

Infant experiment design

Overall design

- There are 3 between-subjects conditions: no pitch, emphasized pitch and functional pitch
- There are two versions of the artificial language: L1 and L2
- In each of the conditions half of the participants will be assigned to L1 and the other half to L2
- There are 36 unique training strings in each language, these are repeated twice in the training phase for 72 strings total.

Overall design - phases

- There is 1 training phase and 1 test phase

Training

- In the training phase the 36 strings are presented twice (= 72 strings total)
- There is a pause of 650 ms between the strings
- Constraints:
 - No strings appear twice in a row
 - All strings need to be presented once, before they can be presented again

Overall design - phases

Test phase

- There are going to be 3 types * 4 items each = 12 test items
- In the test phase, each string is repeated a maximum of 15 times if infant does not look away. Trial is over when infant has not looked for 2 seconds. After which a new trial begins.

Overall design - recap

3 conditions	No pitch	Emphasized	Functional
Unique strings	36	36	36
Overall strings	72	72	72
Training phases	1	1	1
Repetitions of training strings	$2 \times 36 = 72$ strings	$2 \times 36 = 72$ strings	$2 \times 36 = 72$ strings
Test phases	1	1	1
Test items	$3 \text{ types} \times 4 = 12$ items	$3 \text{ types} \times 4 = 12$ items	$3 \text{ types} \times 4 = 12$ items
Items per test phase	12	12	12




Training

- All conditions:

a1	x1	b1
	x2	
	x3	
	x4	
	x5	
	...	
	x18	

a2	x1	b2
	x2	
	x3	
	x4	
	x5	
	...	
	x18	

Test items

familiar grammatical	new grammatical	ungrammatical
a1 Xfam b1 a2 Xfam b2	a1 Xnew b1 a2 Xnew b2	Xfam b1 a1 b1 a1 Xfam
		

Test phase – counterbalanced block design

There are 3 types of test items: a) familiar grammatical, b) new grammatical and c) ungrammatical. Each test type must appear once during each test block.

*x = random choice between the rest two test item types

	HALF PARTICIPANTS	HALF PARTICIPANTS
	order a	order b
BLOCK 1	familiar grammatical	ungrammatical
	x	x
	x	x
BLOCK 2	familiar grammatical	ungrammatical
	x	x
	x	x
BLOCK 3	ungrammatical	familiar grammatical
	x	x
	x	x
BLOCK 4	ungrammatical	familiar grammatical
	x	x
	x	x

Reminder

- Will be an EMG and pupillometry design, so a trigger needs to be put at the onset of every training stimulus so the devices can measure.