

# See what you say...

Validating a new pictorial written therapy resource for use with people with aphasia following stroke

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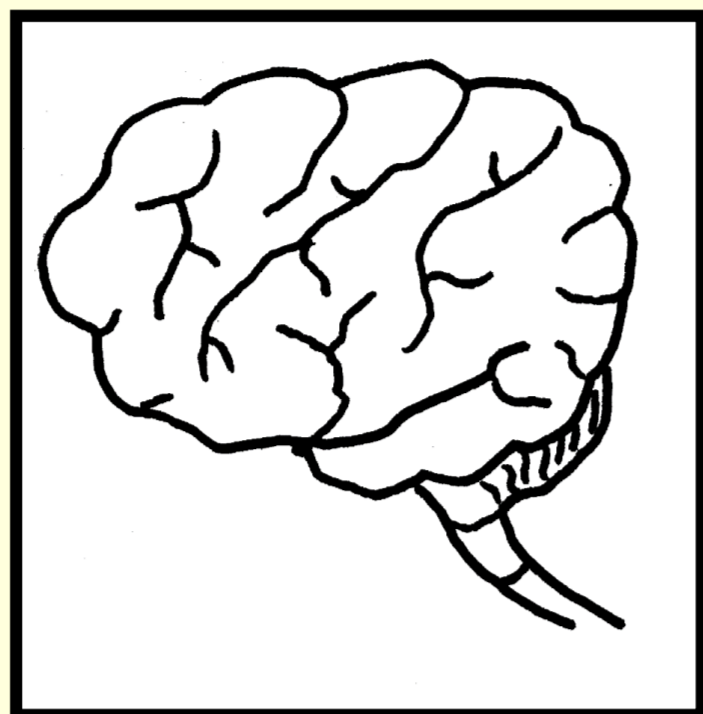
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## Introduction

There are 1.2 million stroke survivors living in the UK, 33% of whom have aphasia, which is a speech, language and/or communication difficulty caused by stroke [1]. Newcastle University Speech and Language Sciences are developing new picture-based worksheets to support stroke survivors to relearn how to write useful, everyday words. Speech and Language Therapists (SLTs) often use pictures to prompt people to write specific words in therapy tasks and assessment. As the pictures in this new resource have been created specifically for the resource, nobody knows how people will respond to them.



## Aims

Therefore this project aims to find out:

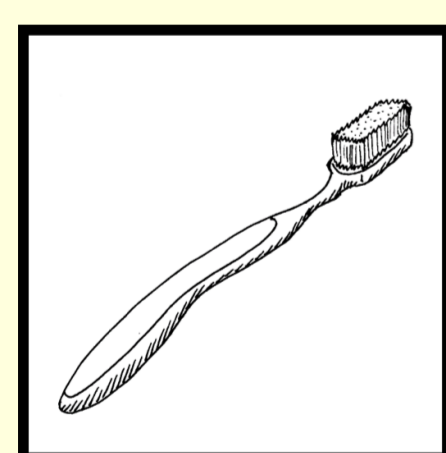
- What words do people think of when they see the pictures (**naming agreement**)
- How well do people think the pictures represent the words they are supposed to (**word-picture match**).

It is predicted that the most highly imageable words will get the highest naming agreement (*imageable* meaning that they easily "give rise to a sensory mental image" – and are thus easier to depict as a drawing)[2]. These are concrete words like *cat* or *house*. More abstract, less imageable words (e.g. *divorce*, *why*, *fun*) are likely to have lower agreement – as they are harder to depict as a drawing.

Most words should be rated highly for appropriateness, as they were created specifically for the resource, but this is hard to predict.

## Say what you see...

What words are these pictures trying to represent?



TOOTHBRUSH  
Not Abstract

100% of people named correctly



WHY  
Very Abstract

5% of people named correctly

Other Responses:  
what (5), how (4), unsure (2), confused (1), thinking (1), I don't know (1), undecided (1), don't know (1)

## Methods & Participants

338 pictures were separated into 2 sets, A and B. These were used to produce questionnaires asking people to name (write a word for a picture) one set, and rate word-picture matching (score 0 = picture does not represent word at all → 4 = picture represents word very well) on the other set. These 2 questionnaires (name A + rate B / name B + rate A) were emailed out to people.

There were 69 responses, with a skew towards women (85%), in the age-group 21-30 (55%), probably as a result of the demographic sampled (ECLS Staff and Students).

