Exploring People with Aphasias’ (PWA) experiences of a Self-Administered Naming Therapy App (SANTA)

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Authors Declaration

“I certify that this project report is entirely my own work and that it has not been submitted for any other academic award or part thereof, at this or any other educational institution. Where use has been made of the work of other people it has been fully acknowledged and fully referenced.”

Signature:

Date:
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1. **Abstract**

**Background**: Research shows that facilitation therapy for naming is effective through priming the link between meaning and word form (Howard et al., 2006), but often only works for the words that are treated within therapy (Best et al., 2002). Technological advances in computer-assisted programmes have aided the successful implementation of treatment of word finding deficits in aphasia. However, these applications nearly all consist of SLT intervention to modify the programme, emphasising the need for accessibility to an application where the person with aphasia (PWA) can use facilitation therapy themselves and add a word as a particular word-finding difficulty arises and increase treatment intensity, thus having the potential to increase independence and provide efficient and realistic service delivery. Furthermore, there is little qualitative information about PWAs experience of using technology for therapy.

**Objectives**: To discuss the range of views and experiences of six PWA (moderate to severe) and their significant others about their use of a self-administered naming therapy app (SANTA).

**Methods**: This study adopted a qualitative thematic analysis research design in keeping with the principles of an inductive approach through the use of a semi-structured interview strategy and coding techniques. All six participants and three significant others participated in the study.

**Results**: Analysis revealed three global themes. The first theme described their reactions to the app, the second theme encompassed the PWA’s experience of using the app, and the third theme comprised of the app’s significance to aphasia. All participants spoke positively about the app, wanting to keep it and highly recommended it for other PWA. In addition, an unexpected outcome for the two of the participants was the emergence of reminiscence.

**Conclusions**: This paper enhances our current understanding of PWAs’ experiences of a self-administering naming therapy app and, in turn, highlights numerous factors of the app which may impact on or diminish from their aphasia.
2. Introduction

Approximately 10,000 individuals suffer a stroke each year (Irish Heart Foundation, 2015). Stroke victims face a multitude of challenges. One of those challenges is a communication impairment that is aphasia, making it difficult to speak, understand, read and write (Chapey, 2001). One of the few common symptoms among the various subtypes of aphasia is a difficulty in word-finding, also known as anomia. This can occur regardless of site or size of lesion (Snell et al., 2010, Dell et al., 1997). Technological advances in computer-assisted programmes have allowed for the implementation of treatment of word finding deficits using software (Colby et al., 1981; Doesborgh et al., 2004; Fink et al., 2002; Laganaro et al., 2006; Ramsberger & Marie 2007; Van Mourick & Van de Sandt-Koenderman, 1992). However, they nearly all require SLT intervention to add words. Research shows that therapy for naming is effective, but often only works for the words that are treated within therapy (Best et al., 2002). A typical block of therapy provided by an SLT would include a set of 30-40 words (Snell et al., 2010), yet a persons’ vocabulary usually consists of thousands of words. Such limitations emphasise the need for accessibility to an application where the person with aphasia (PWA) can use facilitation therapy themselves (Van de Sandt-Koenderman, 2011; Fink et al., 2002; Mortley et al., 2004; Ramsberger & Marie 2007; Wertz & Katz, 2004).

The self-administered naming therapy app (SANTA) allows the person with aphasia (PWA) to use facilitation therapy themselves by self-selecting an unlimited amount of words and grouping these words into categories, which they can practice as often as they wish. This self-paced practice approach allows the PWA to practice at a time that is convenient to their lifestyle and daily routine and has the potential to increase independence and provide efficient and realistic service delivery.

The purpose of this review is to discuss the range of views and experiences of six PWA and their significant others on a self-administered naming therapy app (SANTA). Themes which emerged throughout the literature reviewed include: generalisation, service delivery, computerised treatments and relevance to facilitation therapy, accessibility and
participation. Although the literature presents these themes in a variety of situations, this review will primarily focus on their application to web-based software.

Word finding difficulties have a direct impact on the PWA’s everyday communication limiting interaction and participation in society, often leading to frustration, social isolation and a communication breakdown in close relationships in particular with their communication partner (Speakability, 2006, Basso, 2003; Boyle, 2004; Lesser & Algar, 1995; Nickles, 2002; Ramsberger & Marie, 2007). In a study conducted by Shadden & Agan (2004) (cited in Gillespie et al., 2010) PWA reported that they often experience stigma and feel unable to project a positive identity and caregivers tend to experience emotional stress and a lack of confidence (Croteau & Le Dorze, 2001; Booth & Swabey, 1999 cited in Gillespie et al., 2010). Studies have shown that people can continue to improve their language ability for several years post stroke (Mortley et al., 2004; Hickin et al., 2002). Parr et al. (1997) supports this statement reporting PWA are motivated to continue to work on speech and language many years post stroke, this reinforces the importance of effective long-term treatment (Hickin et al., 2002). One of the roles of the speech and language therapist is to identify the language difficulty and provide appropriate and timely therapy (Chapey, 2001).

2.1 Anomia therapies

To date there are multiple studies demonstrating successful treatment of word retrieval impairments in aphasia (for reviews see Nickels, 2002; Nickels & Best, 1996a, 1996b). Following the influential work of Howard, Paterson, Franklin, Orchard-Lisle and Morton (1985a, 1985b) researchers were able to distinguish between semantic and phonological approaches with significant improvement in naming found when using both approaches. But the effects of the semantic tasks outdid the phonological tasks, and as a result of such findings Best et al. (2002) suggested that the presence of a picture supports semantic processing to a greater degree than repetition of the word form in isolation. As technology has evolved advances have been made by enabling implementation of treatment approaches on the computer, making self-administered therapy a practical option for PWA.
2.2 Generalisation

Controlled studies have shown that the traditional treatment approach of training aphasic patients using low-tech communication strategies such as sound cues, repetition or picture pointing may be effective in naming (Howard et al., 1985; Wisenburn & Mahoney, 2009). However, gains from anomia therapy are item specific with improvement in treated words only (Best et al., 2002). With the average number of treated words in facilitation therapy being 30-40 words (Snell et al. 2010), this represents an extremely small number of words given that normal vocabularies consist of many thousands of words. Research gains in facilitation therapy have identified that the impairment has made the words difficult to access rather than being lost altogether suggesting there should be no limit to the words treated effectively using facilitation (Howard et al., 2006). Because generalisation is limited with naming therapies there is no viable means of training patients on this large number of words that they are likely to need in everyday life. (Basso, 2003). Yet it is reported the greater the intensity of language treatment, the greater its effectiveness (Godecke, 2011; Cherney, Patterson et al., 2008, 2011; Robey, 1998; Bhogal et al., 2003, Kelly et al., 2010; Pulvermuller et al., 2001). This highlights the need for accessibility to an application where the PWA can use facilitation therapy themselves and add a particular word as a particular word-finding difficulty arises and increase treatment intensity by practicing that word for as long as they wish.

2.3 Service delivery

Research is ongoing for determining the efficacy of computer use in aphasia rehabilitation (Katz, 2001; Weinrich, 1997; Wertz & Katz, 2004). While research has shown that PWA can improve their language skills for several years post stroke, due to different environmental factors there is only a small number of words being treated in facilitation therapy. The SLT tries to ensure that the words worked on are of functional significance for the PWA (Renvall, Nichels and Davidson, 2013). However, due to increasing client loads, need for continued treatment and decreased funding for rehabilitation, it places high demands on often limited resources and can be costly and as a result difficult to achieve face-to-face speech and language therapy. As a result many clinicians have been encouraged to
increase efficiency and effectiveness of interventions in shorter rehabilitation times (Ottenbacher et al., 2004 cited in Davis & Copeland, 2006), causing many clinicians to look towards a more flexible means of service delivery.

According to Katz and Hallowell, (1999) computer-based treatment of aphasia is a mode of intervention that SLT’s should be exploring as a means of improving service delivery. This approach could be extremely beneficial for PWA who cannot attend therapy sessions for health reasons or financial factors and would benefit from therapy in the home environment. Unfortunately, no uniform guidelines for the provision of online therapy exists and this is a strong limitation and as a result may inhibit clinician’s use of such technology. ASHA do offer published recommendations for basic clinical computing competencies for SLT’s (Cochrane, 2004, 2005) and Phase I clinical trials examining the efficacy of one or more aphasia apps are beginning to emerge (Kiaran et al., 2013). This new era of aphasia therapy has the potential to be significant for PWA and the SLTs who treat them, as the technology offers incomparable opportunities for unlimited, personalised practice in a convenient platform, which could play a key role in extending the rehabilitation process during and beyond the therapy period.

2.4 Computerised treatments & relevance to Facilitation Therapy

In 1987 Bruce and Howard developed a computer-generated treatment, with all patients demonstrating improvement in naming treated and untreated items with the aid. Since then there have been vast improvements in technology and currently there are a number of computer based programmes and apps specifically designed for improving naming (see Tavistock Trust for Aphasia, 2014 for a review), that can be used in the client’s home as frequently as required. However, the majority of these contain a fixed, small set of vocabulary to be worked on, and due to the complexity of some of these programmes, SLT assistance is required to set up the programme and help clients practice the items (e.g. Step-by-Step; Mortley, Wade, Enderby & Hughes, 2004; AphasiaMate (http://www.avaaz.com), Parrot Software, 2009). The significant difference between the computer software available at present and the self-administered naming therapy app is that the PWA can use facilitation therapy themselves and self-select an unlimited amount
of words and group these words into categories, which they can practice as often as they wish.

