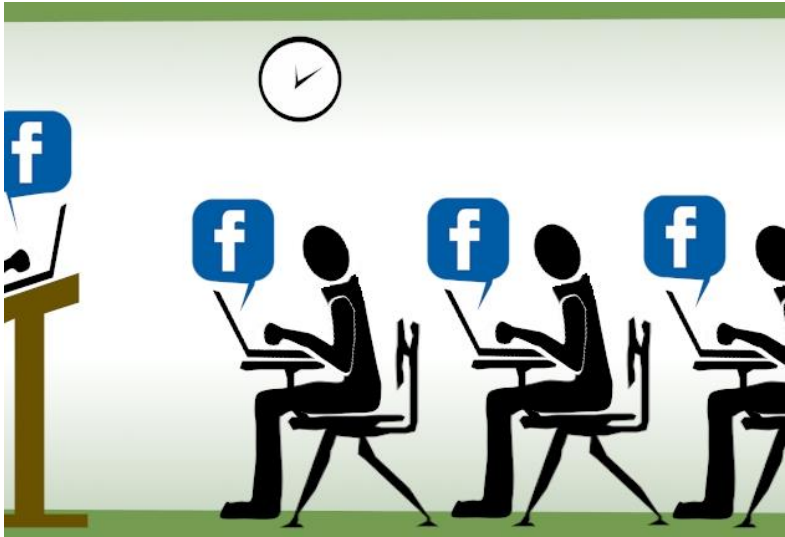


# **CASE Study**

## **Use of AI Smart Speaker**

**3<sup>rd</sup> year Economic major students**



SNS is  
beneficial  
for English  
Education.


# Method (Participants n=23)

---

- Amazon Alexa and Google home mini
- 10-month period (Apr 2019 – Jan 2020)
- Used at home
- Encourage to use daily
- Pre vs. Post TOEIC
- Pre vs. Post OPIc S
- Surveyed



Pedagogy (n=23)  
4.12.2019~1.21.2020.

- **AI Speakers, many applications**
  - **Recorded short movie clips** of their learning experiences which were uploaded to Facebook.
  - **Kept written diaries** with their observations about the contents and duration of their studies.
- 

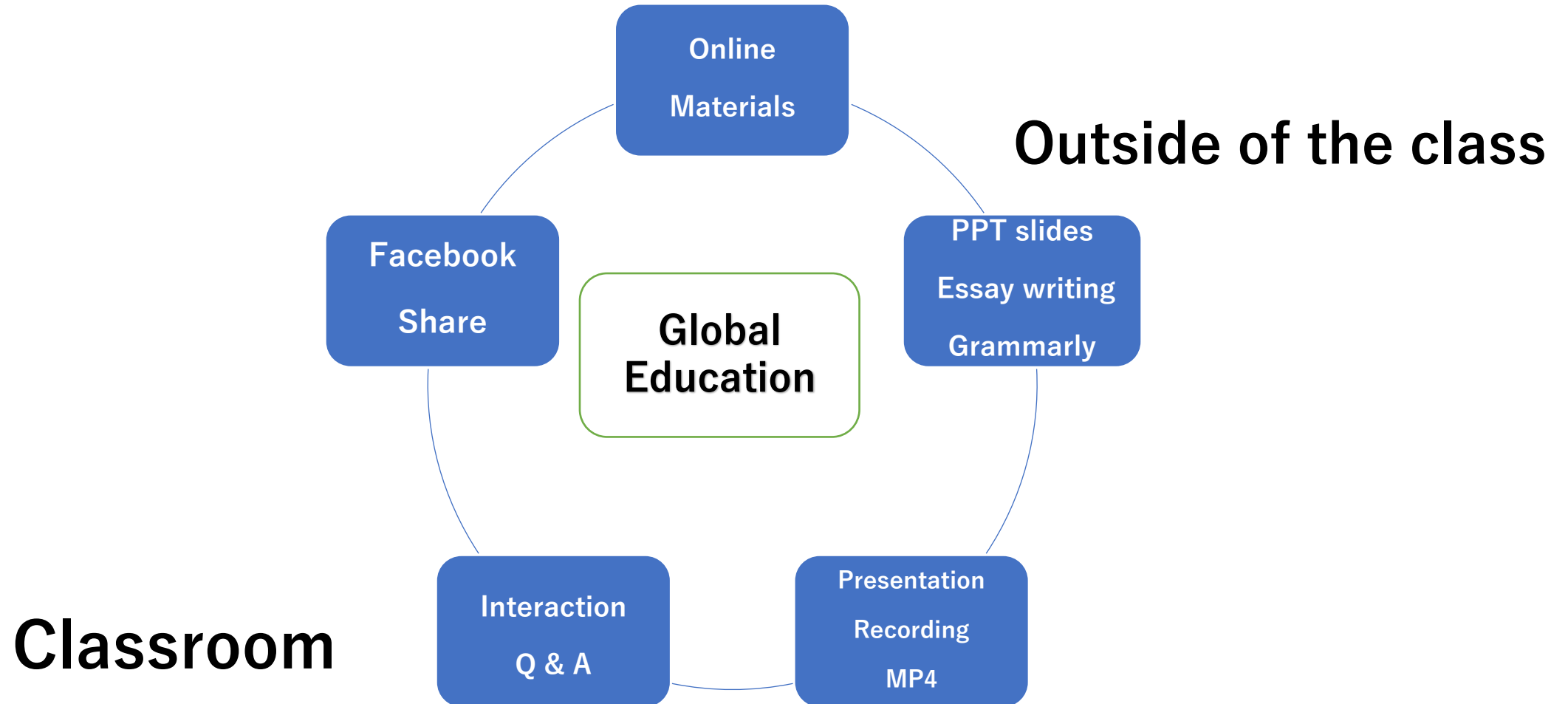
# Software Applications

- **Best Teacher**
- **Travel English**
- **Let's play around with English (Interactive)**
- **BBC/CNN news.**
- **TOEIC practice**
- **Let's speak (Interactive)**
- **And so on**

# Pedagogy Seminar n=23

- 30 lessons (3 hours / 30 weeks=90 hours)
- CaLabo EX CALL System PC
- World views Study (TED Talks + articles)
- Alister McGrath book (Meaning of life, CS. Lewis vs. Richard Dawkins)
- Special lectures about CQ (4 times per year, Professor Weakly)
- Interaction with CCC members (4 times/2+2) Face to face,
- Preparation for Group Presentations for Singapore (First semester)
- [Interaction and Presentations](#) (National University of Singapore, 10 days)
- PBL Group project presentation + AI project (2 times) iPads +PC

# Flipped Learning (Input → Output)



Crowd Learning Environments:

Flipped learning: CBL(Challenge-based Learning),  
PBL(Project-based Learning) , TBL (Task-based Learning),

