



Supporting Non-Native Speaker Contribution in Multilingual Collaboration

「非母語話者との対話の支援」

ハウタサーリ アリ (東大)

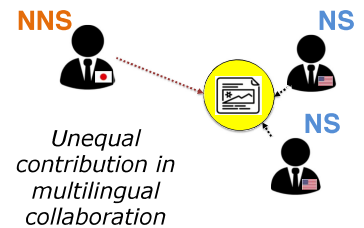
Fundamental Problems in Multilingual Collaboration

Non-native speakers (NNS) have trouble contributing their ideas and opinions

- Need more time to process second language utterances, resolve unknown or difficult words/vocabulary, and think about their own response

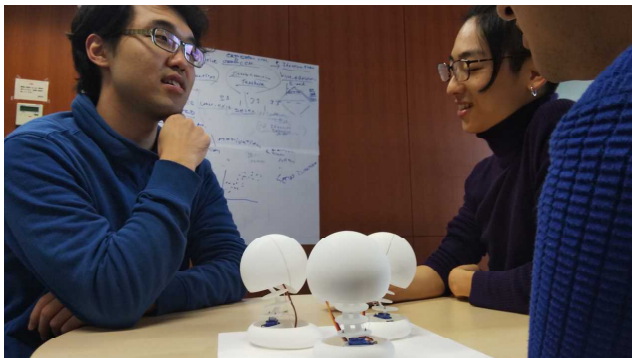
Native speakers (NS) need more information about the problems **NNS** experience

- **NS** move on to next topic without realizing **NNS** are still processing their response
- **NS** may misattribute **NNS** silence, non-responsiveness or lack of non-verbal cues to (negative) personality traits instead of language problems



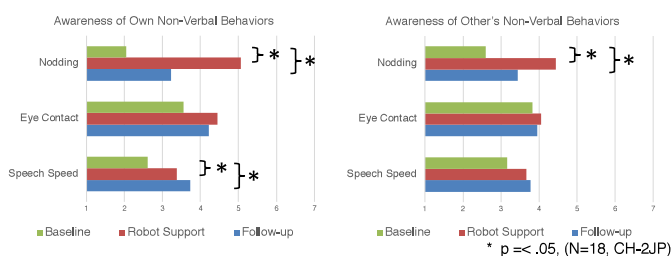
Supporting Multilingual Face-to-Face Meetings

Third-Person View of Multilingual Meeting With Robotic Nodding 'Avatars'



Robotic 'avatar' mimics user's nodding in real-time

- Increase **awareness** of own and other's non-verbal behaviors during face-to-face group discussions
- Signal attentiveness, level of mental processing, non-comprehension, etc.
- Effects carry to **subsequent discussions** without robot support (learning effect)

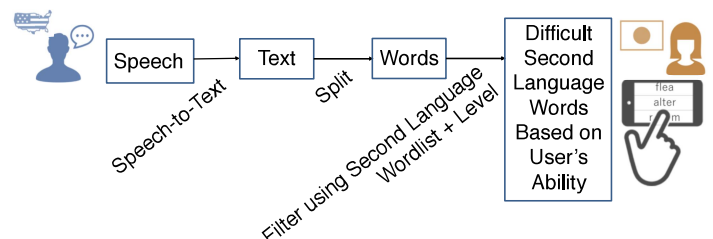


Automated Display and Translation of Difficult Second Language Words



Mobile application detects and displays difficult second language words in real-time

(Supported by: 針原 佳貴 (AWS), 神山 恭平 (東大))

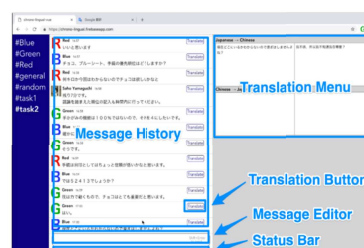


- Improves comprehension of content if speech includes unknown words to the user without increasing cognitive load (NASA-TLX, $p = n.s.$)
- Evaluated using video of group discussion (non-interactive setting)

Awareness Support for Multilingual Text-Based Chats

Detect and share NNS background behaviors during text chats to increase NS awareness of NNS status

- Time it takes to read second language messages (**reading**)
- Translating unknown words or sentences (**translating**)
- Writing and editing own messages (**writing**)



ChronoLingual

Interface prototype for detecting and sharing **NNS** status to **NS**



Absent from Present @ iiiExhibition 20

Installation exploring non-responsiveness in text chats