Additionally, it allows for some autonomy, which may be lacking in traditional treatment programmes, as computers are seen as a way for individuals to gain more independence, relying less on the therapist and family (Nicholas, Sinotte & Helm-Estabrooks, 2005). Also, there is growing evidence to suggest the use of aphasia software can help improve outcomes in language domains (Van de Sandt-Koenderman, 2011; Katz & Wertz, 1997; Lee et al., 2009) and several small studies have been conducted that suggest independent use of computer software for word finding improvement can be beneficial (Fink et al., 2002; Mortley et al., 2004; Ramsberger & Marie 2007). Conversely, studies of self-administered word-finding therapy have been limited (Katz & Wertz, 1997) and in addition there is the cost of the software packages, computers and app’s and the time spent individualising the programme for each client.

2.5 Accessibility

Improving quality of life for individuals with aphasia is the ultimate goal when implementing technology in clinical interventions (Petheram, 2004). Studies have identified that PWA are able to use computers independently with minimal therapist intervention and show demonstrable benefits (Fink et al., 2002; Katz & Wertz, 1997; Mortley et al., 2001; Pedersen et al., 2001 and Petheram, 1996 cited in Wade et al., 2003). Studies by Bruce and Howard, (1987) also reported improvement in naming ability following computer-based treatment programmes. Further benefits reported by PWA were autonomy and flexibility in scheduling (Petheram, 1996a, 1996b). Many PWA are comfortable using computers in their own home suggesting increase in the intensity of their practice (Mortley et al., 2003; Petheram, 1996a, 1996b cited in Davis & Copeland, 2006), decreasing the need for travel, allows for immediate feedback, may improve motivation, and provides flexibility in access modes (Kinsey, 1986; Weinrich, 1997).

2.6 Participation

Qualitative studies with PWA are warranted as this group is often systematically excluded from research because of methodological challenges due to the communicative barriers
(Lloyd et al. 2006; Luck and Rose, 2007 cited in Johansson et al., 2012), and such research assists in gaining a fuller understanding of PWA in order to meet their needs and expectations (Davidson et al. 2007).

3. Method
This study aimed to discuss the views and experiences of six PWA and their significant others on a self-administered naming therapy app (SANTA).

3.1 Research Design
This study adopted a qualitative thematic analysis research design in keeping with the principles of an inductive or ‘bottom up’ approach (Frith and Gleeson, 2004), through the use of a semi-structured interview strategy and coding techniques. Interview questions were formatted in an aphasia-friendly manner. Where participants were unable to respond spontaneously, visual ramps were used comprising of colourful picture options (see Appendix 2 and 3). A quantitative study (not reported here) was also carried out to investigate participant’s usage of the SANTA app (see Gilligan, 2015).

3.2 Participants

3.2.1 Recruitment
Participants were selected from local HSE services and met specific selection criteria. A total of six participants with aphasia following a cerebral vascular accident (CVA) took part in the study. All participants were informed of their right to not take part in or withdraw from the study before it begun and again one week after it began.

3.2.2 Inclusion criteria
Eligible participants were required to have a diagnosis of stroke and aphasia with word finding difficulties and be (1) six months post stroke, with stable symptomatology, to lessen the possibility of spontaneous recovery, (2) score between 10% and 70% on the Boston Naming Test (BNT), and (3) score at least 80% on the Comprehensive Aphasia Test (CAT) repetition subtest. In addition people with severe cognitive or visual impairments which could compromise understanding of their participation in the research and reduce
their ability to use the app were excluded from the study. All six participants met the selection criteria.

3.2.3 Participant profile
Table 1 provides participants’ age, gender and time post onset (months). Pseudo names were used to protect the participant’s identity and anonymity and their significant others.

3.2.4 Pre therapy Assessment
The participants aphasia severity was measured using the long version (n=60) of the Boston Naming Test (BNT) (Goodglass, Kaplan, & Weintraub, 2001), this was administered pre therapy, post therapy and at follow-up as a control set of untreated items. The auditory comprehension and repetition abilities were examined using elements of the Comprehensive Aphasia Test (CAT) (Swinburn, Porter, & Howard, 2004).

MJ was an 89-year old male, who was 38 months post onset of aphasia secondary to a CVA which occurred during a stenting procedure of his right carotid artery. MJ continued to be as active as possible and had a keen interest in horses. On the CAT subtests 'Comprehension of Spoken Words', 'Comprehension of Written Words' and 'Repetition of Words', MJ scored 29/30, 22/30 and 28/32, respectively. MJ had a severe naming difficulty, indicated by his BNT score of 12 out of 60 items correct.

CM, was a 70-year old female, she had suffered two CVA’s one in March 2013 and another in December 2013. CM led a very active life and enjoyed meeting up with her friends and playing bridge. On CAT subtests 'Comprehension of Spoken Words', 'Comprehension of Written Words' and 'Repetition of Words', CM scored 20/30, 22/30 and 30/32, respectively. Her severe naming difficulty was reflected in her BNT score of 11 out 60 items correct.

BA, was a 75-year old female, who suffered a CVA 21 months previous. BA lives alone but had great support from friends and family and took pride in her independence and had many hobbies including walking on the beach. On CAT subtests 'Comprehension of Spoken Words', 'Comprehension of Written Words' and 'Repetition of Words', BA scored 22/30,
27/30 and 26/32, respectively. Her severe anomia was reflected in her BNT result of 23 out of 60 items correct.

CV, was a 72-year-old male, who lived with his wife and suffered a CVA in December 2008, resulting in hemiplegia, aphasia and dysarthria. It was a right middle cerebral artery infarct. He was a recently retired active man with many hobbies and interests including animals and farming. On the CAT subtests 'Comprehension of Spoken Words', 'Comprehension of Written Words' and 'Repetition of Words', CV scored 21/30, 19/30 and 17/32, respectively. CV had a profound anomia answering just 6 of the 60 BNT items correctly.

NA, was a 68-year old male, who suffered a CVA 5 months before the study began. He was currently residing in a nursing home and had many hobbies and interests including a huge love for music and had great stories to tell of his past. On CAT subtests 'Comprehension of Spoken Words', 'Comprehension of Written Words' and 'Repetition of Words', NA scored 23/30, 24/30 and 30/32, respectively. On the BNT, a score of 38 out of 60 items correct indicated a moderate to severe anomia.

PM, was a 65-year-old male who lived with his wife. In 2010, he had a CVA. He has a keen interest in the GAA and reading. On CAT subtests 'Comprehension of Spoken Words', 'Comprehension of Written Words' and 'Repetition of Words', PM scored 26/30, 28/30 and 30/32, respectively. PM had moderate to severe anomia with 35 out of 60 items named correctly on the BNT.

3.3 Ethical considerations

Ethical approval was sourced from Limerick Research Ethics Committee for eight participants; two for the development of the app and six for the pilot of the study and follow up. The two participants involved in the initial development phase continued with the app so the current study included six participants with aphasia. Verbal and written informed consent was obtained from each participant and significant other using aphasia-friendly information (see Appendix 4). PWA are vulnerable to harm because of their
reduced ability to express their meanings and reservations (Llyod et al., 2006). Due to the small sample size and the risk of compromising confidentiality (Morse, 2007), participants were assured of confidentiality through secure data storage, the use of anonymous quotations to protect their identity and the removal of all identifying information at all stages of the research process.

**TABLE 1.**

Biographical details including age, gender, and time post onset (months), for all participants.

<table>
<thead>
<tr>
<th>Name</th>
<th>MJ</th>
<th>CM</th>
<th>BA*</th>
<th>CV*</th>
<th>NA</th>
<th>PM</th>
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<td>75</td>
<td>72</td>
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<td>Gender</td>
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<td>F</td>
<td>F</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Time post-CVA (months)</td>
<td>38</td>
<td>13</td>
<td>21</td>
<td>70</td>
<td>5</td>
<td>46</td>
</tr>
</tbody>
</table>

*Required ramped interview questions and answers

Time post-CVA calculated based on BNT 1 testing date (October 2014). Participant CM had two CVAs, so 13 months since most recent and 19 months since first.

Further to the six PWA, three significant others participated in the interview process and gave their feedback on SANTA. There was NA’s care assistant from the nursing home (NM), CV’s wife (CI) and MJ’s daughter (MG).

3.4 RA Role

Two of the participants with aphasia were involved in the design process, as it was being developed, to maximise the clarity of the design of the app. Once the initial phase was completed, the research assistant helped to ensure that the software was uploaded correctly onto an iPad or smart phone for each participant for the duration of the study. All six participants used the same app. The RA then provided initial tuition to the participant and care giver(s) on how to use the app and visited weekly for a duration of five weeks to ensure the app was being used appropriately.

3.5 Practice
The participants had the app for 4-5 months and categories of words which were of functional use to the participant were added to the app and the PWA was encouraged to add to these categories. Words could be added to each of the categories at any time and participants could practice words as often as they wished.

3.6 Procedure
The interviews were semi-structured and incorporated open-ended questions such as tell me about the app? How did you get on with SANTA? How often did you use it? (For full interview questions see Appendix 2), and due to the severity of some of the participants’ aphasia, interview questions were also available in an aphasia-friendly manner, with visual ramps comprising of colourful picture options. (See Appendix 3). Rose et al. (2003) found that “aphasia-friendly” materials assisted people with aphasia in comprehending information. The development of key topics was guided by the World Health Organisation International Classification of Functioning, Disability and Health (ICF, 2001) and Living with Aphasia: Framework for Outcome Measurement (A-FROM), which is a broad, non-prescriptive conceptual approach to outcome measurement that takes account of the impact of aphasia on life areas deemed important by people with aphasia and their families (Kagan, 2011). This approach enabled participants to offer a variety of responses regarding their experiences of using the app and gave them the opportunity to expand spontaneously.

