computer therapy programmes as having positive outcomes (Pederson et al. 2001; Stark 2018, Zheng et al. 2014).

Do you use apps/ software to support communication?



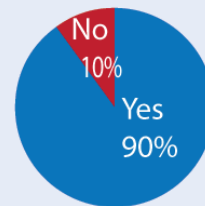
People with aphasia



Friends and family



Speech & Language



These results, combined with respondent's choices of which apps they use most, and participant's comments, suggest perceptions of what it means to 'support communication via technology' vary.



People with aphasia significantly favoured apps which were integral to their device - photo, video, text and video call much more than apps designed to specifically augment communication; such as Proloquo2go or Predictable.

The apps people with aphasia said they also found helpful were nearly all ones that were non speech and language specific. Apps such as Grammarly, predictive texting, Uber, Find a friend. Apps which reduce the demand on speech and language skills whilst enhancing access to life participation activities. Mainstream apps, without disability focus. A number of comments from people with aphasia referred to a dislike of apps that they associated with disability.



Friends and family also reported their friend/ relative with aphasia used photo, text and video call apps the most.

This group reported a higher use of apps that augment communication (e.g. Proloquo, Predictable), possibly because this group represent people with more severe aphasia than the group who completed the survey for themselves. However, information on the type/ severity of aphasia was not specifically recorded in this survey.

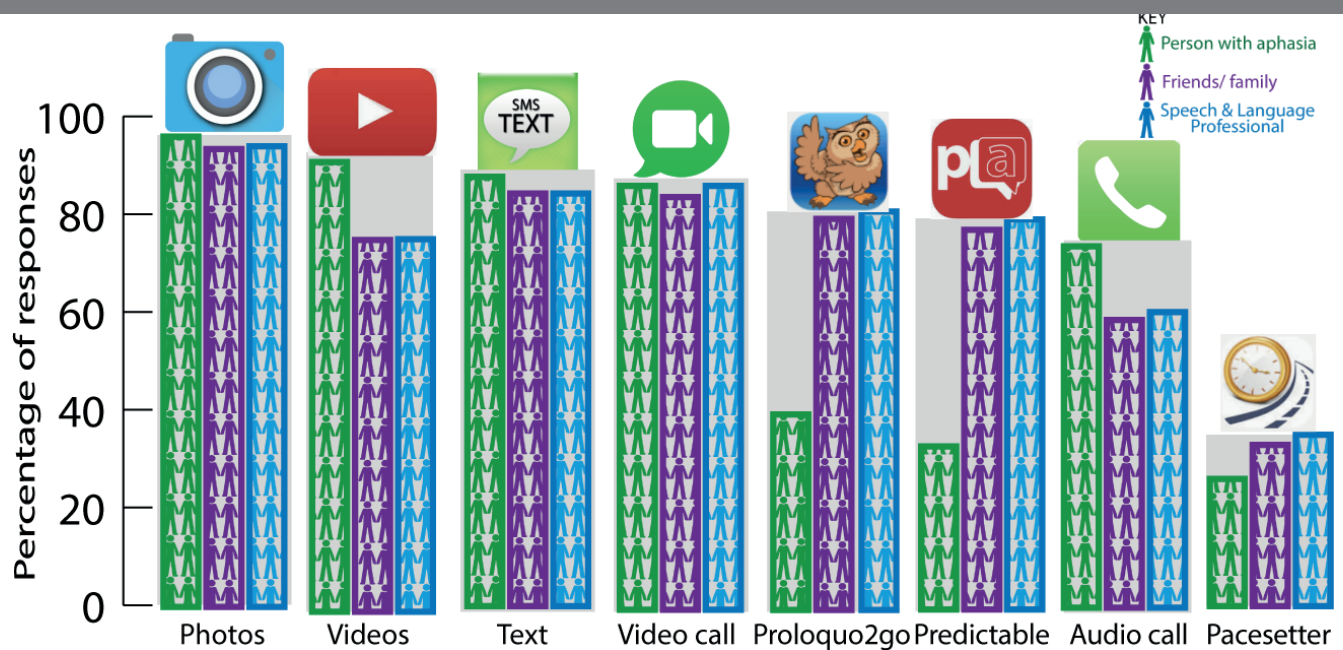
The majority of the friends and family group (73%) said they didn't use any tech to support communication. Reporting a preference for direct verbal/ non verbal communication by and with the aphasic person.



Speech and language professionals used/ recommended an extensive range of SLP specific and general apps to support communication but they could further expand their repertoire by learning from the people with aphasia group who are really using apps holistically when considering how they support communication e.g. uber, meditation, find a friend.

There is a huge diversity of apps available with potential to enhance quality/ access to life for people with aphasia. Unsurprisingly this survey has found people with aphasia are the most dynamic and adaptable at finding tech solutions to communication barriers. Speech and Language professionals/ researchers need to follow their lead.

Which of these apps/ software do you use to support communication?



People with aphasia

You also use:

White board
Lyft/Uber
Find a friend
Read2go
iWordQ
meditation
Sprint IP relay
Cambridge English
Grammar
Grammarly
Encarta
Dragon dictate
Predictive texting
Google assistant
Email
Voice mail transcription



Friends and family

You also use:

chattable and whiteboard.
Lots of you said your friend/ relative didn't need or want to use technology to support communication.

See Appendix 2 for more information and links to these resources.