Input: Outside of the class

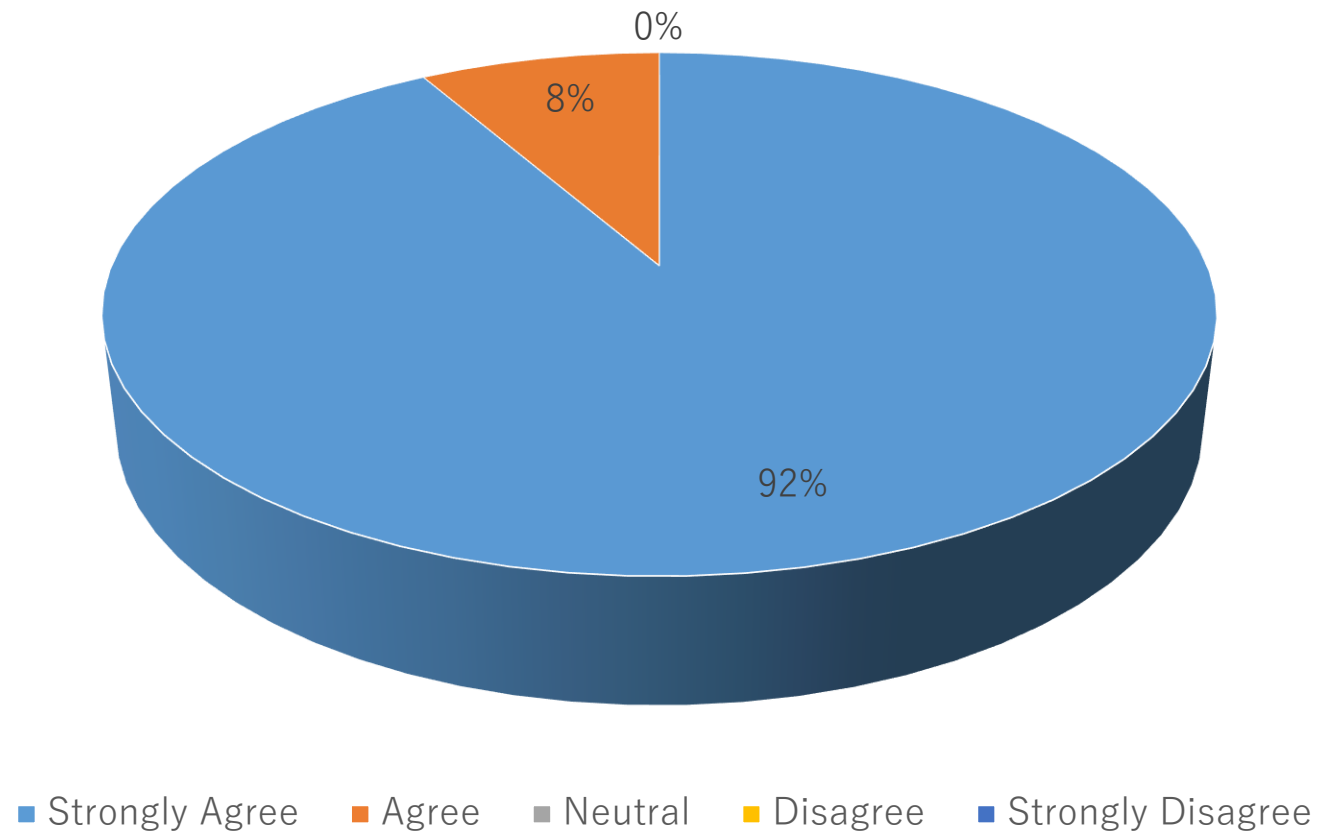
- AI, Web, Digital text; iPad, Smartphone

Output: Inside the class + ZOOM

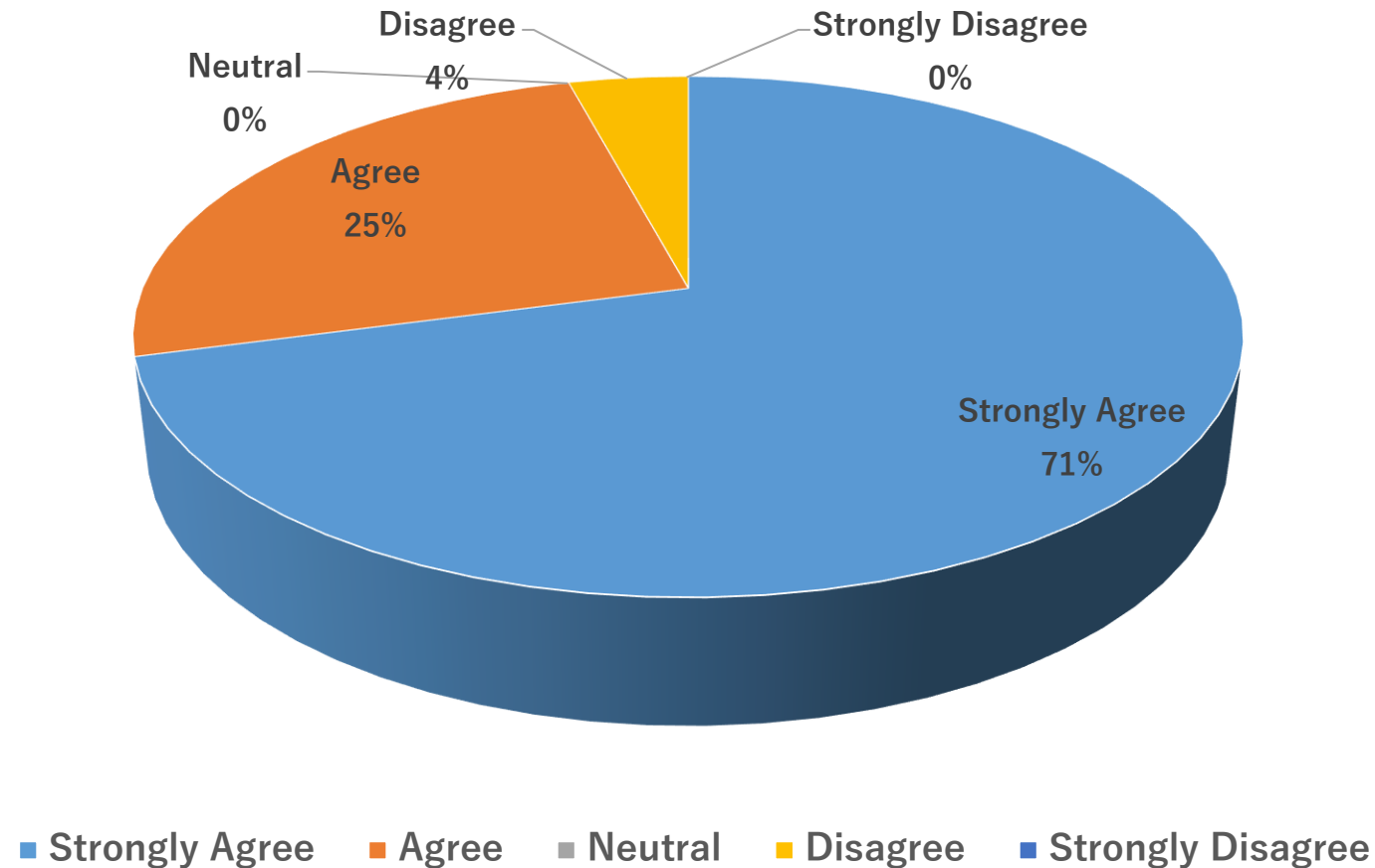
- **Presentation, Discussion, Interaction,**



