Evaluating the Use of a Web-Based Assessment of Reading for People with Aphasia.

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Introduction

Aphasia is an acquired communication difficulty post-stroke which can affect all aspects of communication. Reading difficulties are common in aphasia, with understanding affected in many different ways from problems dealing with complex paragraph level information (e.g. reading books) to problems understanding short sentences and single words (e.g. on signs, menus, in shops) [1, 2].
In a recent research project funded by the Stroke Association, the Comprehensive Test of Reading in Aphasia (CARA) was developed.

The CARA assesses:
• Comprehension of single words;
• Comprehension of sentences;
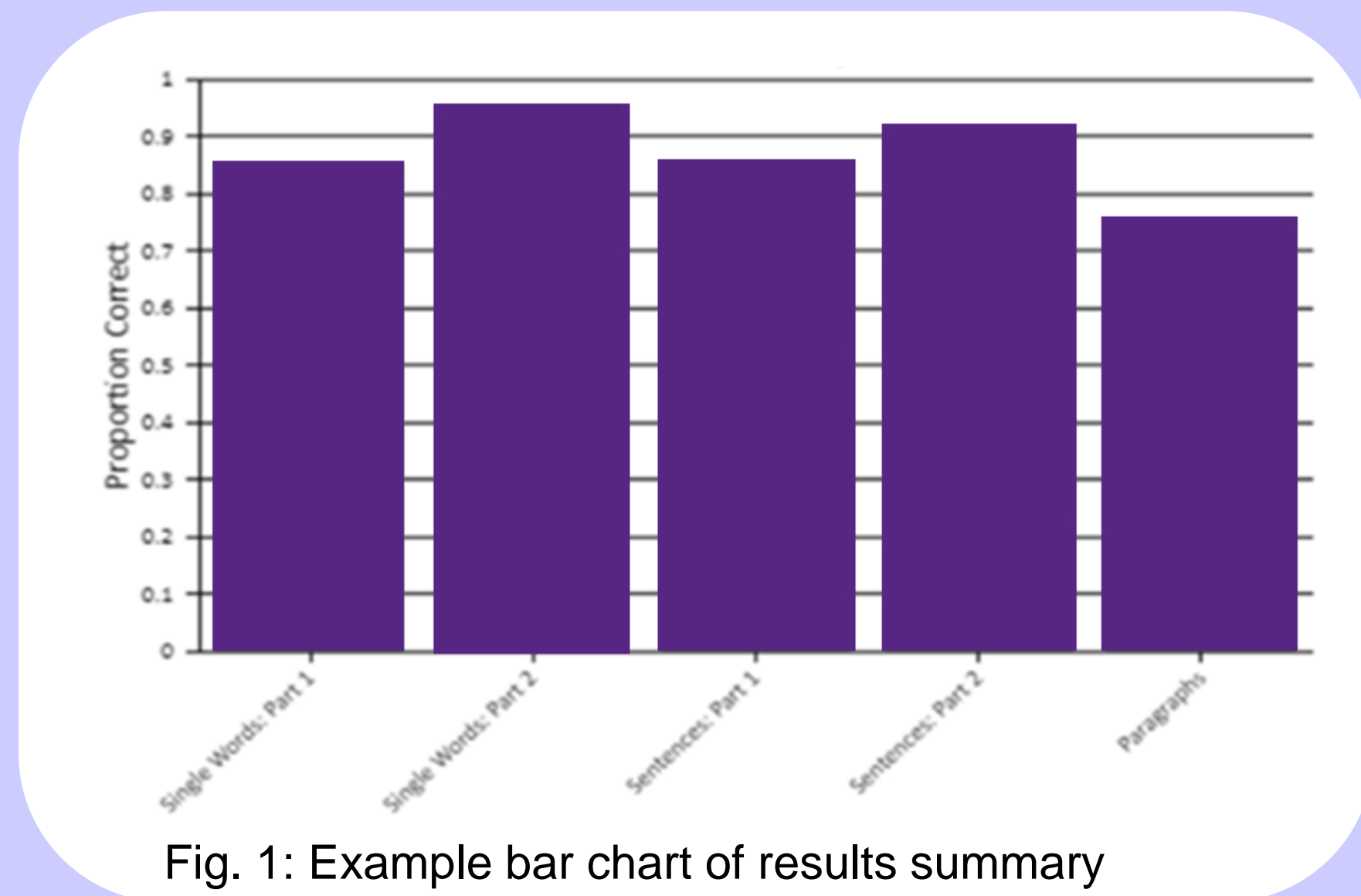• Comprehension of paragraphs.