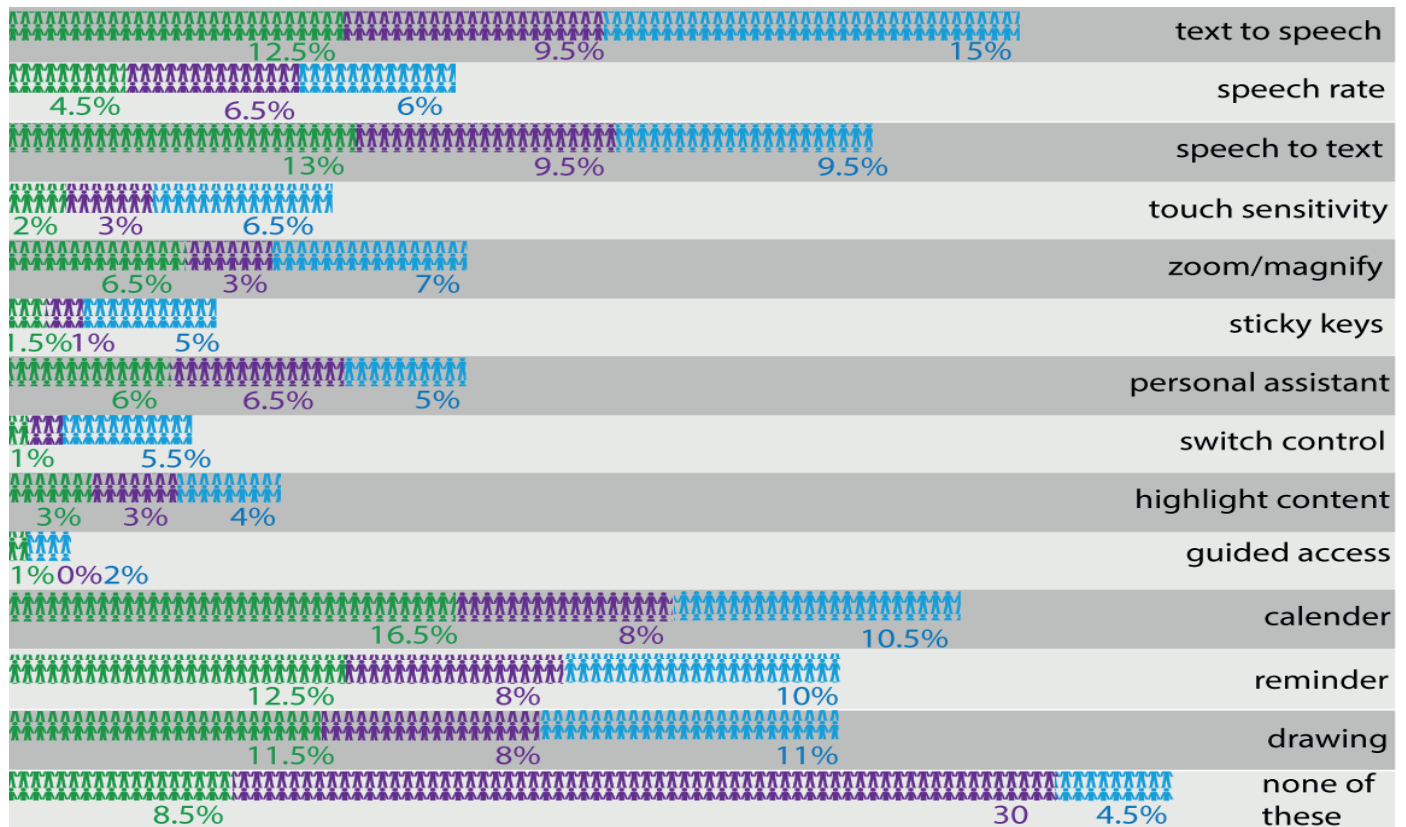
Speech & Language Professionals

Facebook, Elllo.org
lyricstraining, chatterboards, free recording app, Parkinson's EasyCall, Leeloo AAC, Proloquo4text, Co writer, Phrase board, Seeing AI, Wemogee, Talk n Photos, All about me, Apple notes + accessibility, Ckarocim, Email, Go Talk Now, Dragon dictate, Pictello, Tobi Dynavox Lingraphia, Notitions Speak up, Claro com, Flip-writer, Grid player, Talking Mats, whiteboard, Penfriend software, Listening library, Grammarly, Doodle buddy, Boardmaker, Nova chat, Text grabber, instagram, Notes app, Map apps, Google images, Speaking email OCR scanners, Gridplayer Grid3, Compass, Pictello Touch chat HD, Scene and Heard, Snap + Core first Speak for yourself

These responses show how technology can enhance access to activities of daily life (Kelly et al. 2015).



Do you use any accessibility functions on your device?



People with aphasia

You said you also use the iBook app with the accessibility feature 'speak screen'



Speech & Language Professionals

You said you find accessibility features work well with:
apple notes app
e-mail
news

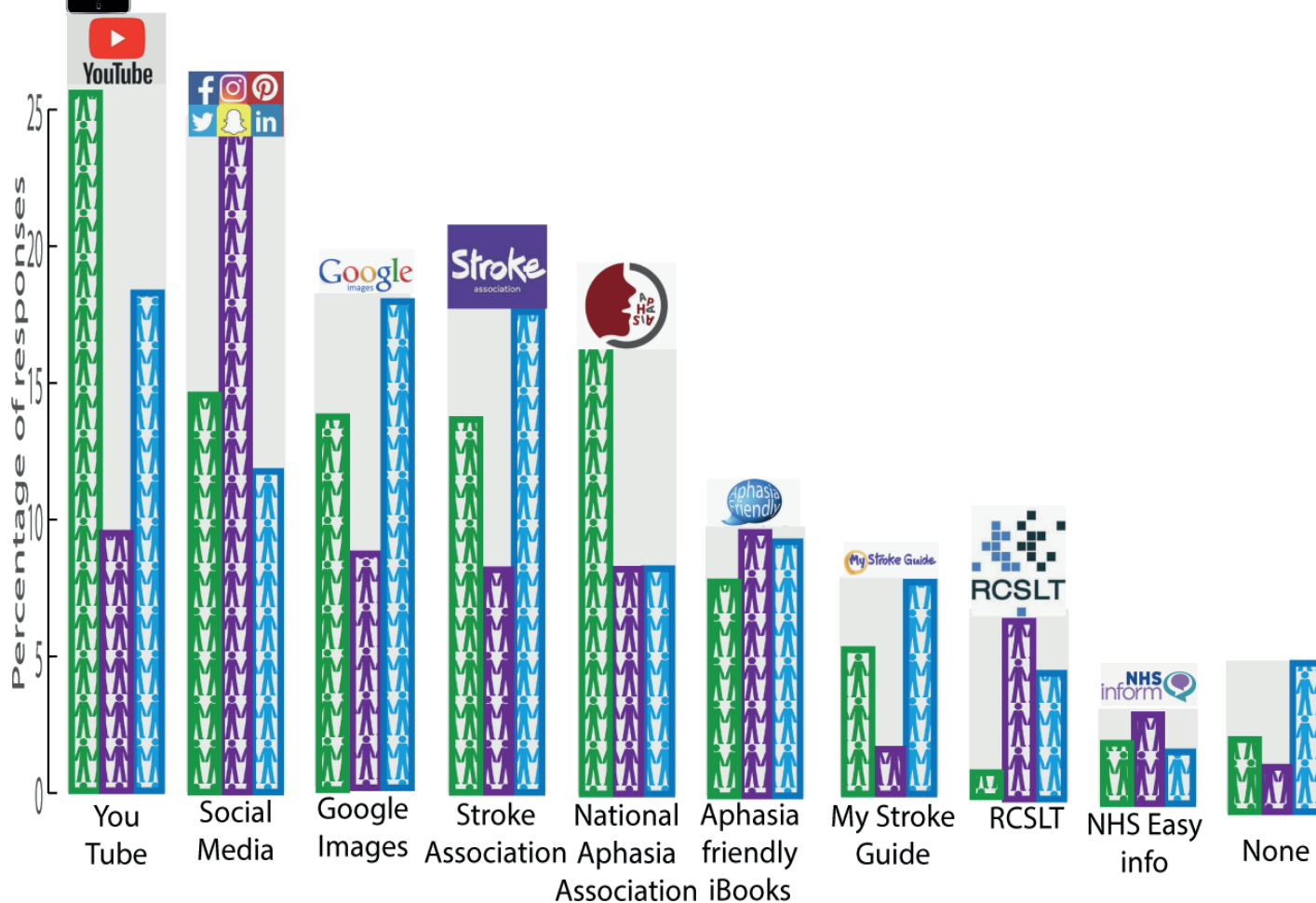
The most commonly used accessibility functions were:

- text to speech
- calender
- speech to text
- reminder
- drawing

These were being used by just over a third of all respondents. All accessibility functions listed were being used to some extent.



What technology have you used to access information?



People with aphasia

You also use:
Talk Path News
Google search



Friends and family

You also use:
Australian Aphasia Association
Communicate WA
Voices of America



Speech & Language Professionals

You also use:
One skill videos
NZ Aphasia Association
New Zealand Speech Therapy Assoc
IPA (Instituto Português da Afasia)
Aphasia Access
Aphasia United
Different Strokes
Enableme
Newsy
Tex X
News in levels
Map apps
News apps (with filters)

All the sources of information listed, were used to some extent by all groups.



Again, these results suggest people with aphasia are preferring general apps that support life participation over specific aphasia ones.



Friends and family most commonly sourced information via social media.

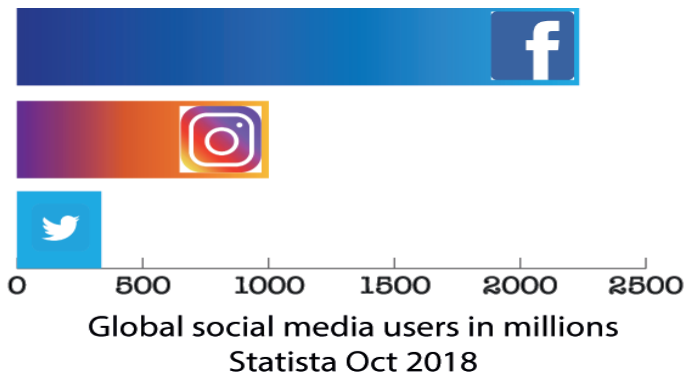


The popularity of social media as a source of information amongst friends and family may suggest this group is looking for support/validation of their experiences with others, as much as basic facts.

Westerman et al (2014) stress the importance of validating the credibility of information sourced online and suggest the responsibility of this lies with the information consumer, not the provider.



Do you use social media?



According to [Statista](#), of the 7.6 billion people in the world, 4.2 billion were active internet users in October 2018 and 3.4 billion of these use social media.

Although the following results are biased towards social media users because of how the data was collated, these global statistics show social media is very much part of the majority of our lifestyles.

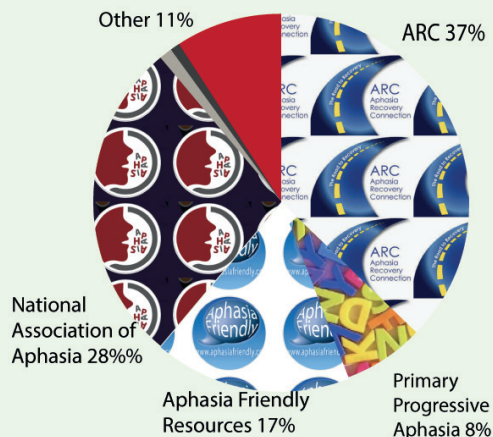
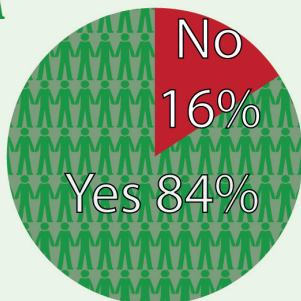


Across all three groups the most respondents said they used social media.



Of the sites listed the Aphasia Recovery Connection (ARC) was the most popular site, followed by the National Aphasia Association and Aphasia Friendly Resources. Again, data biased by collection methods.

People with aphasia

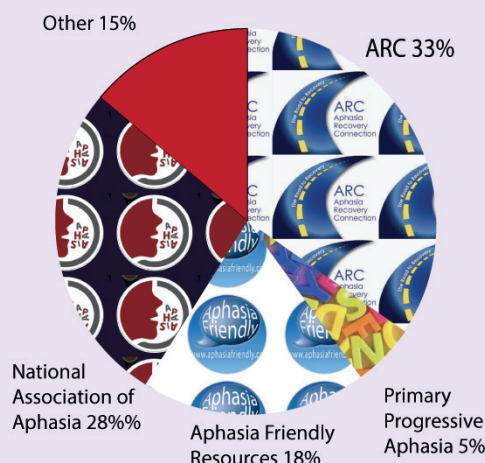
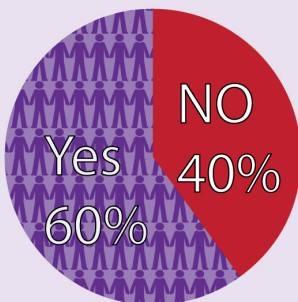


You also connect with:

Living with Aphasia

LaTrobe University

Friends and family



You connect with:

Aphasia Connect

Aphasia FYI

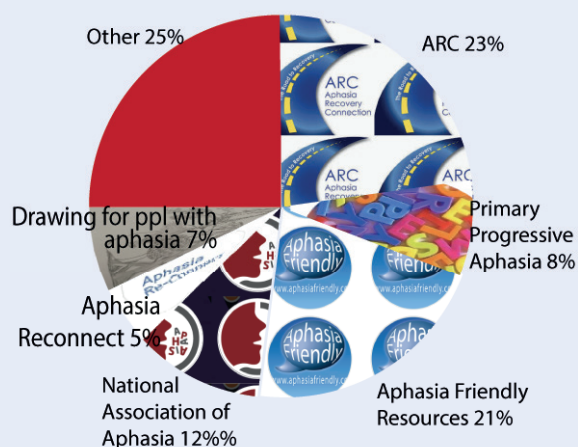
Aphasia Life

Cornwall Stroke and

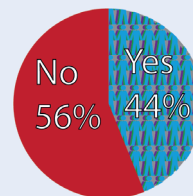
Aphasia Network

ARC - carers,

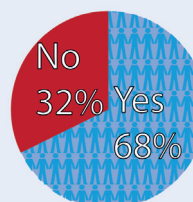
See Appendix 3 for more information and links.