Did flipped lesson help to improve your autonomous learning? **100%** (n=31)

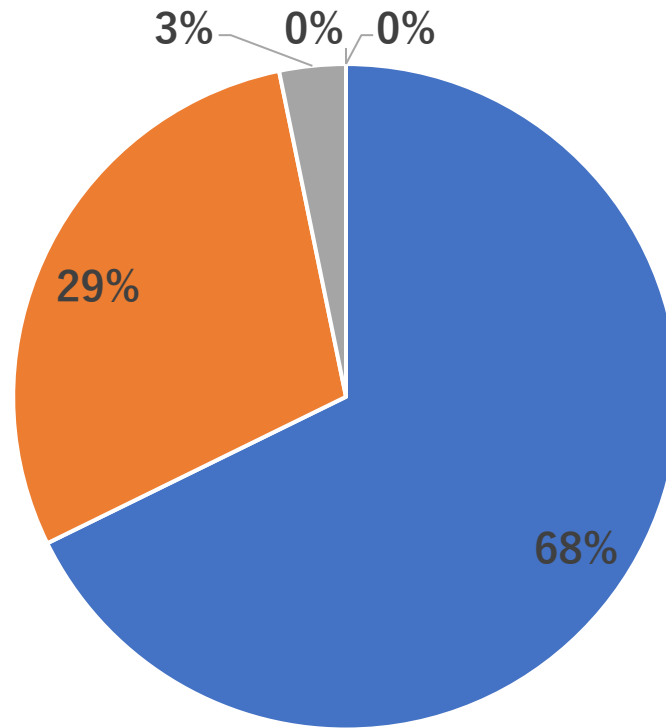


# Did PPTS presentation help to improve your English proficiency? **97%** (n=31)



# Interaction with CCCs: Useful to improve English?

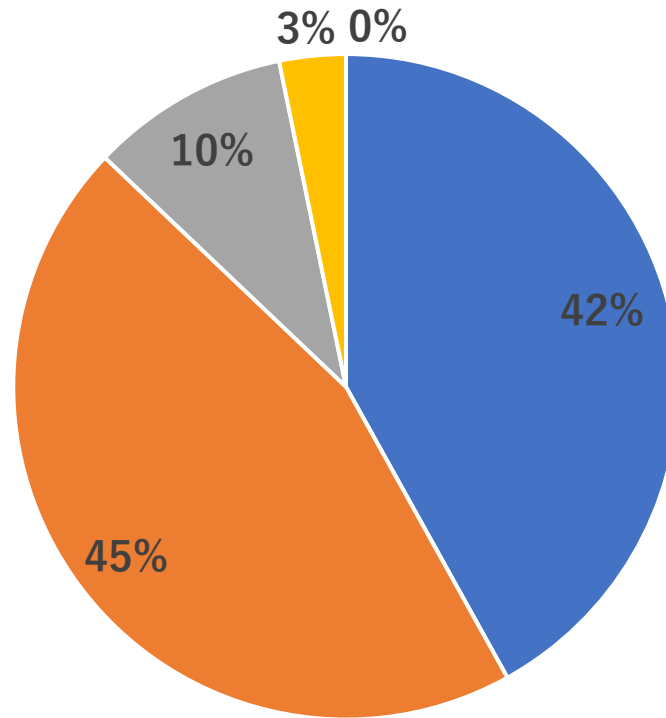
97% (N=23)



■ Very useful   ■ Somewhat useful   ■ Neutral   ■ Not useful   ■ Not much useful

# Interaction with CCCs: Change the worldviews?

87% (N=23)