All six interviews with the PWA and three interviews with family members/carer(s) were conducted by three FYP students over a period of three weeks. The interviews were conducted face-to-face in a familiar environment to the participant (home/nursing home). One interview with a family member, was conducted over the phone. The duration of each interviews ranged from 50 minutes to 1 hour 20 minutes. The variation in the length of interviews was influenced by the person with aphasia’s severity level. All interviews were audio and video recorded. The interviews were then transcribed verbatim and checked for accuracy through percentage cross referencing. Statements were then attained from the transcripts due to the predominant difficulties with communication that is associated with aphasia, but no information was deleted.
3.7 Data Analysis

The interview data was analysed by two FYP researchers, using qualitative thematic analysis, which is used for ‘identifying, analysing and reporting patterns (themes) within data. It minimally organises and describes your data and provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex, account of data. However, frequently it goes further than this, and interprets various aspects of the research topic’ (Braun and Clarke, 2006, p.79). Thematic analysis themes or patterns within the data were identified using an inductive or ‘bottom up’ approach (Frith and Gleeson, 2004), this means the themes identified are strongly linked to the data themselves (Patton, 1990), and limits researchers from erroneously “forcing” a preconceived result (Glaser, 1992). Inductive analysis is therefore a process of coding the data without trying to fit it into a pre-existing coding frame, or the researcher’s analytic preconceptions. In this sense, this form of thematic analysis is data-driven. (Braun and Clarke, 2006).

The participant’s transcripts (spontaneous and ramped) were colour coded (See Appendix 7 & 8) and then the data was reviewed line by line in great detail and then as a concept became apparent, a code was assigned. Continuous reviewing of the data led to further assignment of codes, that reflected the concepts that emerged, highlighting and coding lines and statements, or sections that illustrated the chosen concept. To ensure if a code was suitably assigned, the analyst compared text sections to sections that have been previously assigned the same code and decided whether they replicate the same concept (Bradley et al., 2007). Using this “constant comparison” method (Glaser and Strauss, 1967), the researchers refine dimensions of existing codes and identify new codes. Through this process, the code structure evolves inductively, reflecting “the ground,” i.e., the experiences of participants.

Following the initial sorting of interview data into codes, diagrams/mind maps were developed to organise the identified codes and to determine the connection between codes. Codes were moved and refined as patterns emerged and transformed. Finally, two members of the research team rechecked all the data, this was used to enhance the
strength and applicability of the codes ensuring optimal reliability for the finalised code structure. The codes were organised into three large primary themes, each with three subthemes (see Table 2).

3.8 Reliability
Inter-rater reliability for accuracy of transcriptions was calculated through percentage cross referencing for each participant. For all six of the participants, a second examiner (FYP student) listened to the interviews and then transcribed verbatim to obtain an independent analysis that was then compared and percentage cross referenced to the first examiner’s transcriptions. If a discrepancy arose then both transcriptions were studied by an independent researcher and the closest approximation was used. Furthermore, each author independently checked that the codes accurately replicated the experiences described by the participants, and that the themes appropriately incorporated the codes.

4. Results
This research used an inductive framework to describe the range of views and experiences of six PWA and their significant others on a self-administered naming therapy app, analysis saw the emergence of three global themes related to SANTA (see table 2). These findings are outlined below, supported by direct quotations (* signifies ramped responses). In order to ensure anonymity, pseudo names were implemented (refer to table 1). All six participants utilised the app, unfortunately however, due to the environmental situation of one participant (he lived in a nursing home), the phone with the app on it went missing on two separate occasions, the first time it was replaced and the second time it went unnoticed for over two months, so this participant had not used the app for three months when interviews took place.

4.1 Reactions to the app
The first core theme in this study related to participant’s descriptions of the app. Further analysis revealed that this theme could be separated into three subthemes: (a) comments about the app, (b) technology, and (c) unexpected outcomes. In the following sections, the
participant’s discussion of their reactions to the app is illustrated through interview excerpts.

**(a) Comments about the app**

Overall, participant’s reported positive comments about the app and all six participants wanted to keep the app. Terms such as: “very satisfactory” (CM, 70) “Interesting” (*BA, 75) “I think it’s very helpful” (PM, 65) and “Indifferent” (*NA, 68) were used to describe the app. One participant went on to describe the positives of the app in further detail:

“It’s like a small computer…it’s fantastic…it helps my memory and that’s the thing I liked the most about it…it has made me more positive” (CM, 70).

“You can have fun with them” (*BA).

Whilst others found the initial experience of the app challenging:

“I found it difficult at first, frustrating…but then getting used to using the words, it got easier” (NA, 68).

“It took me a while to get used to things...gradually over time you get it, you learn over time” (PM, 65).

Four participants rated the app on a scale of 1-10 with 10 being very satisfactory “from my own experience I’m very happy I’d say definitely 8 out of 10” (CM, 70), “6/10” (NA, 68), “7/10” (*BA, 75) “7/10” (*CV, 72). Although two participants did not give a direct comment about the app they did speak about it further in different sections of the interview.

**(b) Technology**

Five participants had no previous experience with technology or apps and six participants had never used an iPad or smart phone before. Three participants described technological challenges to using the app:

“The app it took me a while to get used to it... I wouldn’t be used to...those...gadgets” (PM, 65).
“I don’t know enough about electrical things” (CM, 70).

“It’s the technology thing” (NA, 68).

Common problems included participants inadvertently turning down or turning off the volume or forgetting how to get back to the app. On several occasion, categories disappeared from the app but this was down to the software package and they had to be re-installed. Two participants found difficulty with other features of the app, namely the voice and pictures and felt they did not match the category:

“Getting the voice to match the picture” (NA, 68).

“The pictures were American...not connected to this subject” “the picture that I picked...when I came back to it...it wasn’t the one I would associate with it” (PM, 65).

Further difficulties with features of the app included not having a delete button, one participant reported once a picture was added to the category, even if it was the wrong one you could not go back and change or delete it:

“I couldn’t delete it... I couldn’t stop it and change it” “I kept making a mistake again and again...I couldn’t change once I made a mistake...” (PM, 65).

Although the experience was novel to begin with participants did find easy features of the app:

“I couldn’t fault it really, it’s just so simple”, “pressing the button at the top, it was dead simple, after that you’ve to think of nothing and once I knew SANTA was the word, I just knew to press the left hand corner and that was it...you saw SANTA” (CM, 70).

“I think the fact you could see a picture...use the person that was speaking really... the voice...I think that helped”, “I can’t say there’s anything that was difficult...once I knew the sequence of using it, it was ok...I find it easy” (PM).

(c) Unexpected outcomes
There was an unexpected finding for two of the participants, the significance of particular pictures within a category, which evoked reminiscence.

“\textit{I found it a lot easier to remember what was being said... I understood a lot easier and a lot quicker...I can remember that...from years ago...it clicked in the head that “oh yes, I remember that being said before”}. Q: Was that an old memory or to do with using the app? “Just an old memory, my old memory” (NA, 68).

\textit{“It helps my memory and that’s the thing I liked the most about it”} (CM, 70).

\textbf{Table 2.}

Themes and subthemes generated from analysis of the participant’s interview transcripts.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Subthemes</th>
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<tbody>
<tr>
<td>Reactions to the App:</td>
<td>-Comments</td>
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<tr>
<td></td>
<td>-Technology</td>
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<tr>
<td></td>
<td>-Unexpected Outcomes</td>
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<tr>
<td>Using the App:</td>
<td>-Support</td>
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<td></td>
<td>-Patterns of use</td>
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<td></td>
<td>-Why use the app</td>
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<tr>
<td>Significance to Aphasia:</td>
<td>-Benefits</td>
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<td></td>
<td>-Barriers</td>
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<td></td>
<td>-Client recommendations</td>
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</table>

4.2 Using the app

The second core theme to emerge from the interview data related to the way in which the participants used the app and these could be separated into three distinct subthemes: (a) why use the app, (b) patterns of use, and (c) support when using the app. The following
sections illustrates the participant’s discussions around using the app through interview excerpts.

**a) Why use the app**

The participants in this study recognised their naming difficulties and demonstrated why they needed to use the app. One participant described his aphasia difficulties “names are the things I’m stuck with…people’s names…. it’s important to be able to say something and know exactly what I’m saying” (MJ, 89). Another participant reported “that’s part of the thing I can’t remember things because I forget about things” “It’s a way of finding out…what was right or wrong” (PM, 65). One participant recognised how the app helped her “if I don’t keep using it, the app, I won’t be able to keep doing little things that I want to do…the only way to do this is by the app” (CM, 70).

**b) Patterns of use**

Five participants reported practicing in the evenings or night time, with one participant reporting he practiced in the morning. Apart from the constraints of one participant’s dependence on care staff to practice, participants valued when they were able to decide to practice for two reasons. Firstly, it fitted in with their lifestyles and daily routines without hindering their other commitments and secondly, it enabled them to practice when they felt most alert.

The amount of time participants practiced varied from weekly to daily and from a couple of minutes a day to one hour a day. One common pattern noted was that the participants practiced more frequently when the RA was visiting on a weekly basis and appeared to look forward to her visits, Q: Who did you use the app with? “Mainly RA and if she wasn’t there then *Harry (grandson) (CM, 70). “RA was there…she was always asking me questions” (MJ, 89). Three participants had not practised since Christmas time and this coincides with the RA ceasing her weekly visits. “I use it, you know, during the week that person came (RA)...she used to come every week... but after Christmas I just forgot about it to be honest” (PM, 65).
Some participants enjoyed using the app by themselves and stated that they liked to test themselves before the voice on the app told them the word:

“mostly by myself” “I stayed on my own like and you know and I’d be concentrating”,
“I’d leave it til I talk myself and if not, I’d question it” (MJ, 89).
“Says the word before the speaker does” (*BA, 75).