Fig. 1: Example bar chart of results summary

Currently Speech and Language Therapists (SLTs) predominantly use paper-based assessments, with manual presentation, scoring and analysis of the results by SLTs. There has been a recent emergence of web-based assessments. Possible advantages of a web-based CARA include the ability to monitor speed and accuracy of reading as well as standardising presentation and analysis.

The CARA produces an automatic report of client performance which is a development in the field. This contains:
• Tables for each sub-test showing breakdown of scores.
• Bar charts for each sub-test and an overall summary providing a visual representation of scores (Fig. 1). Results are provided in proportion correct.
• A breakdown of whether the response was the target/distracter word including colour-coded reading speeds for items in sub-tests.

Aims

The aims of this scholarship project were to:
1. Investigate Speech and Language Therapist (SLT) views regarding the ease of use and presentation of the pilot of the web-based CARA and the usefulness of the client report.
2. Investigate the views of people with aphasia (PWA) regarding the format of the web-based CARA, how they would feel completing it and what feedback they would like after completion.

Methods

Mixed methods of:
• a survey to collect quantitative and qualitative data from 17 specialist SLTs regarding their views on the format of the pilot of the CARA and client report.
• a focus group of 6 PWA from the Aphasia Research User Group. Questions focused on their views on the format of the pilot of the CARA, how they would feel taking the web-based version and what feedback they would like.

Results and Recommendations

Results were fed back in a meeting with the Digital Institute to discuss and implement changes.

	Views of SLTs	Views of PWA
Assessment	•Ratings regarding the ease of use and format were positive (see Fig. 2). •SLTs desire a choice between the paper and web-based versions. Concerns/ suggested changes included: • that participants be able to correct their answers. • including progress bars in sub-tests. • the link between the arrow between items and the ability to time answers needs to be explicitly stated in the manual.	• Responded well to web-based version. • Desired larger navigation buttons. • Prefer instructions to be short sentences with key words enlarged. • The group mainly preferred web-based assessment but stressed importance of choice. • The paper version may be better for eye-sight difficulties. • The web-based version may be better for using non-dominant hand to respond.
Report/ Feedback	• "The colour coding for speed of reading is extremely useful." • "For the clinician there is enough information but far too detailed for service users." • SLTs recommended labelling the distractors as to how closely related they are to the target word in the result tables. • Bar charts were deemed beneficial but there was widespread consent that results were provided in percentages rather than proportion correct (Fig.1). •The generated report saves time.	• Amount of desired feedback varies amongst clients. • Desire scores and how they relate to everyday reading, how SLTs can help and ways PWA can help themselves. • Desire 1:1 feedback through discussion straight after assessment. • A summary report should be optional for clients and families. • Felt including bar charts in the report are visually useful but would like this measured in percentages rather than proportion correct (Fig. 1).