■ Very useful   ■ Somewhat useful   ■ Neutral   ■ Not useful   ■ Not much useful

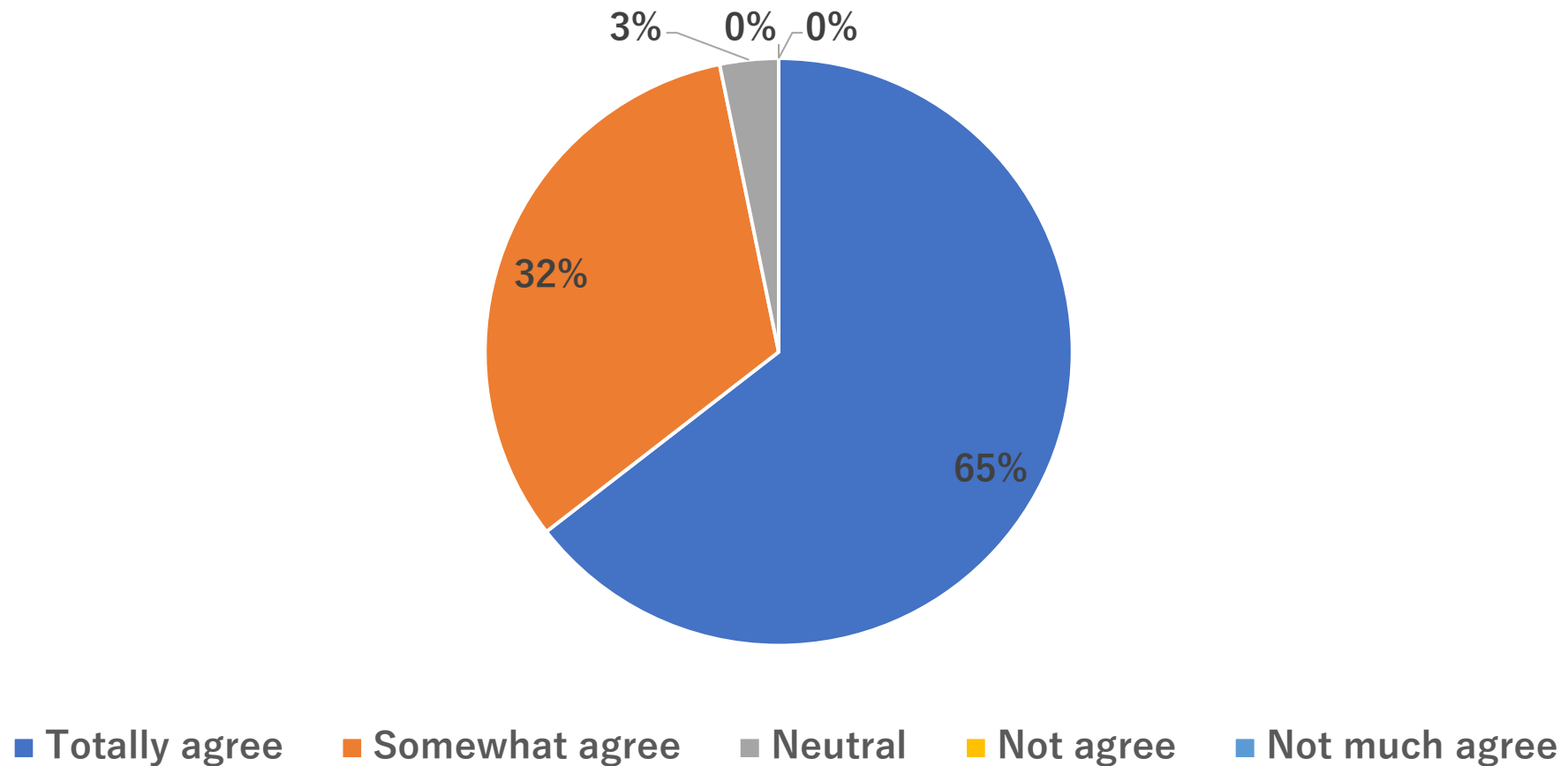


## Higher Order Thinking Skills

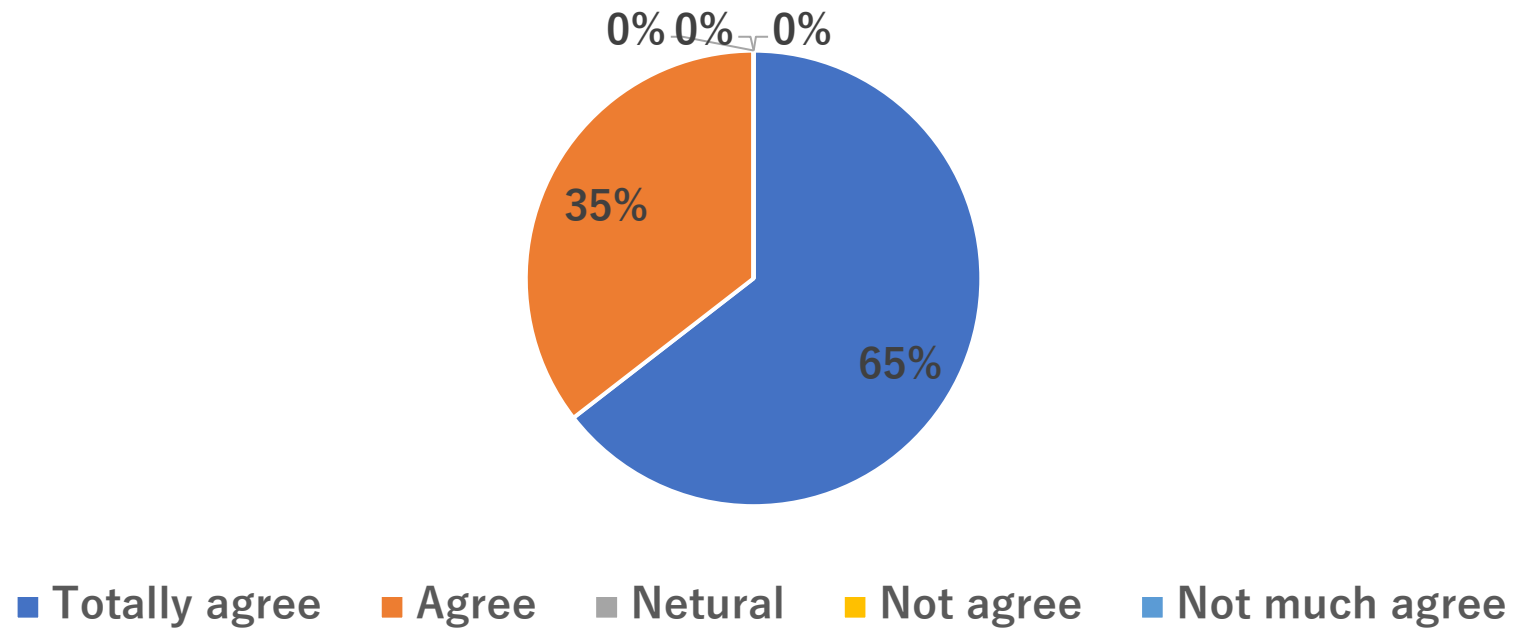
- Analysis
- Evaluation
- Integration
- Creation

Did you learn 21<sup>st</sup> century skills and the importance of AI through this seminar?

97% (N=31)



# Did you improve your critical thinking skills? 100% (N=31)





Assessment with a smart phone during a presentation.



# PeerEval Assessment <https://peereval.mobi/>



# PeerEval Assessment

The screenshot shows a web browser window with two tabs: 'PeerEval Teacher Login' and 'Multi-page template'. The address bar shows the URL 'https://peereval.mobi/quizApp/index.html'. The page content is titled 'obari's presentation' and features a vertical list of six assessment categories, each with a 5-point rating scale (1-5) and a question mark icon:

- Structure / Organization
- Prosody / Pronunciation
- Delivery / Speed / Volume
- Visual Aids / Slide Design
- Coherence / Logic
- Enthusiasm / Content

At the bottom of the assessment area, there is a 'Comment' text input field, a 'Submit' button, and a score indicator 'Total: 0 / 30'. The Windows taskbar at the bottom shows various application icons and the system clock displaying '17:2020/...'.



# Comments about the use of PeerEval

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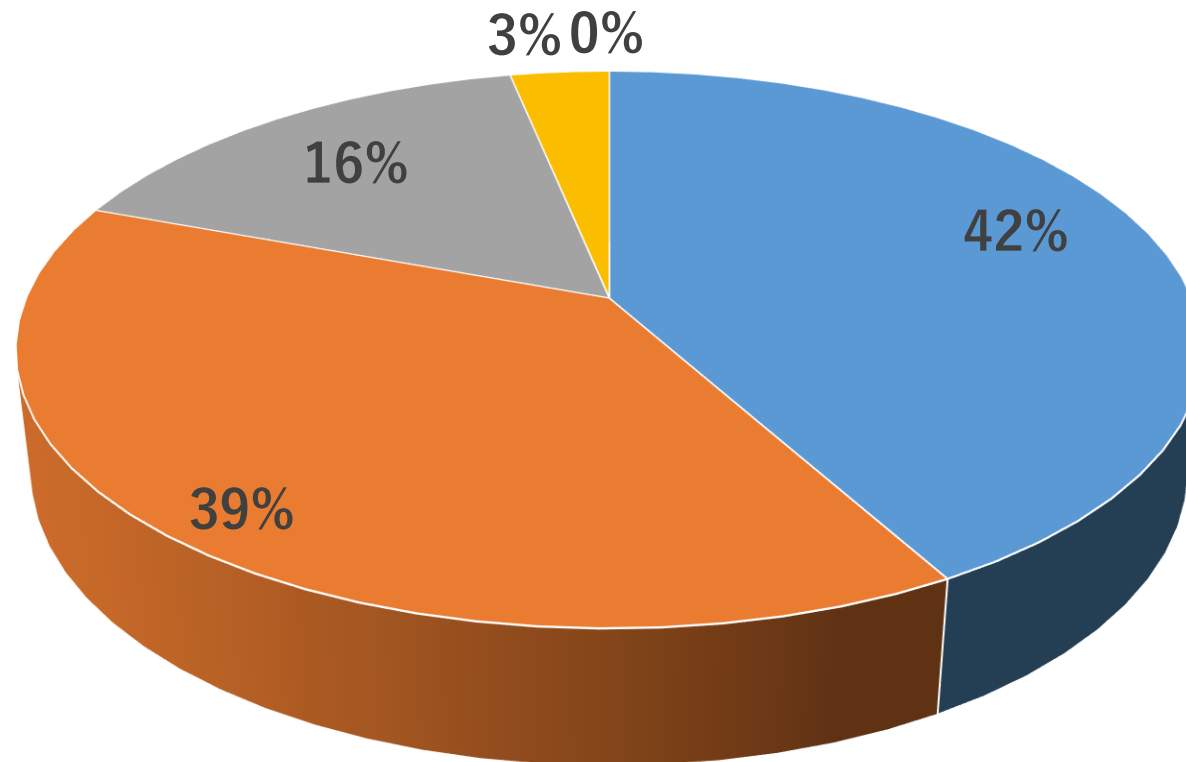
➤ It is easy to **reflect** on presentation to improve weakness and quickly to get the mean score among evaluators.

