

Challenge

To be able to speak English, you need someone to talk to. If you have someone to talk to, you can know immediately whether they understand you or not, and if they cannot understand you, they will tell you how to fix it. There are already many such tools, but some fatal problems have not been resolved.

- Speed for students: Quickly feedback in line with brain cognition and working memory in about 3 seconds.
- Ease of use for teachers: Can create exercises based on each week's lesson content within a few minutes.
- Simple to understand: Anyone can easily figure out where mispronounced and how to improve them.

We are going to make a paradigm shift in scoring speaking tests from subjective and time-consuming by humans to objective and immediate by AI.

Solution

NatTos is a sophisticated tool for English teachers and learners. Its features are scoring and correcting the learner's speech instantly and completely automatically, which is only 3 seconds. Not only scoring, but correction is also very important. Because, learners can see what they were saying. So NatTos displays both what the speaker intended to and how it was heard. Students can see the red pen error marks. This two-way approach is the first and finest in the world. See figure 1 and 2. Try a sample drill fig. 3.

Teachers can easily create and share a web-based speaking drill like a paper test in minutes.

Teachers can view the learning history within 10 second, calculated and displayed by text mining. See fig. 4,

Learning Impact

- 3 engines system of NatTos is an integrated technology. (1) Teachers find the speaking test easier. (2) Students get 3-second readable responses. (3) While testing, teachers receive statistically processed feedback.
- 3 seconds quick and readable responses makes a student easily adjust his pronunciation with a quick.
- 3 cycles of NatTos allows teachers seamless access to students' activities, feedback lecture and lesson planning.
- 2 stages of on and off NatTos, exercise and evidence-based feedback lecture, enchants students' tuning power.

Return on Investment

- NatTos was uploaded 2020/6 and used in 3 classes at Tohoku University successfully in the autumn.
- The teacher wrote task texts according to his lesson section and uploaded to NatTos.
- Students tried to speak task texts with great eagerness. When they mispronounced, they tried again and again, and about 40-70% of them cleared within five trials. See fig. 4.c.
- Over 30,000 utterances were stored and we found a Japanese learners' weak point "he/she error".

See fig. 1 and 4.a and 4.d. AI may discover more weaknesses that haven't been pointed out so far.



figure 3. sample

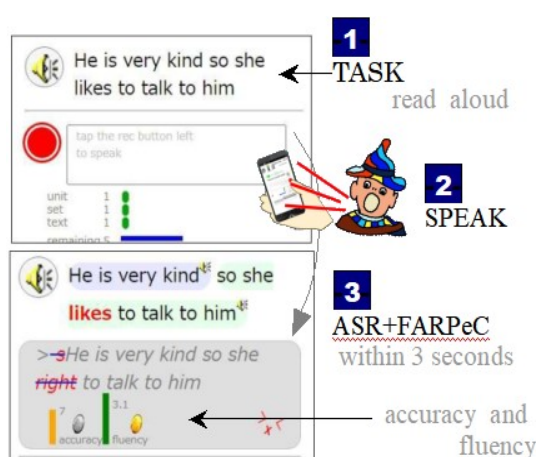


figure 1. NatTos ASR Tool in Use

works on browsers with no register, no fee.

ASR: automatic speaking recognition, FArPeC: fully automatic red pen correction

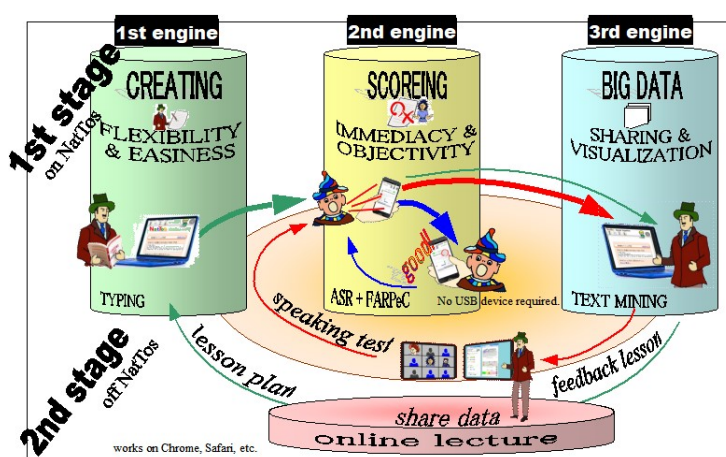


figure 2. NatTos has 3 engines, 3 cycles and 2 stages

works on Chrome, Safari, etc. No USB device required.

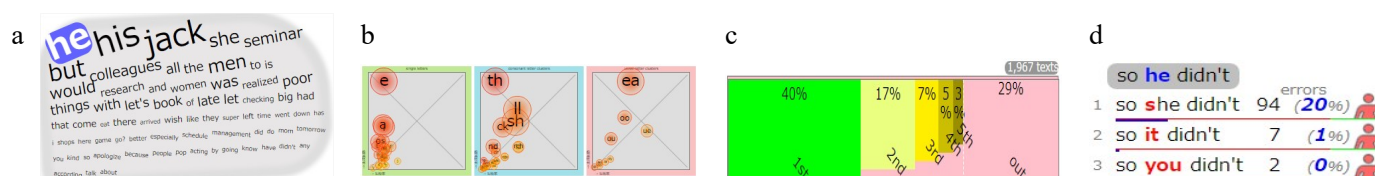


figure 4. text-mining of learning history. / a: word weakness, b: sound weakness, c: passed trial, d: typical errors