(c) Support: using the app

All six participants discussed the advantage of receiving support from a link person for them and their significant other, in terms of maintaining motivation. One participant reported “I would want support a bit”...“maybe I didn’t try enough” (PM, 65). Another participant felt frustrated and stated “I didn’t get enough people to give me a hand using it...trying to get the time for the girls (care staff) to come out and do it, that’s another thing”... “the idea is to link in with somebody at the time... it would have been a help for me” (NA, 68).

4.3 Significance to aphasia

The third core theme to emerge from this study was the participant’s description of the app’s significance to aphasia and additional analysis resulted in the emergence of three subthemes: (a) benefits, (b) barriers, and (c) client recommendations for users. The following sections illustrates the participant’s discussions of the app’s significance to aphasia through interview excerpts.

(a) Benefits

All participants felt the app made a difference to their communication, making it easier to say the words, “the words come easier for me, the pronunciation of type of word” (NA, 68),“I feel my communication is very good, over the last 3 months I’ve gotten stronger” (CM, 70) and also helped to participants to remember the words:

“It helps me to remember what it is or what the word is”“...I got used to it...after a while I can remember things” (PM, 65).
“It’s remembering…a word… I might be slow on it sometimes, and after…immediately then…it’d (the app) tell me and I’d remember, I’d think of it” (MJ, 89).

“The easiest thing I found was being able to remember the names of things that were shown on the app…it has helped my memory so much” (CM, 70).

“I can speak more you know” (*CV, 72).

One participant reported that the voice on the app aided his learning of the words “it helps you to learn it…especially hearing the person saying it” (PM, 65). Another participant highlighted the significant impact the app had on his life “Oh it’s a great difference, because I wouldn’t be able to talk otherwise” (MJ, 89). CM (70) reported that the app increased her awareness around her aphasia, “shur I’d never have known if I was good or bad at those things (pictures/words) if I hadn’t got the…app”.

(b) Barriers

Two participants felt that their unfamiliarity with technology was a barrier to begin with but once they were comfortable with the app this was no longer an issue: “wasn’t used to technology” (*CV, 72), and when asked if he was used to technology PM (65) responded with “no I wouldn’t be”. One particular participant was frustrated with explaining how the app worked to several different people in the care home and also for the care staff to find the time to help him use the app:

“Getting it across to other people, annoying, trying to explain it”…“the girls (carers) have got their own times to do things and work” (NA, 68).

Another participant described a personal barrier to using the app:

“Since I got my second stroke…I can really mix up words and I can really forget spelling” “sight and my memory are my two biggest problems” (CM, 70).

Two participants did not report any barriers to using the app.

(e) Client recommendations

Participants in this study identified areas where the app could be improved such as being too slow and no delete button, and also made recommendations for the type of user that
would benefit from the app. A strong consensus from participants was the recommendation of SANTA for people who have either had a stroke or have difficulty with naming, but participants felt that successful use of the app is dependent upon immediate use following a stroke.

“I think anybody who has had a stroke first...could learn from that...the sooner the better in one sense”...“...especially at the beginning...it’s very important really” (PM, 65).

“I’d recommend it 150% for anybody that’s had a stroke. I’ve had two strokes and that’ll give you an idea and I’d recommend it” (CM, 70).

4.4 Family member/Carer(s) comments

There was variation in the response from the family member/carer(s) in terms of involvement and experiences with the app. One participant (MJ, 89) practiced independently as he lived alone, and his daughter (MG) stated that MJ enjoyed it and was very diligent with his practice and he “liked getting better”. She also reported that he did need her to add the pictures onto the app and several times the photos on the app disappeared completely but once they told the RA the photos were put back onto the app. MG felt the app would benefit from a delete button and also the option to add your own pictures. Additionally, CV’s wife and NA’s carer believe that practice would not have happened without their support. NA’s carer (MN) reported he found it hard to control the app and kept knocking the app off the screen, she also stated that NA did not use the app independently at any stage but he did practice 3-4 times a week with assistance from staff at the nursing home. While CV’s wife (CI) reported regular but not independent use of the app but felt if he had “kept at it more” it might have helped him more. CI also stated that she had to add the pictures for CV and on occasion she forgot how to add the pictures in and stated “if the internet isn’t working the app might not come up”. CI felt that the app would work for people with aphasia but hasn’t improved her husband’s communication “not yet anyway” but stated “if we got this (the app) say at the beginning an we used to do homework and everything you know I’d...I’d imagine I think it would” have helped his communication (CV’s wife).
5. Discussion

This ultimate aim of this study was to discuss the range of views and experiences of six people with chronic aphasia (PWA) and their significant others on a self-administering naming therapy app. The participants in this research described three areas that they encountered in their experience: reactions to the app, using the app and significance to aphasia (see table 2). Overall, the findings from the study are generally positive. Participants reported satisfying aspects with their progress, for example their delight and surprise by their ability to use the app/technology, especially independent use.

The results of studies examining computer-based intervention for aphasia are efficacious and positive (Taylor-Goh, S., 2005; Palmer, R., Enderby, P., et al. 2013; Wertz & Katz, 2004), with reported improvements in language skills and functional communication (Teasell et al., 2011). Participants in this study felt that their communication improved but reported that immediate use of the app following a stroke would be more beneficial to the PWA “the sooner the better in one sense”, suggesting intervention needs to be instantaneous and systematic reviews give some support to the notion that the sooner the intervention and greater the intensity of language treatment, the greater its effectiveness (Godecke, 2011; Cherney, Patterson et al., 2008, 2011; Robey, 1998; Bhogal et al., 2003, & Kelly et al., 2010).

Participants enjoyed the autonomy the app provided, giving them the independence to choose when and for how long they could practice, words they felt like practicing from the comfort of their homes, which supports findings from previous case series reports in the literature (Fink et al., 2002; Mortley et al., 2004, & Ramsberger & Marie, 2007). This self-paced practice approach allowed the PWA to practice at a time that is convenient to their lifestyle and daily routine, with many participants reporting they practiced in the evening as they had more time and were less tired then. A study conducted by Palmer et al., (2012) reported a mean of 75% of computer therapy time was completely independent practice supporting participant’s ability to use computer programmes autonomously.

Furthermore, the independent flexibility of adding your own words to categories on the app allowed the PWA to choose words that were functional to their communication needs.
and interesting to them. Participants reported practicing particular categories more often than others, hobbies appeared to be a favourite amongst all participants. Research shows that language of personal reference to the patient incorporated in practice material has been shown to be important. (Meinzer et al., 2005; Raymer et al., 2008; Pulvermüller & Berthier, 2008). In a study conducted by Palmer et al., (2013) participants reported a number of benefits with self-directed computer-based treatment, including independence, flexibility and repetition and personalisation of language exercises. Perhaps the freedom to add words and categories of interest to the PWA could be suggested to improve motivation.

The RA provided initial tuition and support to the participants and family member/carer(s) to ensure the app was being used appropriately, which enabled practice to continue. Some participants reported that practice continued once the RA ceased her visits, whilst others reported practice to be very minimal. However, all participants reported more frequent practice when the RA visited, and participants and family member/care giver(s) felt support was necessary in terms of maintaining motivation. Palmer et al. (2013) reported similar findings with the need for technical and greater carer support during computer-based treatment. This demonstrates that the use of a self-administering naming therapy app with volunteer support may be an important component in promoting motivation and continued practice for people with aphasia.

All six participants had never used an iPad or smart phone prior to this study, yet several of them learned quite rapidly and were diligent at practising and were committed to improving their naming ability. It therefore would appear that motivation to use the app was more important to the participants than age (participants ranged from 65-89 years), aphasia type or severity, or prior experience with technology.

Family members of two of the PWA reported feelings of concern and frustration when asked about the PWA and the app, stating “maybe I should be doing more”… “I just want him to improve you know”, “I’m not her carer you know, it’s not my responsibility”. Common concerns for caregivers in aphasia are the need for psychosocial support and hopefulness (Avent et al., 2005 & Ski & O’Connell, 2007 cited in Papanastasiou, 2012).
In addition, an unexpected outcome for two of the participants was the significance of particular pictures within a category, which evoked reminiscence. Reminiscence therapy is generally used for people with dementia and reviews of the research suggests improved quality of life, facilitating communication during activities of daily living and psychosocial benefits for people with dementia (Woods et al, 2003). However, reminiscence therapy has not been associated as an intervention for people with aphasia and further research should be carried out to explore this phenomenon.

**Limitations of the Study**

An important constraint was the shareware used by the SANTA app. Due to the poor quality of the software individual items and whole categories were deleted at random for several of the PWA on different occasions, which led to some levels of frustration as to where the category had disappeared to and in turn to less practice of those particular words. Also a consistent complaint amongst participants was the lack of a delete button, which was not taken into consideration in the development stage of the app, and participants found the voice “funny” even though it was an English accent and not the standard American accent typically associated with app’s and technology. Additionally, the app was solely dependent on the internet for use and participants founds this very annoying, because if the internet was down they could not use the app again restricting practice.

All six participants wanted to keep the app and although they appeared to have enjoyed their experience with SANTA there were some suggested modifications that participants felt could improve the app as mentioned above. Participants also welcomed the visits from the RA and the researchers in terms of support to query aspects of the app i.e. if they forgot how to add a picture and in terms of maintaining motivation.