➤ **Quick feedback**

# Assessment (Virtual learning)

- Pre-test vs Post-test (ATR CALL Brix, TOEIC)
- **Assess presentation with PeerEval**
- MPEG-4 movie product (PowerPoint slides + sound movie)
- Presentation, Reflection
- Engagement

Is it useful for you to use PeerEval for your presentation? (n=31) **81%**



■ Most useful ■ Useful ■ Neutral ■ Not so useful ■ Not at all

# The Results of TOEIC and OPIC Speaking Test

# Results of TOEIC (n=23)

4.11.2019 ~ 1.21.2020

Pre TOEIC vs. Post TOEIC

461(SD,136) ~ 676(SD,144) + 215 points

CEFR A2

CEFR B1

t = -8.1942, df = 22, p-value = 3.955e-08 p < .05

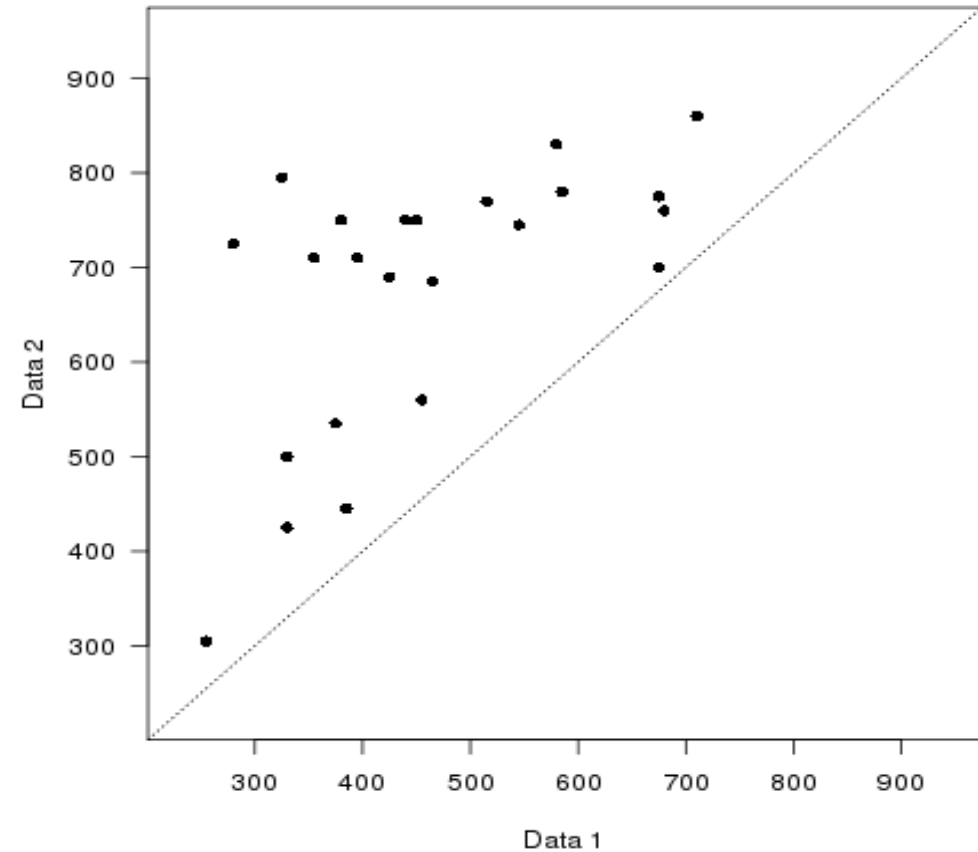
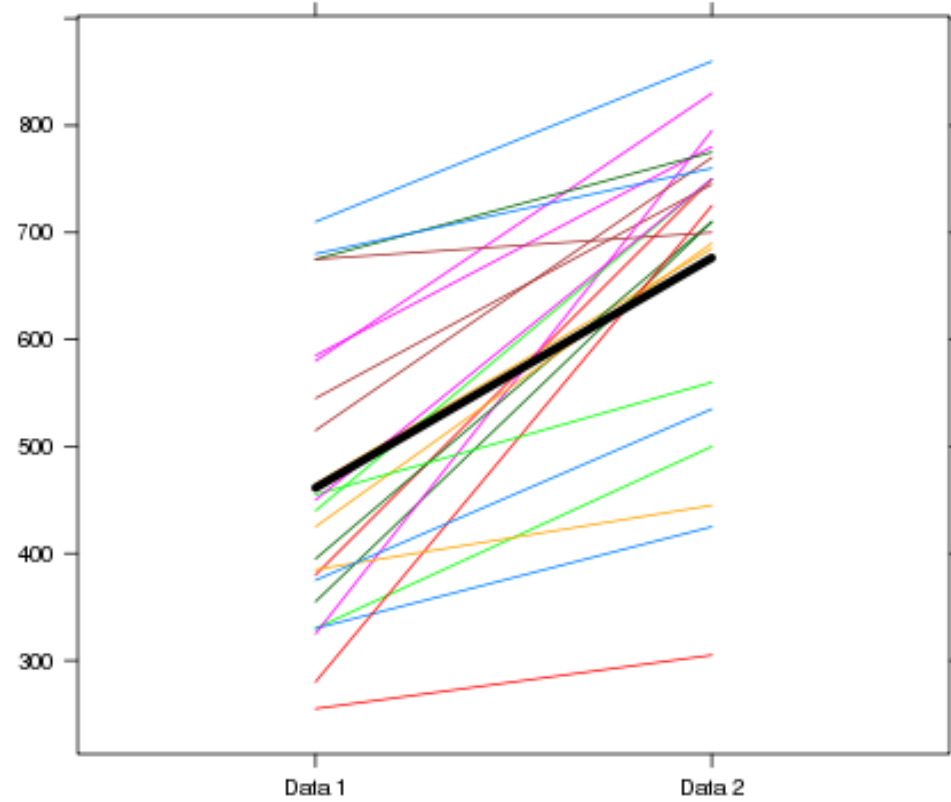
(Used be an improvement of about 150 points)

Pre Opic vs. Post OPIc (Full score=8)