## Discussion

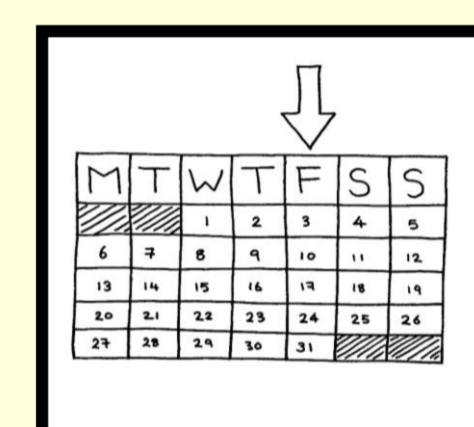
Word-Picture Match scores were in the top half of the scale for all but 3 pictures – meaning people thought most of the pictures represented their target word well, or very well. This makes them appropriate for use in the new tasks where they will be accompanied by the word, and acting as a prompt.

Naming agreement was also generally high. Some pictures had more variable agreement and these might not be appropriate for use in initial assessment, but they were still rated well for matching, meaning they will work well in therapy tasks. As expected, most of the words achieving 100% naming agreement were concrete nouns (e.g. *car*, *bread* – words that are the least abstract).

The adjectives and verbs that achieved 100% agreement are 'highly imageable' in that they "give rise to a sensory mental image"[2]. This definition links to 'grounded cognition framework', which suggests concrete words are stored in the brain using sensory and motor information (how they feel/what you do with them), and abstract words stored using emotional or social information (emotions/situations associated with the word)[3].

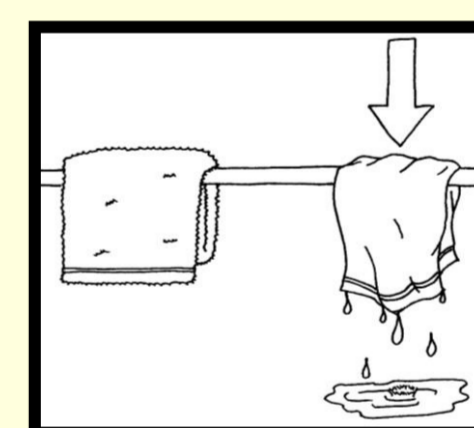
When taken together, the 'sensory mental image' definition of imageable words, and the 'grounded cognition framework' theory of word storage, could explain why the majority of words achieving 100% naming agreement were concrete nouns, and the rest were either:

- represented by highly conventionalised symbolic pictures (e.g. **FRIDAY** with a calendar)



FRIDAY

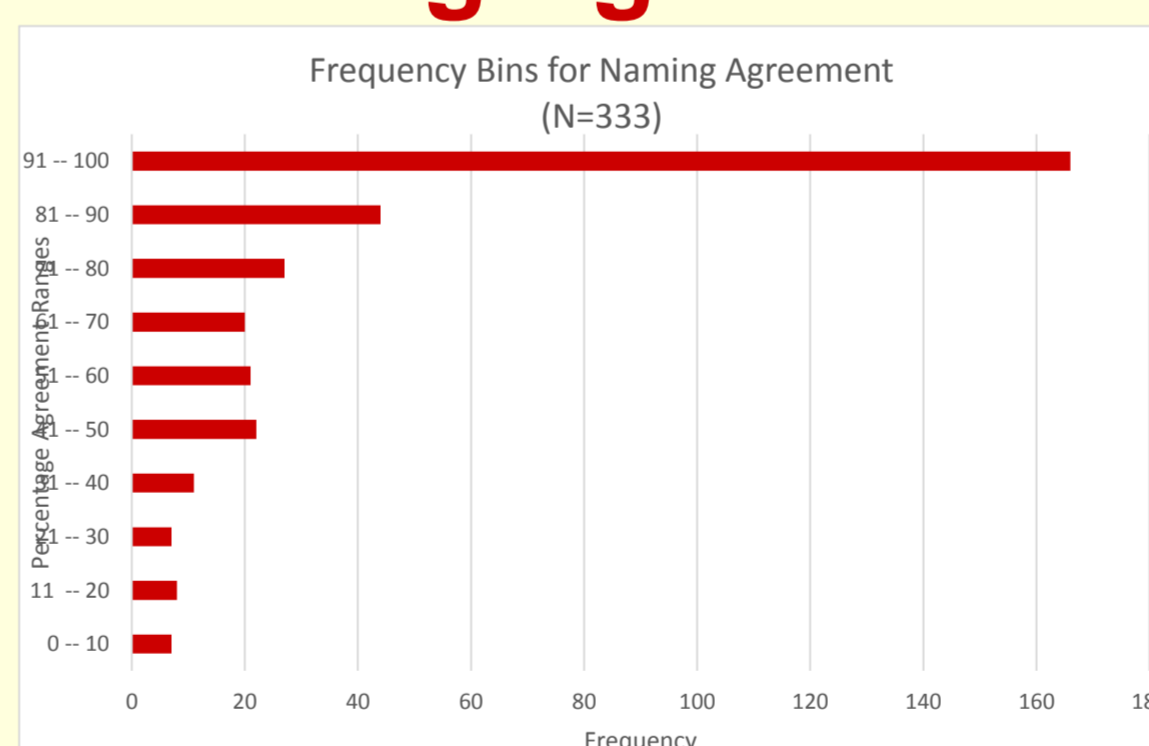
- or were themselves highly imageable from a sensory point of view (e.g. **WET** – dripping towels).