**4. Conclusion**

The SANTA app has the potential to be used as an effective means of facilitation therapy making a significant difference to people’s lives, increasing independence for the PWA and
delivering realistic and efficient treatment. This study will contribute towards creating an evidence base for independent self-administering naming therapy for people with aphasia, but further research will be required in terms of best practices for training both clinicians and persons with aphasia, and a larger sample size of participants and improved software packaging would benefit further research.

References


Gillespie, A., Murphy, J., & Place, M. (2010). Reconstructing inter subjectivity: Adaptation and identity in informal care relationships which have been disrupted by aphasia. ESRC.


Howard, D., & Morris, J. *Speech and language therapy for aphasia after stroke: A review of the effects of intensity, duration and scheduling*. Speech and Language Sciences, Newcastle University. Available at:


Appendix 1.

Interview Script

“Today (participant’s name), we want to find out what you think about this app (point to app on the phone) and how you got on with it - since you were one of the first people to test it out. We want your feedback because this will help us to make any improvements to the app for the future – so be honest: both the good and the bad! Remember, when I say “app” I’m talking about this programme on your phone/tablet (point to app). (Colleague’s name) here will be taking some notes and recording us so that we don’t forget your answers. Ok let’s begin.”
Appendix 2.

Interview Questions

Band A:
1. Tell me about the app?
2. How did you get on with SANTA/ the app?

Band B: Usability
1. How often did you use the app?
2. When did you use the app?
3. Tell me why you used it at this particular time?
4. How long and often did you use the app?
5. With who did you use the app with?
6. What was the easiest thing about using the app
7. What was the hardest thing about using the app
8. Did you use all the pictures or just one particular category?

Band C:
1. Has it made a difference to you
2. Has it made a difference to your communication
3. Has it made a difference to your naming
4. Can you give me any examples of where the app was has been useful

Do you think it would work for people with aphasia? How
Who do you think would like the app?
Why didn’t it work for you?
Do you want to keep the app?

Carer question:
Is there anything you could or want to add to this experience?

Appendix 3.

Ramped Interview Questions:

Band A:

Q: Tell me about the app?
Neither like it nor dislike it

Q: How did you get on with SANTA/ the app?
RATING SCALES

- Absolutely loved it!
- Didn’t love it at all
Band B: Usability

Q: How often did you use the app?

- DAILY
- WEEKLY
- MONTHLY

RATING SCALES
(e.g. once, twice a day/week/month)

Q: How long did you use the app?

Couple of minutes
Q: When did you use the app?

MORNING

AFTERNOON
Q: Tell me why you used it at this particular time?

Someone there to help me

Alert

Routine

Spare time
Q: Who did you use the app with?

BY YOURSELF

GRANDCHILDREN

SON

With Someone

DAUGHTER

WIFE
Husband

Q: What was the easiest thing about using the app?
Q: What was the hardest thing about using the app?

Adding Pictures

Tapping/Scrolling

The Sound

Using Categories
Q: Did you use all the pictures or just one particular category?

All Pictures                 All Categories
Just one Category            Some Categories
(Probe Why)

Q: Which category and why? (show me)

Useful                                           Hobby
Interesting                                     Practice
Event

Band C:

Q: Has it made a difference to you?

YES                                           NO

How?

Reduced frustration                         Socialising
Q: Has it made a difference to your communication?

YES  NO

HOW?

Finding Words  Better Conversation

Q: Has it made a difference to your naming?

Yes  No

Q: Can you give me any examples of where the app was has been useful?

Particular Word(s)  Particular situation
Particular person(s)  Particular event(s)

SHOPPING  SOCIALISING
Q: Do you think it would work for people with aphasia (stroke)?

YES

NO

Q: How?

With Practice

Finding words

Seeing Picture

Hearing word

Q: Who do you think would like the app?

People after a stroke

Everyone

Good with Technology

Young people

Older People
Q: Why didn’t it work for you?

CONFUSING  BORING
ANNOYING  NO DELETE BUTTON
TOO SLOW  TOO FAST
FUN  INTERESTING
PICTURES

Q: Would you want to keep the app if you could?

YES          NO

If Yes... Ask client do you want *** to visit you and link in with you in a couple of months?

Carer question:

Is there anything you could or want to add to this experience?
Appendix 4.

Department of Clinical Therapies, University of Limerick

Consent Form

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I read the information leaflet</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I had an opportunity to ask questions</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I was satisfied with the answers to my questions</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I understand what is involved</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I understand that information is kept safe and private</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I know I can stop at any time</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I agree to being video-recorded</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I consent to the researchers seeing my medical records</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>I consent to my app data being tracked</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
I agree to participate in this study.

Name: ________________________

Name Researcher: ______________________

Signature: ________________________

Signature Researcher: ________________________

Date: ________________________

Contacts

E-mail Us

sue.franklin@ul.ie

Phone Us 061 234 274

This research has received ethical approval from the University of Limerick Research Ethics Committee. If you have concerns regarding this study, please contact: Chairman, Education and Health Sciences, Research Ethics Committee, EHS Faculty Office, University of Limerick, Tel (061) 234101 Email ehsresearchethics@ul
Appendix 5.

Statements from Interview with CM (spontaneous responses (not ramped))

Band A
Q: If you could tell me about the app in your own words?
CM: It’s like a small little computer… it’s fantastic…. it shows you pictures…it helps my memory and that’s the thing I liked the most about it.

Q: How did you get on with the app?... in terms of using it?
CM: I’ve been doing that for the last 3 months with Gillian, she’s lovely and she was very good…’I’d say she would be very proud of me today … she would be thrilled because I didn’t know one thing. If she came to me last week and she asked me the questions, … and if she asked me the same questions the following week I wouldn’t have a clue what she was talking about, I feel I did it and I feel I’m delighted I did so well with the questions.

Q: You’re saying there that you are not normally good with electronics’ like that, but did it take you a while to get used to it at the start?
CM: I hadn’t a clue what I was doing but Ben would show me how to turn it on and things like that, but that was fine.

Q: And were you able then Mary to add the categories and words yourself or did someone help?
CM: No, she (RA) nearly did it with me all the time and there was nearly always a category that she made me study…I thought I did very well because if you asked me 6… 3 months ago what she was doing … I wouldn’t have a clue.. so I’ve come a long way.

Q: If you could think of a word to describe how you got on with it? Is there anything that comes to mind?
CM: Very satisfactory is the word I’d use!

Q: And if you were to rate it from one to ten, ten being the highest how would you feel about the app itself?
CM: Eh I don’t know enough about electrical things probably.

Q: Just from your own use?
CM: From my own experience, I’m very happy I’d say definitely 8 out of 10.

Band B: Usability
Q: Just a bit now on usability, how often did you use the app CM?
CM: I wouldn’t have used it that much … I haven’t seen RA since before Christmas … so I’ve remembered all those things and I’m thrilled because I didn’t study any of them.

Q: So before that would you have used it daily or weekly?
CM: … If *grandson hadn’t come in today then tomorrow.

Q: So every second day then?
CM: Ya, I would.

Q: And how long then would you use it for?
CM: Oh at least an hour.

Q: Okay so every second day for at least an hour?
CM: Oh god ya, I would ya.

Q: And was there a particular time of the day that you found yourself using it?
CM: No, sometimes if I sit down and play my bridge … then I’d put it away and I’d start on that. I’d always do it during the day, I wouldn’t be tired you see.

Q: Would you have done it in the morning at all or was it mostly afternoons?
CM: …I’m nearly always gone in the mornings … probably Midday would be best to describe it.

Q: Midday or some evenings?
CM: Ya, early evening.

Q: And that was just more your routine?
CM: Yeah exactly.
Q: In terms of visibility you just mentioned your eyesight?
CM: My eyesight isn’t great.
Q: So how did you find that then using the app?
CM: No problem.
Q: Who did you use the app with?
CM: Mainly RA and if RA wasn’t there then *grandson.
Q: And was there any time you used it by yourself?
CM: No, *grandson would come to me always after school.
Q: Could you tell me CM what was the easiest thing you found about using the app?
CM: The easiest thing I found was being able to remember the names of things that were shown on the app.
Q: So if we just opened it there and if you were to look at the app now and you thought what was the easy? In terms of using it?
CM: Pressing the button on the top, it was dead simple after that you’ve to think of nothing and once I knew SANTA was the word I knew just to press the left hand corner and that was it.
Q: So the easiest thing was pressing the button? And then when u saw Santa u knew there it was???
M: Ya ... you saw SANTA.
Q: You knew this was?
CM: Passport.
Q: What was the hardest thing? Anything stuck in your mind?
CM: Nothing, I can’t give out about it in so far as at the moment its simple ... and I’m not finding it hard at all.
Q: And was there anything that didn’t work with it or that you thought could have been better?
CM: No, I couldn’t fault it really ... it’s just so simple, you press the button ... the entry thing there (pointing to it) and it’s ready.
Q: You said *grandson helped you add a category, but were you able to add them yourself?
CM: We were ya.
Q: Could you do it on your own?
CM: I could but... since I got my second stroke ... I can really mix up words and I can really forget spelling.
Q: Yes, so searching for the word is difficult?
CM: Yes searching for the word ... I have to look at everything, but I think maybe ... my sight isn’t helping.
Q: Did you use all the pictures CM or just one particular category?
CM: No all, those ones that were there, there all new ones every single one of them, one two three four, there’s about six or seven of them I used.
Q: And was there one in particular that you used more than the others?
CM: No, I did the cookery first and ... then every week they gave me one ... and then she’d go back over them and say do the whole lot of them again and I could remember them no problem but I think my sight and my memory are my two biggest problems.
Q: Okay, no problem and even when you go in like this Mary how did you find moving it?
CM: I didn’t find that any problem at all.