3.91(SD,0.95) ~ 4.74(SD,1.25) + 0.83

(p-value = 0.0005771) p < .05

# Changes of the individual data of TOEIC, **100% Progressed.**





| CEFR                    |                   | TOEICスコア  |         | TOEIC SWスコア |                    | TOEIC Bridgeスコア    |         |     |
|-------------------------|-------------------|-----------|---------|-------------|--------------------|--------------------|---------|-----|
|                         |                   | Listening | Reading | Speaking    | Writing            | Listening          | Reading |     |
| 高い<br>(上級)              | Professional User | C1        | 490~    | 455~        | 180~ <sup>※1</sup> | 180~ <sup>※1</sup> |         |     |
|                         | Independent User  | B2        | 400~    | 385~        | 160~               | 150~               |         |     |
| Posttest B1 (676,SD144) |                   | B1        | 275~    | 275~        | 120~               | 120~               | 84~     | 86~ |
| 低い<br>(初級)              | Basic User        | A2        | 110~    | 115~        | 90~                | 70~                | 64~     | 70~ |
|                         |                   | A1        | 60~     | 60~         | 50~                | 30~                | 46~     | 46~ |

# Pre-listening test vs Post-listening test

$t = -7.0591$ ,  $df = 22$ ,  $p\text{-value} = 4.413e-07$   $P < 0.05$

**235.65 (SD68.73) → 359.65 (SD85.48) 123.5 points**

## Basic statistics

### \$Data.1

| n  | mean   | sd    | median | trimmed | mad   | min | max | range | skew | kurtosis | se    |
|----|--------|-------|--------|---------|-------|-----|-----|-------|------|----------|-------|
| 23 | 235.65 | 68.73 | 230    | 233.16  | 74.13 | 120 | 370 | 250   | 0.35 | -0.91    | 14.33 |

### \$Data.2

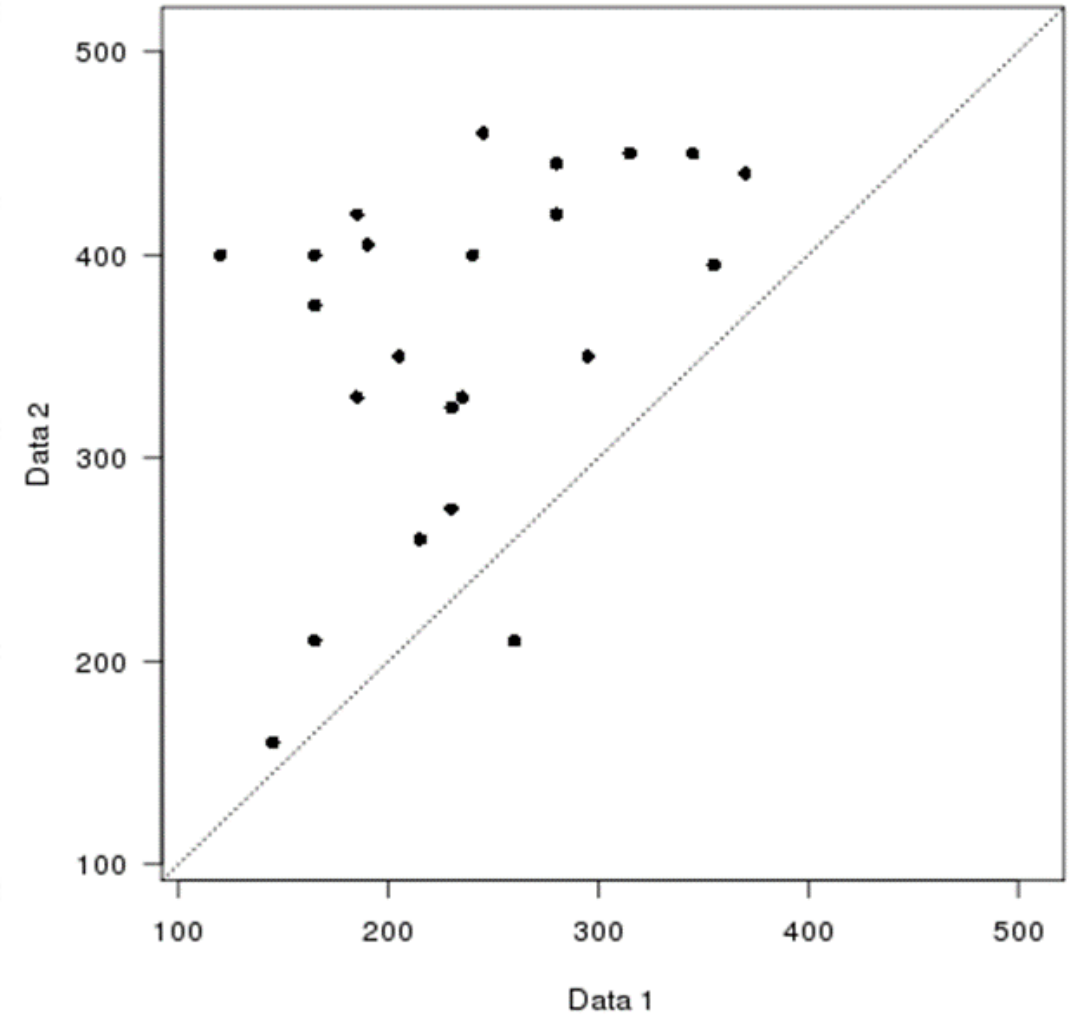
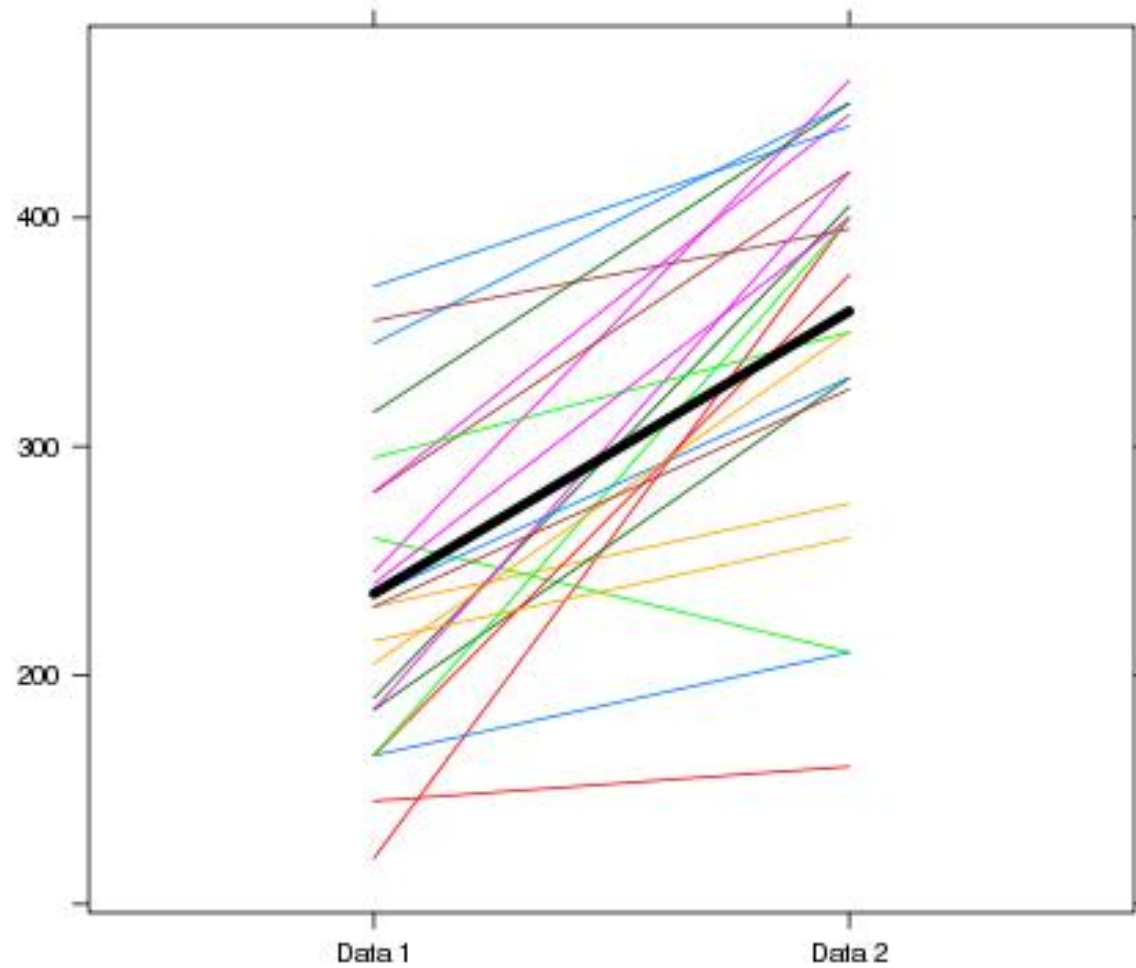
| n  | mean   | sd    | median | trimmed | mad   | min | max | range | skew  | kurtosis | se    |
|----|--------|-------|--------|---------|-------|-----|-----|-------|-------|----------|-------|
| 23 | 359.13 | 85.48 | 395    | 367.37  | 74.13 | 160 | 460 | 300   | -0.81 | -0.48    | 17.82 |