Do you recommend social media sources to people with aphasia/ their family/friends?



Do you use social media for your own clinical/professional development?



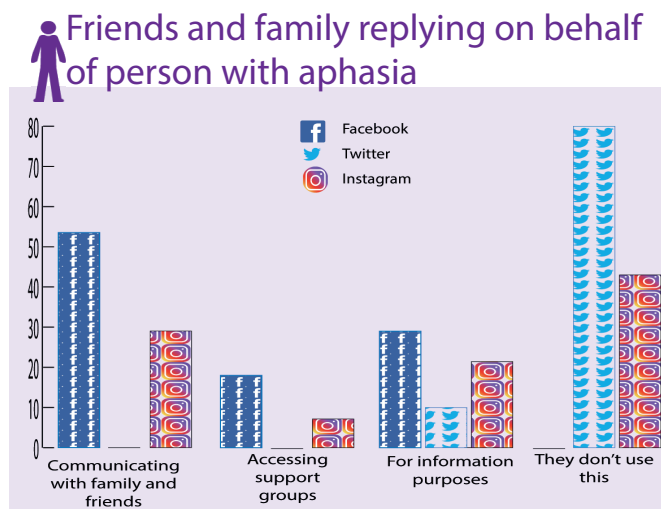
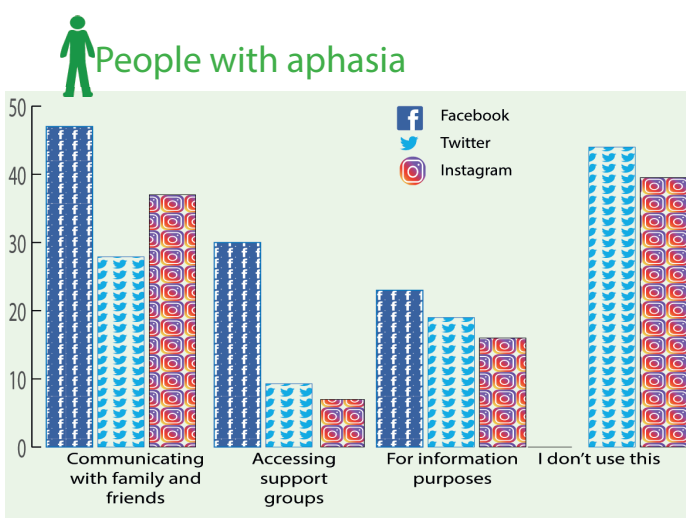
You also connect with:

Stroke Families Connect, Aphasia Access , Aphasia United, Eva Park, Luna, Inca Project British Aphasiology Society, Individual therapist, Aphasia choirs go global, Aphasia Access, Australian Aphasia Association, Aphasia Hope, @swaphasia(CEN), nataaphasiaas-soc, aphasia lab,



The most popular platform for people with aphasia and their friends and family was Facebook, followed by Instagram and Twitter.

Both groups mainly use social media for communicating with family and friends but use for accessing support networks and information was also important.



Sixty Eight percent of speech and language therapists reported using social media for their own clinical professional development but only 44% said they would recommend social media sites to people with aphasia/ their friends/ family. Reasons cited included, information governance and not having thought of it.

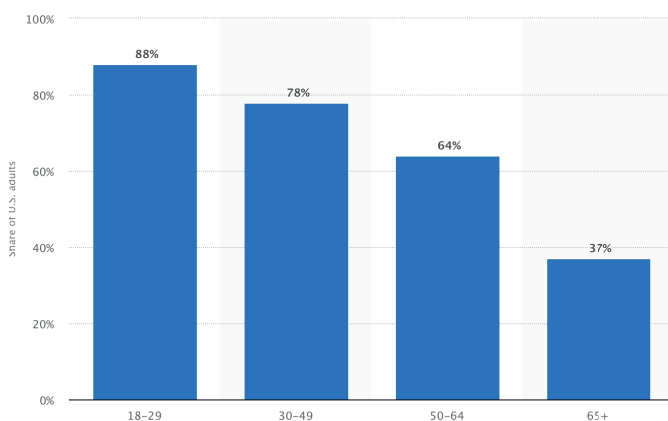
Aphasia is linked with reduced social networks, isolation, loneliness. Simmons-Mackie (2018) White Paper reports 20% of people with aphasia have no friends six months post onset and that reduced social contact has a significant impact on health and longevity (equivalent to smoking 15 cigarettes a day).

Fotiadou, D. et al (2014) and (Northcott 2016) completed a systematic review of blogs written by people with aphasia, to explore the impact of aphasia on social relationships. Social networks of people with aphasia were found to be negatively affected, and suggested social media should be explored as a platform to support the maintenance of people with aphasia's social network.

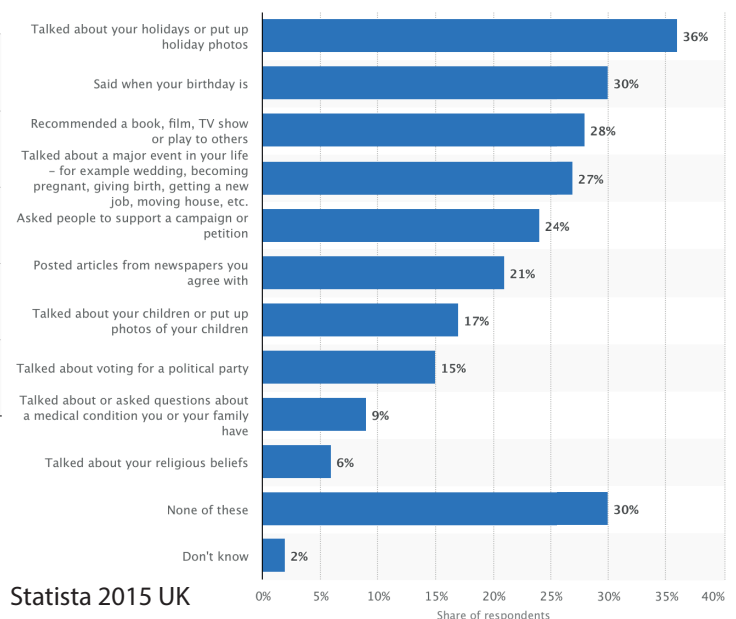
These results suggest social media has a role to play in augmenting isolation and acting as a platform for networking with friends and family, finding support, advice and information.