Band C
Q: Would you say it has made a difference to you?
CM: Shur I’d never have known if I was good or bad at those things if I hadn’t got the...app.
Q: But do you feel it’s made a difference to you?
CM: Oh god I do, I can remember! I showed you those ... 7 or 8 different categories ... I had never looked at those since Christmas ... I’m thrilled with myself that I could remember those things ... and I wasn’t bad at them sure I wasn’t? ... so that’s great.
Q: Would you say it’s made a difference to your communication?
CM: ... I feel my communication is very good, over the last 3 months I’ve gotten way stronger, 6 months ago I was very poor but I feel I’m way stronger now.... I stood up last night at bridge and opposite my 40 members I was able to make a speech and I didn’t think I could do it ... and I stood up and I was able to tell them and I didn’t stop and I kept going!
Q: Do you think the app has helped with that?
CM: It has made me more positive ... and I can thank Sue for it all she’s great, fantastic!
Q: Would you say it’s made a difference to your naming? Naming items?
CM: Oh god it has ... I was very poor, say 12 months ago I knew nothing.
Q: So it’s come a long way since the app?
CM: Ohh yep!
Q: Is there any example you could think of Mary where it’s been particularly useful to you? Particular situations? Anywhere stand out?
CM: I think ... it has helped my memory ... so much, as I said to you if you had taken me in 12 months ago and showed me all this, you would have said to me my god she’s a disaster ... and then to look at me today, I’m chuffed with myself you know, I think I was very good.
*I suppose your example you just said at the bridge club?
CM: Yes, Kathleen said to me “stand up there and talk” ... and I said to them all “you know now I’m not 100%” but they were all behind me all the time..., they were thrilled I could do it ... and I made no mistakes and I was happy out. I’m really delighted that we did this today because I didn’t realise that I would remember ... and shur I was able to keep going, so I was delighted with myself.
Q: Who else do you think it would be suitable for?
CM: ... I’d recommend it 150% for anybody that’s had a stroke. I’ve had 2 strokes and that’ll give you an idea and I’d recommend it.
Q: If you could pick someone, who do you think would like the app?
CM: Well my friend ... got a bad stroke..... and has lost the use of her left hand and leg and .... I’d love to see her use it. But I think anyone that’s had sickness or a stroke or anything like that... I’d recommend it.
Q: Is there anything you can think of as to why it didn’t work for you or something you would improve with the app?
CM: ... I think my biggest problem is spelling, it would take me ages to spell words into the box.
Q: So you would like something to spell the word for you?
CM: Ohh I’d love it.
Q: If you could, do you want to keep the app?
CM: Oh god ya I’d love it! But why wouldn’t I? ... because if I don’t and I don’t keep using the app I won’t be able to keep doing little things that I want to do ... I think I’ve all the time to keep learning and I think the only way I can do that is by the app (ya).
Q: If Sue were to link in with you in a couple of months would that be something you’d be interested in?
CM: I’d be very interested!

Appendix 6.

Statements from ramped interview with CV
**Band A:**

Q: Tell me about the app?
CV: Interesting

Q: How did you get on with SANTA/ the app? Useful was it frustrating was it easy was it difficult
CV: Easy

Q: Rate the app?
CV: Used a rating scale

Q: Rate the app?
CV: 7/10

**Band B: Usability**

Q: How often did you use the app? Was it daily or weekly or monthly?
CV: Weekly

Q: How many times a week did you use it?
CV: 6 times a week

Q: When did you use the app? The morning the afternoon the evening at night?
CV: In the evening

Q: Why would you use it maybe in the evening, Was there someone there to help you or were you alert, was it part of your routine or in your spare time?
CV: In your spare time

Q: How long did you use the app? A couple of minutes? maybe a half an hour or an hour?
CV: A couple of minutes

Q: How many minutes?
CV: 7 minutes (ooo ya (s))

Q: Did you use it by yourself or with somebody?
CV: With somebody

Q: With somebody?
CV: Agreed with a mmm

Q: Did you use it with your wife?
CV: Ya (answered)(s)

Q: Ya and your grandkids? Did they help?
CV: Ya

Q: And did RA help you aswell?
CV: Nodded in agreement

Q: What was the easiest thing about using the app? Was it adding the pictures, tapping/the scrolling, the sounds or using the categories?
CV: Took ramped piece of paper to examine more. Using the categories.

Q: So is that what you found easy?
CV: Ya

Q: Which categories did you use am (got the app and opened up the categories for him to show us) Which categories did you use the most?
CV: The music

Q: Why did you use the music? So did you use music cause it was fun, or interesting, or you liked the pictures?
CV: Interesting

Q: What was the hardest thing about using the app? Was it adding the pictures, the tapping/the scrolling or the sound?
CV: The sounds

Q: Was it the volume or the voice, the volume on the side (demo with ipad) or the lady's voice?
Q: Was it easy to hear?
CV: mmm

Q: Can you hear that ok CV?
CV: Ya
Q: So the lady when she speaks …when she says Scruffy (dog) can you understand her ok?
CV: Oh ya ya
Q: Did you use all the pictures or just one particular category or some categories?
CV: Some (spontaneous response)

Band C

Q: Has it made a difference to you yes or no?
CV: Pointed to yes
Q: How? How has it made a difference? has it made a difference with practice or finding words or seeing the picture or hearing the word?
CV: Finding the word
Q: Has it made a difference to your communication?
CV: Ya
Q: How has it made a difference to your communication? has it reduced your frustration or has it helped with socialising or finding words or better in conversation?
CV: No
Q: So do you think this app would be good for people who have had a stroke yes or no?
CV: Yes (spontaneous response)
Q: And who do you think would like the app? Would everybody like it or people who are good with technology young people or old people?
CV: Everybody
Q: Has it made a difference to your naming? Yes or No?
CV: Ya (Spontaneous response)
Q: Can you give an example of where the app has been useful? like word in a situation or with a person or for an event?
CV: For an event
Q: And so just why do you think the app didn’t work for you? Was it confusing was it boring annoying no delete button too slow too fast?
CV: Too slow
Q: If you could would you want to keep the app yes or no?
CV: Ya!

Appendix 7.

Colour coded interview transcripts
Reactions to the app:

Comments:

All participants wanted to keep the app.

**PM, 65:** It took me a good while to get used to things really... at the beginning when I when I got the stroke first I was I could say things at all... I just couldn’t and then gradually over time you get it you learn over time.

I think anybody who has had a stroke first... could learn from that really... I think the sooner the better in one sense... it helps again anything... that would help you to learn... especially at the beginning..... it’s very important really.

I would ya yes keep it.

That’s helpful I think it’s very helpful.

**MJ, 89:** No... It was easy enough. Some things I enjoyed.... More times I didn’t enjoy it as much as I used to. ...

No no I don’t need it? 'Cause I have it here.

Would I ever use it - Oh no I’d need it then.

**CM, 70:** Oh god ya I’d love it! But why wouldn’t I? ... because if I don’t and I don’t keep using the app I won’t be able to keep doing little things that I want to do ... I think I’ve all the time to keep learning and I think the only way I can do that is by the app (ya).

It’s like a small little computer... it’s fantastic.... it shows you pictures...

Very satisfactory is the word I’d use.

it’s fantastic...

we did this today because I didn’t realise that I would remember ... and shur I was able to keep going, so I was delighted with myself.

It has made me more positive ...

**BA, 75:** You can have you know you can have eh fun with them you know and

Ok

**NA, 68:** Various bits and pieces I’ve learnt...from the music it’s made me understand better... how the music is protected.

the words helped me yes they did.

I found it difficult at first, frustrating ... but then it was a case of as people explained it, showing me various areas ... getting used to using the words, it got easier.

Technology

**NA, 68:** Again it’s a technology thing.

No not the technology of it

I know what it is but how to actually use it is another thing.

if you’re using it you’ve got to have the knowledge of how to use it. +

**CM, 70:** Eh I don’t know enough about electrical things probably.

**MJ, 89:** No sure... I never had this til so and so showed me to do it.

Q: The iPad have you ever used this before? Before your..Oh I have ... I have I used it before... Oh I did...I was good at it like, you know I was... always doing places with it.

So you like technology? Yeah I like that... But this thing, like I know this I can understand this...

It took me a while

**PM, 65:** The app am it just took me awhile to get used to it... I wouldn’t be used to... those...

gadgets... I’m not used to mobiles and all that stuff.

no I wouldn’t be... I have a mobile alright but I you know I just use it just to send message or you know here you know if somebody rings me or that’s about it really... I just use it I’m not one that uses continuously.

at beginning took awhile to get used to it.
I could understand the voice okay.
Oh I could understand the voice okay.

Any changes you would make to the app? No.

I think the fact that you could see a picture…. use the person that was speaking really...
sorry the voice yes….. I think that that helped.
I can’t say there’s anything that was difficult… once I knew the sequence of using it It was ok.
I find it easy.

Pressing the button on the top, it was dead simple after that you’ve to think of nothing
and once I knew SANTA was the word I knew just to press the left hand corner and that was it.... Ya
... you saw SANTA.
Okay, no problem and even when you go in like this Mary how did you find moving it?  A: I didn’t find that any problem at all.
No, I couldn’t fault it really … it’s just so simple, you press the button … the entry thing there
(pointing to it) and it’s ready.
Nothing, I can’t give out about it in so far as at the moment its simple … and I’m not finding it hard
at all.