WET

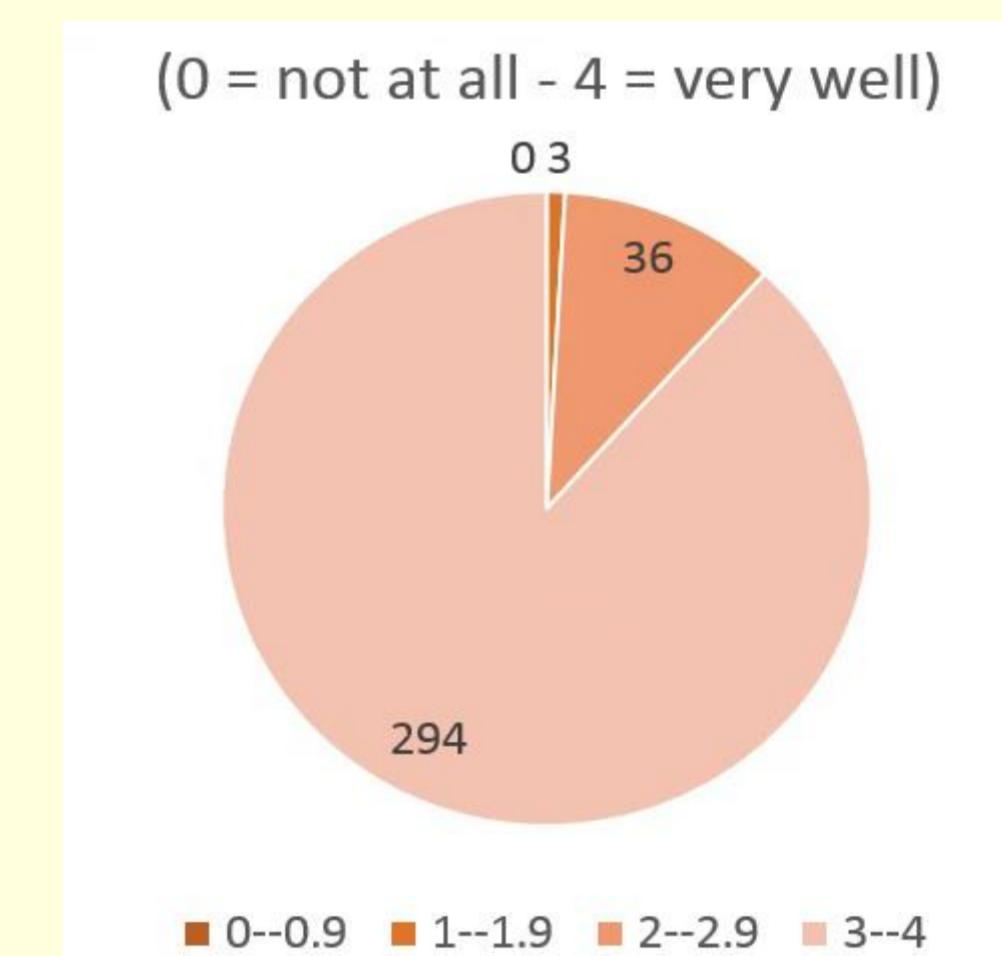
## Results

### Naming Agreement



The majority of words (166/338) achieved 90% naming agreement or higher. Few words achieved less than 50% agreement (55/338) and even fewer received 0% (4/338). 110/338 pictures achieved 100% naming agreement – meaning all respondents wrote the same word.

### Word-Picture Match



All but 3 pictures were rated in the top half of the scale for word-picture matching. 53/338 scored the maximum rating of 4 (very well).

## Conclusion

Overall, this project found that naming agreement and word-picture match ratings were high for this picture set. Therefore their **use for their intended therapy tasks is justified.**

### References

1. Stroke Association (2016). State of the Nation Stroke Statistics. Retrieved from [https://www.stroke.org.uk/sites/default/files/stroke\\_statistics\\_2015.pdf](https://www.stroke.org.uk/sites/default/files/stroke_statistics_2015.pdf)
2. Bird, H., Franklin, S., & Howard, D. (2001). Age of acquisition and imageability ratings for a large set of words, including verbs and function words. *Behavior Research Methods, Instruments, & Computers*, 33(1), 73-79.
3. Ghio, M., Vaghi, M. M. S., Perani, D., & Tettamanti, M. (2016). Decoding the neural representation of fine-grained conceptual categories. *NeuroImage*, 132, 93-103.