A few studies have explored the barriers to accessing social media (Roper et al 2018, Baier et al 2017). This survey shows people with aphasia, their friends/ family and speech and language therapists are using social media to facilitate interactions with and about aphasia and that there are multiple benefits to doing this.

Further data from Statista shows the age range and topic diversity of social media use in the general UK and US population:



Age range of social media users- Statista 2018 US



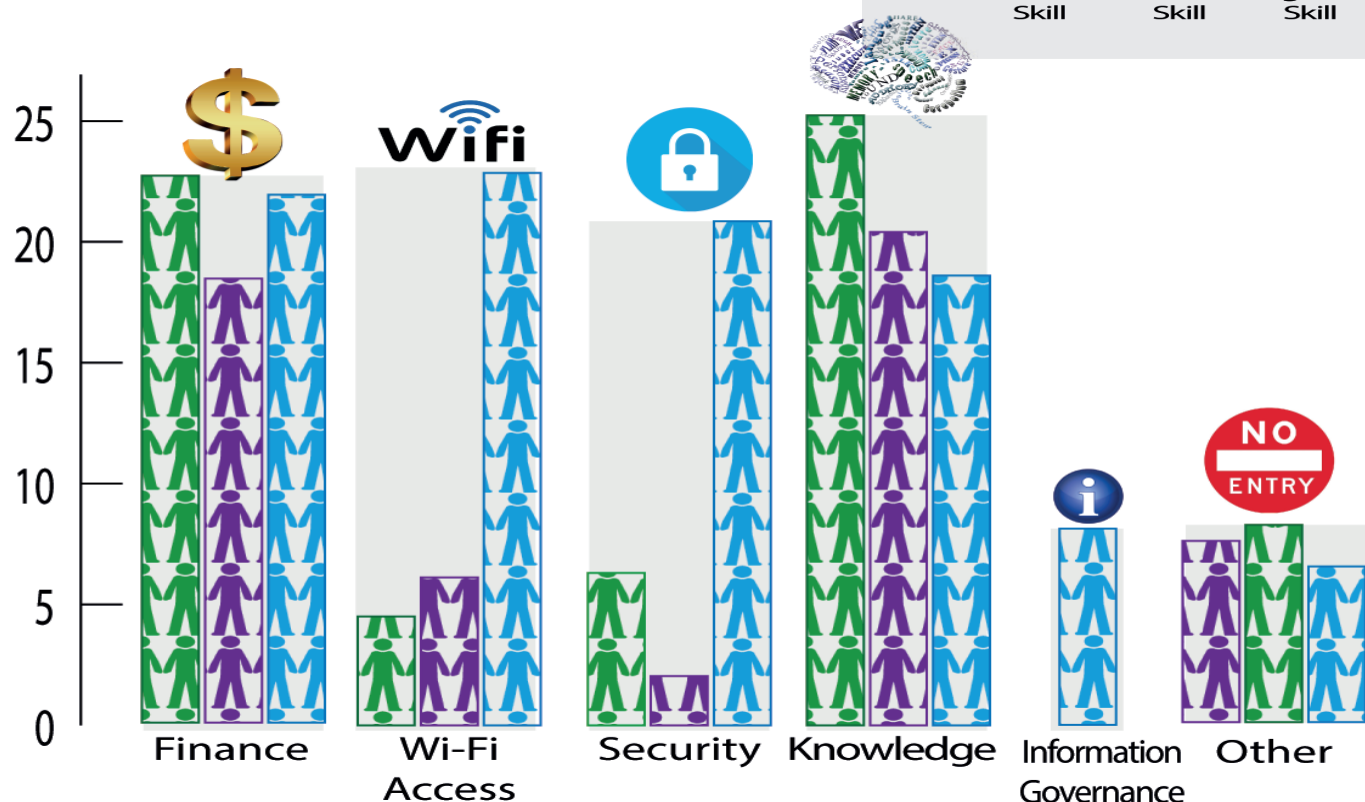
Statista 2015 UK

Supporting access to this mainstream communication platform should be part of a speech and language role. Baier (2017), de Sandt-Koenderman (2011) emphasise the need for training/ support to facilitate access to this type of technology.

What barriers to using technology do you experience?

KEY

-  Person with aphasia
-  Friends/ family
-  Speech & Language Professional



People with aphasia

You also identified:
fatigue,
stress,
problem solving when
things go wrong,
apps not pitched at
right level,
difficulty of use.



Others

You also identified:
availability of apps/ tech,
awareness, difficulty of
use, knowledge, lack of
training.



Friends and family

You also identified:
writing skills,
apps that require voice, re-
membering passwords, need
assistance to navigate, few
aphasia apps designed for
children,
little support,
no how to use manual with
apps,
no good resources for finding
things out.



Speech & Language Professionals

You also identified:
Time
Motivation
Cognitive/ motor/ visual skill
Older ppl unfamiliar with tech
Knowledge-Keeping up-to-date
Difficulty of use
Cost/ funding for tech/ funding
for apps on pwa own device
IT support/ consent to use tech
Wi-Fi firewall, security
IG support/ consent to use tech
Limited ability to personalise
apps



Knowledge and money were the greatest barriers to accessing technology as identified by all groups. Wi-Fi access also remains a significant issue for speech and language professionals.

Resources for finding out about apps/ software include:

- The website: Aphasia Software Finder <http://aphasiasoftwarefinder.org>
- App and google play stores using search terms
- Appendix 1 and 2 of this document

The CIT CEN toolkit explores solutions for financial/ internet barriers:
<https://toolkit.citcen.org/solutions/>

A number of speech and language professionals in this survey advocated having a computer/ technology lead in their teams to help with addressing barriers and promoting knowledge.

Several people with aphasia and their friends and family requested written accessible guidelines for using specific technologies and apps. Some app developers do provide these e.g pro lo quo to go, but many currently don't.

Cognition, visual, motor skills, stress and fatigue were also all recognised as factors compromising access for people with aphasia, as well as, unfamiliarity with using technology prior to becoming aphasic.

Finding the right app pitched at the right level, ability to personalise apps, remembering passwords were also mentioned as limitations.

Professionals in the 'other category' reported difficulty knowing what was available and lack of access to training on using technology to support communication as key barriers.

Appendices:

The software and apps listed here were all recommended by the survey participants. The evidence base behind these apps has not been explored by the authors and they are not specifically endorsed by the authors. Where possible we have added [links to relevant research](#).

This is not a conclusive list. To source more information, or explore further try software search tools such as:

My Therapy : <https://www.my-therappy.co.uk/medical-condition/stroke-brain-injury>

Accessibly designed site listing apps reviewed by NHS specialists including those to help recovery following a Stroke or Brain Injury.