### \$Correlation

[1] 0.4248973

# Changes of the individual data

1 less progressed



# Pre-reading test vs Post-reading test

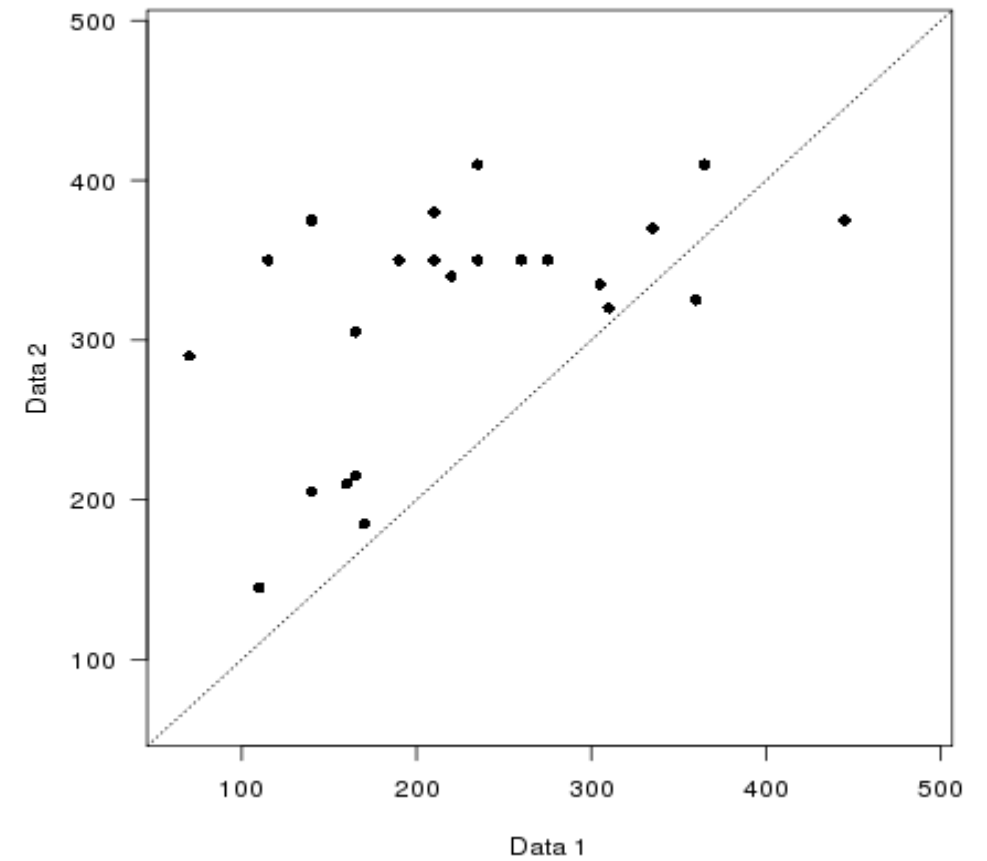
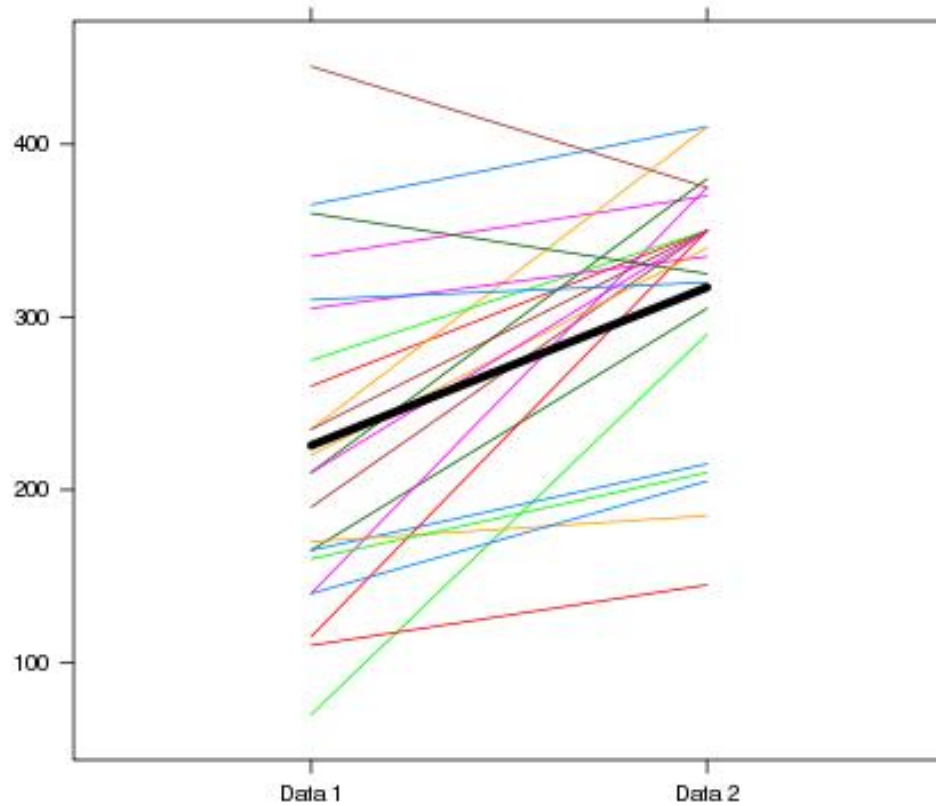
$t = -5.2646$ ,  $df = 22$ ,  $p\text{-value} = 2.783e-05$   $P < 0.05$

