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물음노미하나라
내이로써하야엇비너겨
새로스들어글자공물랑노니
사름마다히여수빙니겨날로부메
便令國書고저훈사루미니라
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Hangeul, the Korean writing system [1]

- Artificially made in 1443 by King Sejong the Great and his scholars
- Shallow orthography with one-to-one letter-sound relation
- Currently 14 consonants and 10 vowels
- Written in syllable level: 1,608,528 legitimate syllables possible

*"Even fools can learn in a week
and the clever will learn for a half day."*

(By Jeong-in-ji, 14c)

Chosen as the orthography system of [1]

- Bahasa Cia-Cia, an Indonesian tribe in 2009
- The Solomon Islands in 2012

Quantified grapho-phonemic systematicity

- Mapping between graphemes and phonemes of hangeul [2-4]
- Similar letters have similar sounds ($r = .35$, $p < .001$)

Consonants, visualized articulation [1]



- ㄱ /g/ represents the tongue touches the hard palate
- ㅋ /s/ represents the airflow between the teeth.
- ㆁ /ng/ represents the throat

Vowels, cultural reference point [1]



- Combination among ㅣ (human), ㅡ (the earth), and ㅏ (the sky).
- Harmony between the human and nature.

Does grapho-phonemic systematicity in Korean hangeul assist learning?

Do naïve participants notice the intended systematicity and utilize it for better learning?

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Result 1. Did the veridical group learn better and faster?

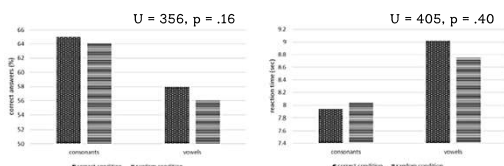


Fig 2.3.1. The percentage of correct answers (left) and reaction time (right). SD=16.20 (correct consonants); SD=16.44 (random consonants); SD=12.96 (correct vowels); SD=17.12 (random vowels)

Result 2. Did the veridical group learn more easily?

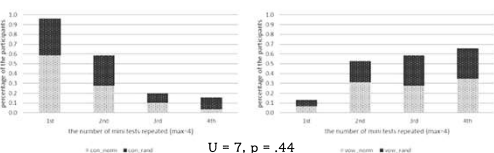
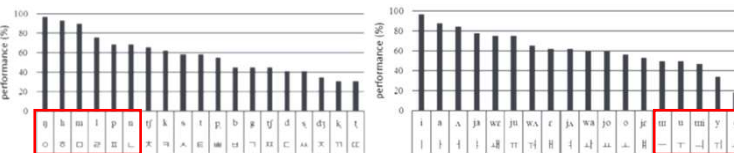


Fig 2.3.2. The number of the tests the participants repeated for consonants (left) and vowels (right): Many participants passed the first test when learning consonants but had to repeat multiple times for vowels.

Unexpected Results 1. Learning consonants is easier than vowels (U = 2, p = .04)

Unexpected Results 2. The nasals are the easiest to learn.

Unexpected Results 3. The vowels without jaw-opening are difficult to learn.



Unexpected Results 4. Chinese may struggle in learning a new phonograph.

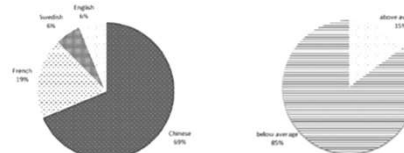


Fig 2.3.5. The distribution of the first languages of the performers who scored below average (left); and the scores within Chinese participants (right)

People could learn ANY type of orthography system! Limitations :: 1. Possible ceiling effect 2. Multi-lingual effect 3. Exposing individual letters, not the whole set If replicating :: 1. Exposing the whole set of letters 2. Focus on mono-lingual participants