Aphasia Software Finder : <https://www.aphasiasoftwarefinder.org>

Where possible we have provided links to the developers website and an indication of cost:

\$\$\$\$\$\$	\$1000+
\$\$\$\$\$	\$500 - 1000
\$\$\$\$	\$100 - 500
\$\$\$	\$50-100
\$\$	\$25-50
\$	\$1-25

We have provided this information to the best of our knowledge, however, if you find any of the information on these pages to be incorrect and would like to request amendments please contact Kathryncann@nhs.net



Appendix 1a: Software used in therapy

Constant Therapy: <https://www.constanttherapy.com>

Available as an app or software package. Over 100,000 exercises, 10 difficulty levels, to practice speech, language, cognition, memory, reading, attention and comprehension skills with more than 75 task categories. Can be personalised. Provides progress reports against goals.

Free trial
Free for clinicians
\$\$ subscription
scholarship
programme

Research published using Constant Therapy. <https://www.constanttherapy.com/research>

Bungalow: <https://www.bungalowsoftware.com>

Available as an app or software package. Twenty Programmes
Over 100,000 exercises for speech, language, cognition.

Free trial
\$\$ subscription
cancel any time
\$\$\$ individual
programmes
\$\$\$\$\$ all suite

REACT 2: <https://www.react2.com>

9000 graded exercises covering auditory processing, visual processing, semantics, memory / sequencing and life skills. Exercises can be set remotely
Provides progress reports against goals. Runs on desktop and tablet.

\$\$ subscription
cancel any time

Step by Step: <https://aphasia-software.com>

StepByStep aphasia therapy has been developed to allow a range of language skills to be practised. Each of these skills can be practised in isolation, with the objective being that a core set of words are targeted for therapy in the MyWords program, which combines all of the other programs. Tablet/ touch friendly. Voice recognition.

\$ subscription
\$\$\$\$ license for
life

Lumosity: <https://www.lumosity.com>

Available on computer, ipad and android. Brain teaser games targeting cognition and language + mindfulness for relaxation.

\$ but upto 3 free
games/ day.
signup required

Neolexon: <https://neolexon.de/>

Thousands of exercises for understanding, reading and writing, fully personalisable, remote set up. Scientifically based therapy, neolexene is certified as a medical device. German language app

various
subscription
options

Look and Learn: <https://thinksmartbox.com/product/look-to-learn/>

Activities to support getting used to using eyegaze technology

\$\$\$\$

Eva Park - <https://evapark.city.ac.uk>

EVA Park is a multi-user online virtual world that gives people with aphasia unique opportunities to practise their speech and establish social connections. EVA Park contains a variety of virtual locations including shops, restaurants, a hairdressers, houses, a bar and disco, together with fun and fantastical elements. Users are represented by personalised avatars and communicate by talking to each other.

Currently in research phase. Not openly available yet but aims to be free at point of download eventually

Galliers J et al (2018) [Experiencing Eva Park a multi user virtual world for people with aphasia.](#)

Parrot Software - <https://www.parrotsoftware.com/index.html>

Personalised programmes for aphasia with feedback on progress. Includes exercises for cognitions, language and speech.

Free trial
\$\$ subscription
\$\$\$\$\$\$ software packages

GeST -

Computer gesture therapy tool targeting skills with using gesture and naming.

[Video demo](#)

Currently in research phase
Not currently available.

Marshall J et al (2018) [Computer delivery of gesture therapy for people with aphasia](#)

Touch Type Read and Spell TTRS: <http://www.readandspell.com/about>

TTRS is modular in design and contains 24 levels with 31 modules in each level. TTRS uses a multi-sensory approach to repetition learning. Focused on reading and spelling skills also covers maths and memory. Not designed specifically for aphasia.

\$ subscription

SWORD: <https://www.propellertherapy.com/store/c7/SWORD.html>

SWORD is software designed for the treatment of word production difficulties in APRAXIA and APHASIA. Contains 70 highly functional words with associated images, audio recording of the word and a video of a speaker producing the word.

\$\$\$ subscription

Aphasia Therapy online: <http://www.aphasiatherapyonline.com/main.html>

Exercises for listening, reading, writing and spelling.

free

Power Point

Power point has capacity to develop quizzes that can be used as basis for aphasia exercises. See <https://forms.office.com>



Appendix 1b: Links/ descriptions for apps used in therapy

Tactus Therapy: https://tactustherapy.com	
Large range of apps relevant to aphasia. Available on App store and Google Play. Some available in multiple languages.	Free lite versions \$ single app \$\$\$ bundle apps
Speech Sounds on Cue: https://www.propellertherapy.com/store/c3/Speech_Sounds_	
Targetting apraxia/ dyspraxia - The aim of this app is to increase the intensity of treatment for people with apraxia, combining J. Rosenbek's integral stimulation approach with B. Hill's carrier phrase facilitation drills. Available in Australian/ English/ US accent.	Free lite versions \$ single app \$\$\$ bundle apps
Aptus: http://aptus-slt.com	
Large range of apps relevant to aphasia/ dysarthria/ reading/ writing/ understanding/ naming/ inference etc. Available on App store and Google Play.	Free lite versions \$ single app \$\$\$ bundle apps
Cue Speak: http://cuespeak.com	
Highly customisable exercises relevant to aphasia/ dyspraxia/ cognition, all within a single app. Available on App store. Only for iPad	Free Voluntary subscription
Phrasal Verbs:	
Phrasal Verbs: Explanations and practice tests A phrasal verb is a combination of a verb with a preposition or particle. Also see Phrasal Nerds and Phrasal Rings. Link for reviews	Free \$
Phrasal Verbs:	
Phrasal Verbs: Explanations and practice tests A phrasal verb is a combination of a verb with a preposition or particle. Also see Phrasal Nerds and Phrasal Rings. Link for reviews	Free \$
Farmville:	
Build your own farm. Play with friends - used for conversation practice	Free
Speech Card Professional: http://rwhtechtechnology.com/apps/speech-cards	
Flash card app, includes voice recorder and capacity to create your own flash cards. 40 flash cards. Provides feedback reports. Available on app store.	Lite version free \$
Lingraphia: https://www.aphasia.com/smalltalk-apps/	
Range of apps including articulation, numbers, common phrases. Uses video demo. Available on app store.	Free
Speak Up for Parkinson's: https://itunes.apple.com/gb/app/speak-up-for-parkinsons/	
Although designed for Parkinson's, also useful for dysarthria. Focus on inc volume. Exercises at word - conversation level	Free
Elevate: https://www.elevateapp.com	
35+ games for reading/ writing/ spelling. Performance tracking. App store and Google play	\$ subscription

Nakano D (2015) [Elevate Effectiveness Study](#)

