

RESEARCH ACTIVITY: Phonemic similarity

According to Alan Baddeley (1986, 1990), the phonological loop was theorised, in part, to account for the finding that information in short-term memory is coded phonemically. For example, when *seeing* a list of words, mistakes in recall are often based on the *sounds* of the words; that is, mistakes based on the phonemic structure of the word. To illustrate this for yourself, try the following exercise (which is crudely based on an experiment in Baddeley, 1966).

Instructions

Print this window and then fold the piece of paper in half vertically – folding it outwards not inwards. On the left are your test words; put your answers on the right-hand side. The aim is to recall the sequence of letters in the exact order in which you read them. For example, if the test items are q w e r t y u i, then you would write down q w e r t y u i. Read the first six letters of row 1 quietly to yourself once and then immediately turn the page over and write down your answers. Try not to cheat because you are not testing your own ability but your (theoretical) “phonological loop”. After you have done the task, follow the procedure for scoring your responses.

1	H	S	F	Q	B	C	D	P											
2	G	D	B	T	Z	H	R	S											
3	Q	M	Z	R	C	P	D	G											
4	T	P	C	B	F	M	Q	Z											
5	F	R	Z	S	B	P	G	T											
6	C	G	B	P	M	Q	H	R											
7	H	Q	R	M	C	T	D	B											
8	D	P	T	C	R	Z	F	H											
9	M	R	H	Z	C	G	B	T											
10	B	T	G	P	R	F	M	S											
							Total for even rows:												
							Total for odd rows:												
Total of values in bold boxes																			
Total of values in normal boxes																			

Scoring

1. Place a small circle around items that are incorrect. For example, if I wrote q w e r y u t i as my answer to the first example, then I would mark this by placing a

- circle around y, u and t (as although y and u were in the original list, they are in the wrong order).
2. For each column, add up the number of circled items for the even rows.
 3. For each column, add up the number of circled items for the odd rows.
 4. Add the totals in the bold boxes together (this value is the total number of errors with letters that rhyme: B, C, D, G, P, T).
 5. Add the totals in the normal boxes together (this value is the total number of errors with letters that do not rhyme: H, F, M, Q, R, S, Z).
 6. Compare the two totals.

Prediction

Baddeley's theory of phonological encoding predicts that you should have a greater number of errors for letters that rhyme than for letters that do not rhyme, even though you have not verbalised the letters during learning.

Example:

	Total for even rows:	0	1	1	0	0	1	1	1
	Total for odd rows:	0	0	0	0	1	2	2	1
Total of values in bold boxes		8							
Total of values in normal boxes		3							

In this example more errors were made on trials with rhyming words than on trials with non-rhyming words. There also appears to be a strong primacy effect.

Ask yourself

- Is there a primacy or recency effect overall in your data?
- If so, how might this affect the prediction of the theory?
- Did you find yourself trying to rehearse the items before you wrote them down?
- What other learning strategies did you use?
- Do you think the results would be any different if you repeated the letters aloud during learning?
- Try testing a friend. Do they get similar results? If you add your data together, does a pattern emerge?

References

- [Baddeley, A.D. \(1966\)](#). The influence of acoustic and semantic similarities on long-term memory for word sequences. *Quarterly Journal of Experimental Psychology*, 18: 302–9.
- Baddeley, A.D. (1986). *Working memory*. Oxford: Clarendon Press.
- Baddeley, A.D. (1990). *Human memory: Theory and practice*. Hove: Psychology Press.