Fig. 2: Pie chart of overall ease of use

How SLTs rated the overall ease of use of the web-based CARA
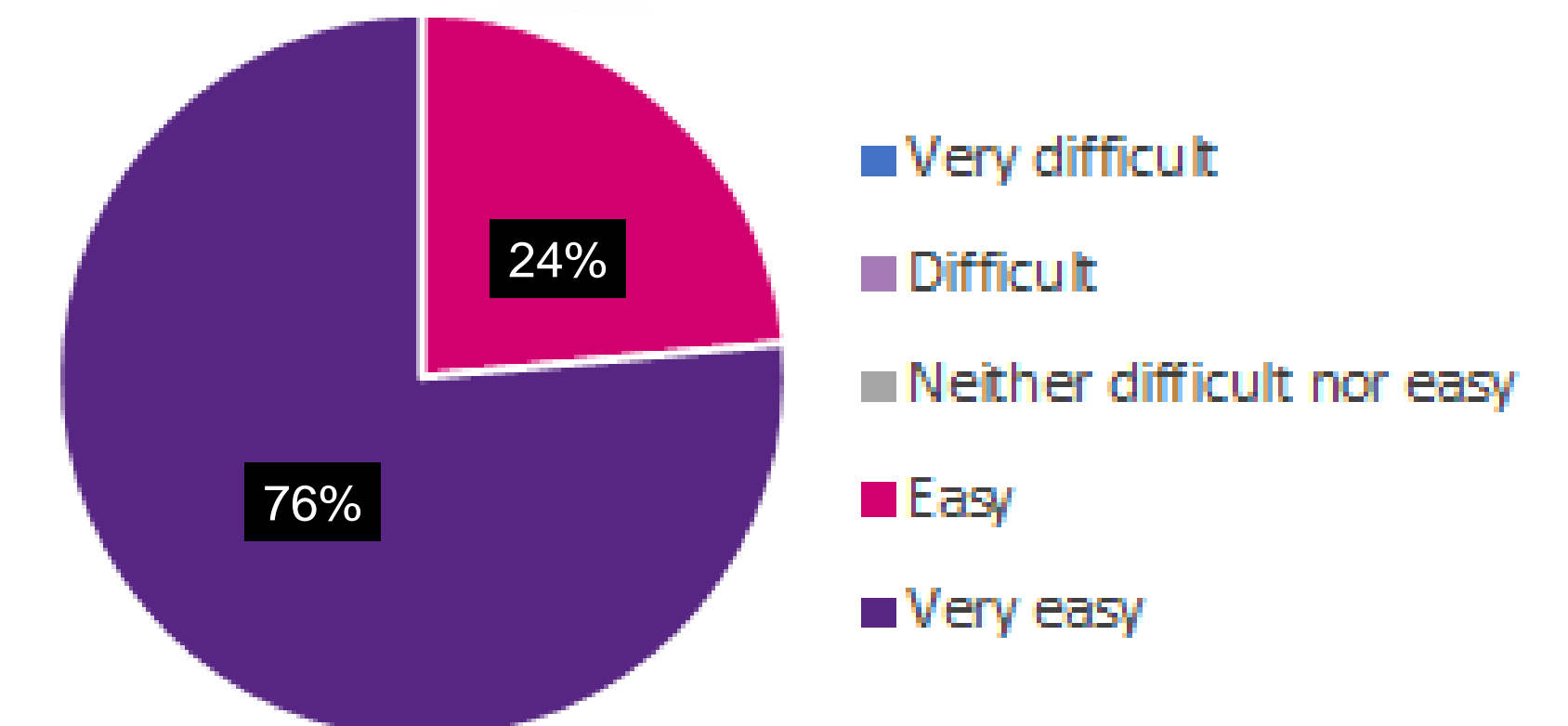- Very difficult
- Difficult
- Neither difficult nor easy
- Easy
24%
- Very easy
76%

Conclusion

• SLTs were positive regarding the pilot of the web-based assessment and its ease of use however did provide recommendations for change as noted.
• SLTs continue to want paper based assessments alongside the web-based version for flexibility and because of technical constraints.
• SLTs felt that the report would save them valuable clinical time and contained all the desired information.
• The majority of PWA stated preference of the web-based assessment over a paper-based assessment however made suggestions to make it more aphasia-friendly.
• PWA stressed that desired feedback varies from client to client and that the provision of a summary report should be optional.

References [1] Knollman-Porter, K., Wallace, S.E., Hux, K., Brown, J. & Long, C. (2015). Reading experiences and use of supports by people with chronic aphasia. *Aphasiology, 29*(12), 1448-1472.

[2] Brookshire, C., Wilson, J., Nadeau, S., Gonzalez Rothi, L., & Kendall, D. (2014). Frequency, nature, and predictors of alexia in a convenience sample of individuals with chronic aphasia. Aphasiology, 28(12), 1-17.