Brain Yoga: <https://www.elevateapp.com>

Eleven puzzle games to train your memory, vocabulary, numeracy, spatial ability and pattern matching. No timer pressure, no high scores. App store and google play	free \$ in app purchases
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Chain of thought:

Word association app. App store and Google play	free \$ in app purchases
---	-----------------------------

4 pics 1 word:

World puzzle game. App store and Google play	free \$ in app purchases
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Neolexon:

World puzzle game. App store and Google play	free \$ in app purchases
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Look and Learn: <https://thinksmartbox.com/product/look-to-learn/>

Activities to support getting used to using eyegaze technology	\$\$\$\$
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Word Vault: <https://www.home-speech-home.com>

Range of apps for language, styled for children. Available on App store	free \$\$ subscription
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British Council: <http://learnenglish.britishcouncil.org/en/apps>

Range of apps designed for people learning English. Website also includes useful video zone. US and UK versions.	free
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STAPP

Speech and language exercises in Dutch. Available in app store.	
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AV Phonetics: <https://play.google.com/store/apps/details?id=com.hkbu.ulip.avphonet->

Helps with translation into p[honetics. Available on google play	
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Ello www.ello.org

Aimed at ppl learning English - over 2500 videos/ audio lessons and quizzes	free
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Lyrics Training

Aimed at ppl learning English - learn language through music. App store and google play. English, french, german, Italian, Spanish	free
--	------

Cambridge English <https://www.cambridgeenglish.org/learning-english>

A suite of apps for learning English, inc grammar.	free
--	------

Name _and_ tag Instagram

Instagram pages Nameandtag1, Nameandtag2, Nameandtag3 and Name-andtagverbs - for word finding activities	free
--	------

Evidence for outcomes following use of aphasia apps:
see discussion page 10



Appendix 2a: Software to support communication

Tobi Dynavox: https://www.tobiidynavox.com/en-gb/products/software/	
Dedicated hardware and software includes voice output, environmental control, eye gaze, symbol based software (e.g. snap + core, look and learn). Runs mainly on windows but some products available for Mac/ iOS. Support and training available	\$\$ - \$\$\$\$\$
Penfriend: http://www.penfriend.biz	
Penfriend offers a powerful word predictor with screen reader, text magnification, and on-screen Keyboards in many languages. There are versions for Windows desktop installation and portable USB drives. It works in many languages.	\$\$\$
Grammarly: https://www.grammarly.com/	
Grammar checker for desktop and tablet.	Free - basic version \$\$ subscription
Boardmaker: https://www.tobiidynavox.com	
Create picture based communication boards. 44 languages. Desktop and tablet. From Tobi dynavox.	\$\$
Nova chat: https://www.liberator.co.uk/products/communication-aids/nova-chat-range	
Hardware communication device with symbol based chat software.	\$\$\$\$\$\$
OCR scanner https://mashtips.com/ocr-scanner-ios-apps/	
Optimal Character Recognition hardware/ software/ apps recognises paper based (inc whiteboards) text and images and converts to digital	\$\$\$\$\$\$ - Free



Appendix 2b: Links/ descriptions for apps that support communication

Dragon Dictate: https://www.nuance.com/dragon/dragon-anywhere/free-trial.html	
Voice recognition software, converts to text. Available on App store and Google Play.	Free trial \$\$ subscription
Pictello: https://www.assistiveware.com/products/pictello	
Build stories with photos, videos and text to speech . Available on iOS in multiple languages.	\$\$ single app
Small Talk Apps: https://www.aphasia.com/smalltalk-apps/	
Free apps from Lingraphia - including apps for aphasia, pain scale, dysphagia, conversation, intensive care. English and spanish versions. Available for iOS	Free
Notions: https://www.notion.so	
Tools to support planning and organisation. Includes calender and ability to collaborate with others. Available for desktop and iOS and android	Free - \$
ClaroRead: https://www.clarosoftware.com/portfolio/	
Read any on screen text outloud - PC, Mac, iOS, android. Claro read pro also includes spell check/ word prediction	\$\$\$\$
Flip writer: https://www.flipwriteraac.org	
Flips inputted text to be read by listner. Includes word prediction, text to speech and speech recognition.	\$\$
Grid Player: https://thinksmartbox.com/product/grid-player/	
Symbol and/ or text based communicator, access with touch, eyegaze, switch. Different versions. available for windows/ PC and tablets	\$\$\$\$
Talking Mats: https://www.talkingmats.com/product/talking-mats-taster/	
Symbol based communication. Upto 35 symbols on lite version. Available on Google Play and iOS	Lite version \$ free
Whiteboard: https://awwapp.com	
Drawing space for PC/Mac/tablet, includes PDF upload. Board are deleted after 2 hours in free version but save unlimited numbers in premium version. Can collaborate with others. Includes voice call facility.	Free \$
Listening Library: https://www.booksontape.com/listening-library/	
Thousands of audiobooks to download.	Varies
Doodle buddy: https://sites.google.com/site/hpusoeit/doodle-buddy---handrigan	
Drawing app. Can import photos and email doodles. iOS and android	free
Text Grabber 6: https://itunes.apple.com/us/app/textgrabber-6-real-time-ocr/	
Scansd any document and converts to text. Text to speech function in 66 languages. Can use scanned info to link to phone call/ email addresses - iOS	free in app purchases

Instagram	
Social media platform - image/ video/gif/ text based	Free
Facebook	
Social media platform - text/image/video/gif based	Free
Notes	
Text based, can add images. Organise into folders. Integral app on most devices	Free
Map apps	
Search for anywhere with name or postcode, map/ satellite views. Real time directions to destination drive/walk/public transport. Shows nearby sites of interest - shops/ bank etc. Integral app on most devices	Free
Google images	
Google search facility for images	Free
<u>Speaking E-mail</u>	
Read emails outloud. Dictate emails. Fully voice controlled. Available in app store.	\$\$ in app purchases
Compass https://www.safecaretechnologies.com/compass/	
Symbols based communication from Tobi Dynavox. Available for windows and iOS. Research based.	\$\$\$\$
Pictello https://www.assistiveware.com/products/pictello	
Create and share visual stories and schedules. Add your own pictures, videos and recordings. iOS	\$
Touch Chat HD https://touchchatapp.com/apps/touchchat-hd-aac	
Symbol based communication. Fully customisable page sets/ buttons/ messages. Spanish and English. iOS	\$\$\$\$
Scene and Heard: https://therapy-box.co.uk/scene_and_heard	
Communicate by visual scenes. Upload picture/ photo and hotspot items within in to speak message on touch. Also create visual timetables and printable communication books Available in English German/ Danish/ Swedish/ Icelandic. From Therapybox. On iOS	\$
Speak for yourself https://www.speakforyourself.org	
Word and symbol based app (11000 symbols, 14000 words) iOS	\$\$\$\$
<u>Chatter boards</u>	
Fully customisable communication boards with vocabulary, images and sentence building capacity. Supports text and image only buttons. Can upload photos iOS	\$
Voice recording apps:	
Often free with device or download from google play/ app store	free
Parkinson's Easy Call:	
Enables phone calls to be made with a single touch to the smartphone	free
Leeloo AAC:	
Designed for autistic kids. Symbols based words and phrases. Google Play	free