I kept making a mistake again and again on those ones really nothing else that I can
think about really... other than I just couldn’t change once I made a mistake.... I couldn’t change the
mistake that’s the main thing really.
Some things I picked up quick because I’m used to it really maybe but other words other things I
wouldn’t
Except ones you know what I mean I made a mistake on
they picture that I picked that I selected wasn’t do you know it wasn’t… When I came back to it
again I kept making a mistake about it.. because it wasn’t one was I would ass associate with it
because you could pick anything on the google…. anything can come up and you know its just am
sometimes you can pick the wrong ones
what I mean did a mistake on it because...the parts am the categories weren’t correct
I couldn’t delete it... I couldn’t stop it and change it
Because maybe they weren’t American ones or whatever I say this is not connected to am this
subject
It was ok it was correct really except now and then a few times I didn’t they picture that I picked
that I selected wasn’t do you know it wasn’t…
It did yes.... But even still after that I still made a mistake afterwards.

Do you mean when u picked a picture and trying to get the voice to match? Ya!! To get
the voice to match the picture
Don’t know what was easy about app
To get the voice in the correct way of using it, I found that difficult.... Too slow.

Scrolling

Just an old memory, my old memory.

It helps my memory and that’s the thing I liked the most about it.

Why use the app?

if you could add people onto it and people’s names to write them in...So if you could and
it’s when I’m talkin’. I talk to a lot of people but ...when people are out and we’re talking they’re
saying the words... the names. And maybe I’d talk about, say for instance “do you know ... such a
one” or “such a person” and they’d say the word...  The names you see, but I wouldn’t be able to
say the name... But I’d know it then .. immediately.. the name is mentioned and I’d know it then so
we’re talking away...
do something like that now ‘twould be... (gestures thumbs up) And I could be able to use maybe them names again ... because when I’m talking with people... I want to write down people...
Maybe somebody you’d know or maybe someone I used t’ know and that was their name and if I was writing something down...
Well they’re all useful like if I can - if I know, eh, Tommy Brennan say, I could say the name Tommy Brennan.
Oh yeah, at times like you know. Sometimes as... what was the name..., tell me the name of the,... anything there.
Names of people yeah.
People ...and the names... if I could write their names ... I’d like that. But if I had the name yeah, if I had the name.
Well, generally you see, if I’m talking to someone...that’s a problem...’cause generally what happens is ... they’re talking about someone... And I might say well “you know such a one...?” I’d say like that “What’s this his name is?” and they tell the name ... Someone else would say it.
Oh if I knew ... If you wrote down all the names of people... and I could use that “I’d write down Tommy Brennan there and, I could ramble away then maybe about Tommy Brennan.
But... names are the thing that I’m ssstuck on. If I got ... this with names like that then I’d put Johnny or Mikey or whatever the name down there.
That’d be great wouldn’t it?
Say it out but I can’t say it out. I’m not able, I’m not able to talk. I want the name. Well in conversation you see they’d have it where I wouldn’t have it.. the name. You see there’s a lot of people and things locally around here you see and I just can’t get the name right.
Yeah And supposing you tell me about the name, I remember, I know it then but to get that name like I don’t know that name. ....I know the people but I don’t know the name....that’s the thing ... it’s... (frustrating).
You see what I’m talking..., I want to talk about people. I want to write about people. ....I’m talking about someone I can’t get the name ...and ...I’d like to get the name...
....I know the people I want to say but I can’t say the name.
No well it’s important... to be able to say something and know exactly what I’m saying.. the voice helps when you need it? Oh it does, yeah.
If I could get names like that, a lot of names, names would be great. Like you know, I could want such a name, “Oh jeez I know his name? I want his name and I want to talk to him”.
So you’re able to read single words and that? You’re able if the name was written there ....Oh I am yeah, if you tell me the name of someone I know. Now you can’t tell me a name you see I don’t know what his name is.
But you see it’s just names, hold it let us see now, hold a second to see now...
So if you had your friend or neighbour, like this, you’re saying with the name on it, it would help....
Oh yeah if their names were in that you know?
But, but someone said look will you write that thing, I could write it in you see.
more useful for you if you have pictures of people on there- It is, but if I knew who they were and the name on them. I could talk... I could ramble away then you see.
... This is the thing, say these are some things that... we might not be using ever again you know. I might have a car - a new car. I don’t have to buy or talk about a car again anymore ... You don’t need to talk about it anymore.

Support:
(PM, 65): I was you know RA was telling you know...she would say you know this and sometimes.. I wouldn’t she’d have to use it again...she went a few did certain number of ones and then we added to it you know
I couldn’t think of all you know first in different ones and then gradually she.. added more to it really or she helped me to add to it
Like asking what do you what are you interested about this and what about this... Cuz really that’s part of the thing I can’t remember things
because I forget about things I can’t remember things
I use it you know that during the week that that person came... I went through a few times you know am during that week...but after Christmas you know Christmas to be honest with you I just forgot about it to be honest... she used to come every week
it did for awhile.... maybe I didn’t try enough
Just myself
I would want support a bit

(CM, 70): No, she (RA) nearly did it with me all the time and there was nearly always a category that she made me study...I thought I did very well because if you asked me 6... 3 months ago what she was doing ... I wouldn’t have a clue.. so I’ve come a long way.
If *grandson hadn’t come in today then tomorrow.
Mainly RA and if RA wasn’t there then *grandson.
No, *grandson would come to me always after school.
I hadn’t a clue what I was doing but Ben would show me how to turn it on and things like that, but that was fine.

(MJ, 89): Very little... not much. I stayed on my own like you know and I’d be concentrating...
Mostly by myself.
I’d be concentrating on what’s id be doing
...Ohh yeah, Gillian was there ... she was always asking me questions.
Gillian would the only one like...
Gillian, okay. So she probably added those for you did she? Yeah probably, someone like that.
Oh Gi Gi Gi... all the girls.
Oh Gillian, probably, could be Gillian, yeah. Oh yes they did that.
‘cause you’ve new pictures here- They did that yeah
Would it say the word for you?- It’ll tell me then yeah ...I understand that.
if you didn’t get it then you’d press the button. Yes

(NA, 68): Well I didn’t get enough people to give me a hand using it
Yes! It took a good couple of days but trying to get it across to other people took longer
Then trying to get the time for the girls to come and do it, that’s another thing.
But as I said the idea is to link in with somebody at the time.... It would have been a help to me they couldn’t always get the time to do it.
Always one of the carers at their time to come in
She gave me a hand on occasions but then that when she’s available granddaughter
No mainly the girl here
some of the girls came around alright ... I said I’ve got this here show me the best way
to use it. Yes that hasn’t been practical yet? asking the staff

Patterns of use:

(PM, 65): it does it tells you whether your right...it’s a way of am of finding out am finding out what was right or wrong

(NA, 68): I actually never took it with me when I went shopping so it wasn’t a case that “oh, that’s a word I remembered!”. No stand out moments, Not used as a AAC

(MJ, 89): ...It would come easy to me. I’d ask the question again., and I’d have to say ...
what the name of that was... before I’d do it myself.
No I’d leave it ‘til I talk myself and if not, I’d question it.

(PM, 65): then in the afternoon after a sleep and that I would be much better to be honest with you...
Even though I waken up early in the morning
usually at night am the evening shall we say well generally speaking in the afternoon i go asleep because i tired.. i was doing that since had my stroke... i’d feel much better after nap

i would actually to be honest with you often in the morning.. i waken up early and then i get tired... after awhile and then if i get fall asleep for awhile.. i be ok know what i mean i feel refreshed really did definitely anything like that would....would of have helped really...so long as i i wasn’t tired...if i’m tired i can’t dya know i’m not great

(cm, 70): probably midday would be best to describe it.

no, sometimes if i sit down and play my bridge ... then i’d put it away and i’d start on that. i’d always do it during the day, i wouldn’t be tired you see.

(na, 68): mornings for handiest sake. – someone to help

(mj, 89): the mornin’.... maybe the evening? i’d be bits of times, sometimes, bits and pieces

morning and evening.. maybe

(cm, 70): i wouldn’t have used it that much ... i haven’t seen gillian since before christmas ... so i’ve remembered all those things and i’m thrilled because i didn’t study any of them.
every second day- ya i would

oh at least an hour

(mj, 89): i don’t stay that long at it.
well i would say half an hour

yeah.. with myself.
i didn’t practice it much but i learned a lot of it and i knew pieces of it. but... sometimes i mightn’t remember... it’s remembering ... a word... i might be slow on it sometimes. and after...immediately then...it’d (the app) tell me and i’d remember, i’d think of it.
i don’t use it often.

less than once a week- yeah, it could happen.

when gillian used to come to visit- yeah...she was doin’ something... she was doin’ a bit.

would she help put on new pictures- well they would, they’d help me like that with anything...yeah. ah she would

well it’d be half an hour anyway or maybe an hour sometimes.
i’d just take it up for a few pages (minutes).

when you were feeling more awake and alert? - ah.. i suppose when...

(pm, 65): about three times a week

i may go through once no bout twice

because really i kept going until i finished and then i start again

i went through everything...i saw it as a thing to do

because you know when i was using it i thought well i should i thought it was part of the whole am unit... rather than the stopping rather than and leaving it i kept through it

(ba, 75): i go to the seaside

everyday

i do all categories

i more than myself you know

(cm, 70): no, i did the cookery first and ... then every week they gave me one ... and then she’d go back over them and say do the whole lot of them again and i could remember them no problem

ok so every second day you use it? o god ya i would

(na, 68): not long ... not often enough...

daily... because i had to try and get the girls to come down and explain things and then that took time.

i’d try and have to do that myself each time.

well ... not often in the way to use it and they couldn’t always get the time to do it.

well if i did it myself, daily.
15 minutes/half an hour and then trying to get it across ... and me thinking about it each time takes longer again.