Proloquo for text https://www.assistiveware.com/products/proloquo4text	
Text to speech app with predictive words	\$\$\$\$
Co writer https://learningtools.donjohnston.com/product/cowriter/	
Predicts words and phrases in real time. Includes speech recognition. Facility to record amount of time spent on app.	Free trial \$ subscription
Phrase board:	
Yes/ No buttons. Pain scale. Phrases. Custom messages. Drawing board with email facility. Available in multiple languages from App store.	Free
Seeing AI https://www.microsoft.com/en-us/seeing-ai	
Read text (inc handwritten), describes scene from camera. iOS	Free
Wemogee http://wemogee.com/en	
Translates text to emojis and vice versa. Simple interface. Predefined phrases. Messaging. Google Play	Free
Talk and photos	
Numerous apps on google play and app store - recorded messages can be added to photos e.g. Face Talker, Chatterpix, Speakpic, Photo Talk	Free In app purchases
All about me - story book	
Create your own personal information storybooks by using your own custom photos, text and audio.	\$
Email and notes + accessibility	
Use accessibility features in your device settings/ voice transcription	Free
Chattable	
Grid and scene symbol based AAC. English, from Therapy Box Ltd	\$\$\$
Lyft/ Uber https://rideshareapps.com/uber-vs-lyft/	
Lift/ ride sharing apps. No need for phone calls. Book via app.	Free
Find a Friend	
The "Find My Friends" app is a location sharing tool. It allows people to locate friends and family using their iPhone, iPad or iPod touch. The app uses a device's GPS capabilities to "find" other friends using the app.	Free
Read2go	
Accessible e-book reader. Full control over visual choices for font size and color, background and highlighting color, and text-to-speech preferences. Read2Go features word-by-word highlighting for multi-modal reading.	\$
iWordQ https://www.quillsoft.ca/iwordqpro/	
Reading/ writing: Writing word prediction, abbreviation-expansion and speech feedback features. Spell-check and dictionary access. Speech recognition. English on App store	\$\$
Meditation	
Numerous available across all platforms. Eg: Headspace guided meditation, Calm, Zen, Stop, breathe and think.	Free

Sprint IP relay <https://www.sprintrelay.com/sprintiprelay>

Text message to operator who speaks your message to listener and vice versa \$\$\$\$

Grammarly www.grammarly.com

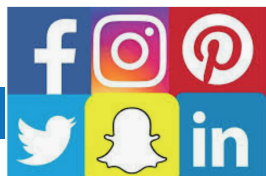
Automatic grammar checker for mobile and desktop. Free

Predictive texting

On all texting apps Free

Google Assistant/ Siri <https://www.apple.com/siri/> <https://assistant.google.co>

Personal assistants on mobile and some desktop devices. Voice activated. Free on device
Send text messages, make phone calls, search internet, set alarms/ calendar/ reminders, play music, plan journeys.



Appendix 3: Social Media

Aphasia Recovery Connection



ARC Aphasia Friends and carers.



ARC Aphasia Recovery Connection



@ARCaphasia

Support network and information.

Seperate closed groups for people with aphasia and their carers.

Aphasia Friendly Resources



Aphasia Friendly Resources

aphasia awareness and information - links to free resource website: www.aphasiafriendly.co

National Aphasia Association



National Aphasia Association

Information and advice. US based. <https://www.aphasia.org>



@NatAphasiaAssoc

Primary Progressive Aphasia



Primary Progressive Aphasia

Advice and support community for PPA

Aphasia Re-Connect



Aphasia Re-Connect

Long term peer support network, Greater London



@AphasiaReConnec

Aphasia FYI



Aphasia FYI

Support/ advice community, run by person with aphasia.

Aphasia Life



Aphasia Life

Practical solutions to daily problems.
<https://aphasialife.org>

Cornwall Stroke & Aphasia



Network

Closed group for support and advice for stroke survivors with aphasia in Cornwall.

Stroke Families Connect



Closed group for support/ advice. Run by wife of-stroke survivor.

Aphasia Access



Aphasia Access

Resource for healthcare and community providers, educators, and others who embrace the Life Participation Approach to Aphasia.



@AphasiaAccess

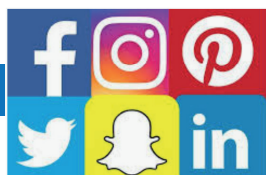
<http://www.aphasiaaccess.org>

Say Aphasia



www.sayaphasia.org

Say Aphasia is a Sussex based charity that supports people with Aphasia and their families and carers. See website for local drop in centres.



Appendix 3: Social Media

Aphasia United



Aphasia United



@AphasiaUnited

Information on current events/ research/ info in aphasia

Eva Park



@EVAphasia

Virtual environment for people with aphasia.
evapark.co.uk

Luna



@LUNA_Aphasia

Project exploring narrative in aphasia. Based at City Lit University, funded by Stroke Association.

Inca Project



@IncaProject

Researching tools to support inclusive digital content for people with aphasia

Brithish Aphasiology Society



@BasAphasia

Promotes the study of aphasia and development of clinical services.

Inca Project



@IncaProject

Researching tools to support inclusive digital content for people with aphasia

Aphasia Choirs Go Global



Aphasia Choirs Go Global

Aphasia Choirs Go Global aims to link choirs around the world who cater for people with neurological speech and language difficulty. It is a group to share news, research, and day to day issues.

Australian Aphasia Association



Australian Aphasia Association



@AusAphasiaAssoc

A not-for-profit organisation supporting people with aphasia, their family and friends.
<http://www.aphasia.org.au>

Aphasia Hope



@AphasiaAnswers

To educate and inform people about the facts, advances and resources surrounding aphasia.

SW Aphasia CEN



@swaphasia

Clinical Excellaence Network for S/LT's with special interest in aphasia. South West UK.

Aphasia Research Lab



Aphasia Research Laboratory



@AphasiaLab

The primary goal of the lab is to understand language processing and communication following a brain damage. Research in the lab makes use of Neuroimaging, neurolinguistic, psycholinguistic and

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