**Time get shorter as you got more familiar with it-** No, not really.

One particular category each time

No I used them all just to get the best way of doing it

**Significance to Aphasia**

**Barriers:**

**CM, 70:** I think my biggest problem is spelling, it would take me ages to spell words into the box.

Q: So you would like something to spell the word for you? A: Ohh I’d love it.

Q: In terms of visibility you just mentioned your eyesight? A: My eyesight isn’t great.

Q: So how did you find that then using the app? A: No problem.

Q: Yes, so searching for the word is difficult? A: Yes searching for the word ... I have to look at everything, but I think maybe ... my sight isn’t helping.

but I think my sight and my memory are my two biggest problems

I could but... since I got my second stroke ... I can really mix up words and I can really forget spelling.

**MJ, 89:** No No I’d have to get it sure (S: “You’d have to get it first, ok”) Well naturally I wouldn’t be able to read.

**NA, 68:** Too slow, the explaining side of it.

Getting it across about certain things to other people, annoying, trying to explain it

The idea of explaining how to use it

Each person has a different has a different idea of how to use it... I would know how to do it but trying to explain the same thing to someone else takes a going

**Change-** trying to explain to other people ... trying to get in their mind how to change it was like hitting a brick wall

it did trying to get it done then – because the girls would be here but they’ve got their own times to do things and work and trying to get them...I’d try and have to do that myself each time.

**Benefits:**

**MJ, 89:** But... sometimes I mightn’t remember... It’s remembering ... a word... I might be slow on it sometimes. And after...immediately then...it’d (the app) tell me and I’d remember, I’d think of it. Oh I did. ...something that I wanted to say and I couldn’t say it and then when ... it told me, I was able to know.

Q: So it was something that helped you with words that you were not able to get?

**MJ:** Yeah! Yeah oh it’s a great difference. Because I wouldn’t be able to talk otherwise

**PM, 65:** I got used to it really in a sense...after awhile I I got used to it very much...After a while ya I can remember the things

well it does really in a sense that anything that would help you to learn things using subject that were I knew.. rather than ones im not used to at all... ones that I can use that I would be interested in generelly as long as the word they weren’t am ones that you weren’t use some subjects would be kinda if I wouldn’t know.

I learned from the ah the pictures....followed if you listened to it I got it

You see again you listening to... pictures and... then you join it up to a words really and that’s helps really... especially if you... using usual things you know words that you are am words that are that use each way each day

its like anybody you know if I was saying something and am somebody else says what it is it helps me to remember what it is or what the word is.... I might know what it is but I want I may not be able to say it
it has definitely... because again once you know you can pick up what was one it really and it helps you to learn it after a while and especially hearing the person saying it ... you learn what and once you say it again you can learn it really
I did like the fact that it was you know I was going through it and I could generally speaking know what was coming you know really

(CM, 70): Oh god it has ... I was very poor, say 12 months ago I knew nothing.
... I feel my communication is very good, over the last 3 months I’ve gotten way stronger, 6 months ago I was very poor but I feel I’m way stronger now..... I stood up last night at bridge and opposite my 40 members I was able to make a speech and I didn’t think I could do it ... and I stood up and I was able to tell them and I didn’t stop and I kept going!
Shur I’d never have known if I was good or bad at those things if I hadn’t got the...app
Oh god I do, I can remember! I showed you those ... 7 or 8 different categories ... I had never looked at those since Christmas ... I’m thrilled with myself that I could remember those things ... and I wasn’t bad at them sure I wasn’t? ... so that’s great.
I think ... it has helped my memory ... so much, as I said to you if you had taken me in 12 months ago and showed me all this, you would have said to me my god she’s a disaster ... and then to look at me today, I’m chuffed with myself you know, I think I was very good.
Yes, Kathleen said to me “stand up there and talk” ... and I said to them all “you know now I’m not 100%” but they were all behind me all the time..., they were thrilled I could do it ... and I made no mistakes and I was happy out. I’m really delighted that we did this today because I didn’t realise that I would remember ... and shur I was able to keep going, so I was delighted with myself.
Oh god I do, I can remember! I showed you those ... 7 or 8 different categories ... I had never looked at those since Christmas ... I’m thrilled with myself that I could remember those things ... and I wasn’t bad at them sure I wasn’t? ... so that’s great.
The easiest thing I found was being able to remember the names of things that were shown on the app

(NA, 68): When I’ve been using it, as I should be using it, yes it has made a difference
+ (easy) On the odd times I’ve actually used it, if one of the girls gave me a hand it’s made it a lot easier.
The words come easier for me, the pronunciation of type of word.
Well the words coming out became a lot easier to use.
More practice than saying because when you see the word it was easier to find the pronunciation

Found it helped with music and words? Oh yes definitely
(BA, 75): No its help me all through
I can speak more you know
Ya very much difference

Client recommendations for users:
(NA, 68): Yes it would actually –help pp with a stroke
O no id no problem when it came to food and music on the thing id no problem I could use it alright.
It could help with assistance
Having never had a stroke I wouldn’t be able to verify that sort of thing but I can understand the possibility of that happening.
If there was someone here that had a word missing somewhere along the line I could say o yes this could help them with that.

(PM, 65): it helps you to do that really
one of the problems is that I can’t while I know I say I i know what word is I cant always say it say it clearly.... And I stutter and I say I could I just can’t get it
I think the sooner the better in one sense...it helps again anything anything that would help you to learn...especially at the beginning..... it’s very important really
I think especially if you have a stroke... and you can’t remember things at the beginning dya know its good to... remember things.
Everybody id say I think
anything that would help you help a person to... go through things again and learn things really it would it would help

(CM, 70): Well my friend ... got a bad stroke..... and has lost the use of her left hand and leg and ...
I’d love to see her use it. But I think anyone that’s had sickness or a stroke or anything like that... I’d recommend it.
... I’d recommend it 150% for anybody that’s had a stroke. I’ve had 2 strokes and that’ll give you an idea and I’d recommend it.

(MJ, 89): No it’s not difficult.. I say.... The shovel, the fork, the ‘car’, I can write ‘car’.
J: Oh I’d say yeah... definitely.
J: Oh, how about me? Ha? (Laughter) Are you not telling me at all, you’re telling about somebody else.
J: Oh definitely, you see... yes certainly, ‘twould help everyone. ....Naturally, if you were talking or trying to talk to someone... your speech is gonna be affected like that.... But, I’m not too bad, I’m improved, fairly good.
J: I can ramble away (Laughter)
J: I can I can (laughter)
J: The very same way as I’m doing, as I’m saying - the same thing. They have to be able to talk the same as I’m trying to talk. And especially what you’re trying to talk... you’re not able to say - I’m able to try to say, sometimes I manage ... the only thing I miss is the name...
Colour coded ramped interview transcripts

Reactions to App

Comments:
(BA, 75): Interesting
You would ya ya I would keep the app
(CV, 72): Interesting
Interesting – pictures
Keep yes
7/10
(NA, 68): Q: So, I’ll just show you some options, was it confusing, boring?
A: Oh it’s not boring, definitely not boring,
Q: Annoying, no delete button, too slow, too fast?
A: Too slow.
Q: So if I maybe throw out some words and if you were to pick one, if the word was fitting, I have pictures here aswel, C: So do you think it was good, bad, neither like it nor dislike it?
A: Indifferent.
Q: C: Did you find it confusing, boring, annoying?
A: No, indifferent.

Technology:
(BA, 75): it took long to get used to it use to technology

Easy
(BA, 75): Categories
Adding the pictures
Found speaker grand
(CV, 72): Using categories

Difficult
(NA, 68): Q: So adding the pictures, the tapping, the scrolling?
A: Scrolling ya.
Q: The sound, or using categories?
A: Ya, that sounds ah...
Q: What was the easiest thing adding pictures, tapping, the scrolling, the sound, or using categories?
A: (Pause for 5 seconds), the scrolling.
Q: Ok, the scrolling was the easiest, so when you go down like this (motioned scrolling)?
A: Ya, going down like that.
Q: What was the hardest thing about using the app? Such as adding the pictures?
A: Adding the pictures, I’d say because ah… it’s part of it.
Q: Or the sound or using the categories?
A: Getting the sound right. (ok).
Q: So adding the pictures and the sound were the most difficult things and when you say sound was it the level of the voice or the volume?
A: The volume.
Q: You could understand the voice okay?
A: Oh I could understand the voice okay.
Q: Do you mean when you picked a picture and getting the voice to match the picture?
A: Ya.

(CV, 72): Too slow +

(BA, 75): Too slow – make faster +
Delete button – o it would ya +

Using the app
Support:
(CV, 72): With somebody – ya wife and grand children

Patterns of use:
(BA, 75): Twice a day
A lot of (categories)
One hour
Yes a routine – alert
I use it am afternoon time
She would say the word first and then check if she was right

(CV, 72): 6 times a week
Couple of minutes
Some pictures
Music
Weekly
In the evening
In spare time

Significance to Aphasia
Benefits:
(BA, 75): Does ya difference to communication
Find the right word
(CV, 72): Difference to communication yes
Difference to him yes
Finding the right word
Difference to naming yes
For an event

Client Recommendations for users:
(CV, 72): Everybody
Yes- for people with a stroke
(BA, 75): Everybody both young and old
It would ya it would – people with stroke
(NA, 68): Q: So, young people and anyone who has difficulty with words they would
be your top people you could see using the app?
A: Ya.

Q: Do you think this app would be useful for people who’ve had a stroke, everyone,
people good with technology or old people?
A: Well young people with the technology we have now, including myself but everyone
that not only had a stroke but has a problem with words, there’s a lot of people here that
have that problem.