225.65 (SD94.34) → 317.17 (SD74.02) + 91.5 points

- Pre-test reading
- n mean sd median trimmed mad min max range skew kurtosis se
- 23 225.65 94.34 210 221.05 96.37 70 445 375 0.49 -0.62 19.67
  
- Post-test reading
- n mean sd median trimmed mad min max range skew kurtosis se
- 23 317.17 74.02 350 323.42 37.06 145 410 265 -0.91 -0.41 15.43
  
- \$Correlation
- [1] 0.5318918

# Changes of the individual data

## 2 less progressed



# Opic Speaking Test

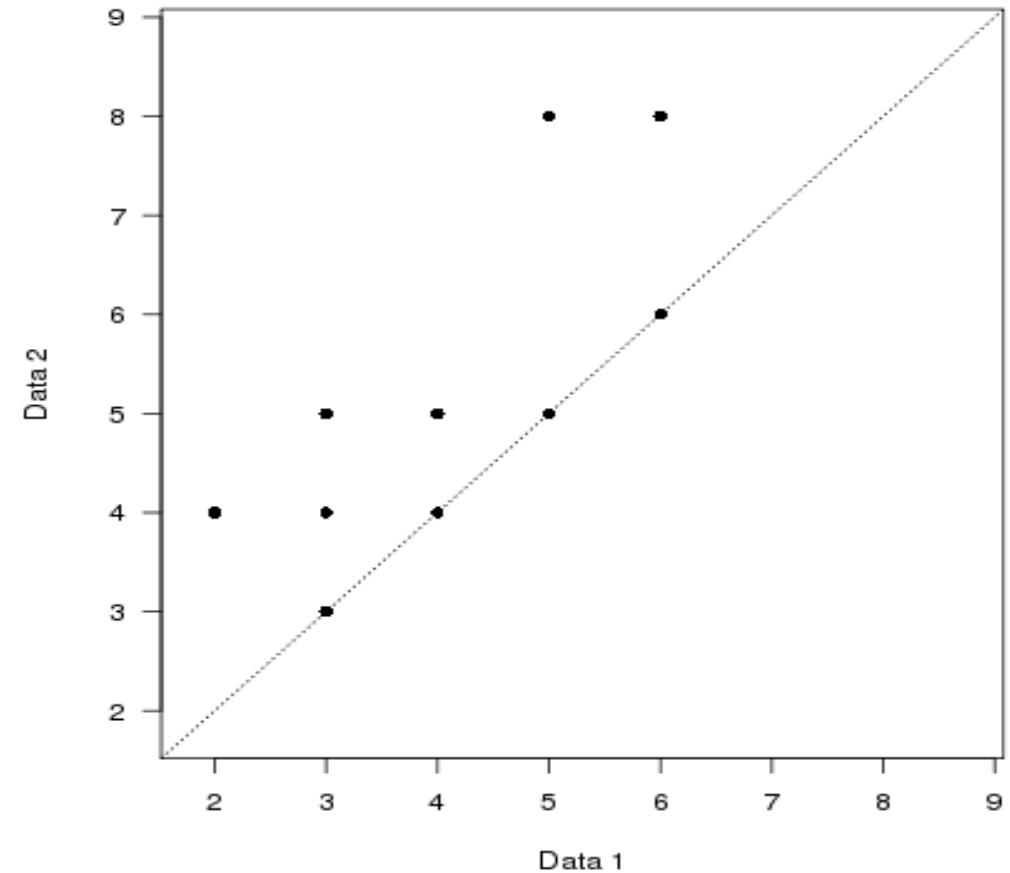
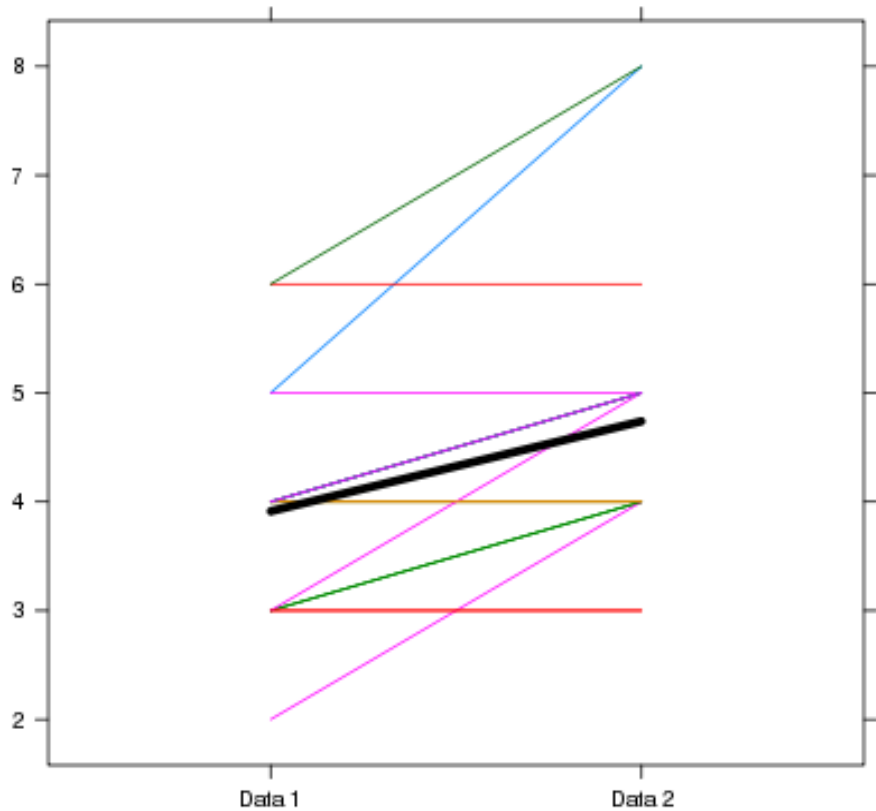
# Improvements of OPIc speaking test (n=23)

82.6% of students improved. (8 bands)



# Changes of the Individual data(n=23)

19 students progressed. 4 remained the same.





# Questionnaire Use of AI

# What liked most?

---



Conversations on daily topics



Music, news, weather



Setting alarm and timer



Linking to TV



# Advantages

---



easy to operate



can practice using it anytime



improves listening and conversation skills



interacts with me like a conversation partner



improves pronunciation



functions as a dictionary/encyclopedia    To improve vocabulary by asking for definitions of words

# Which English skills improved?

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## Conversation & listening

**everyday conversation**

**opportunity to converse in English about daily life topics**



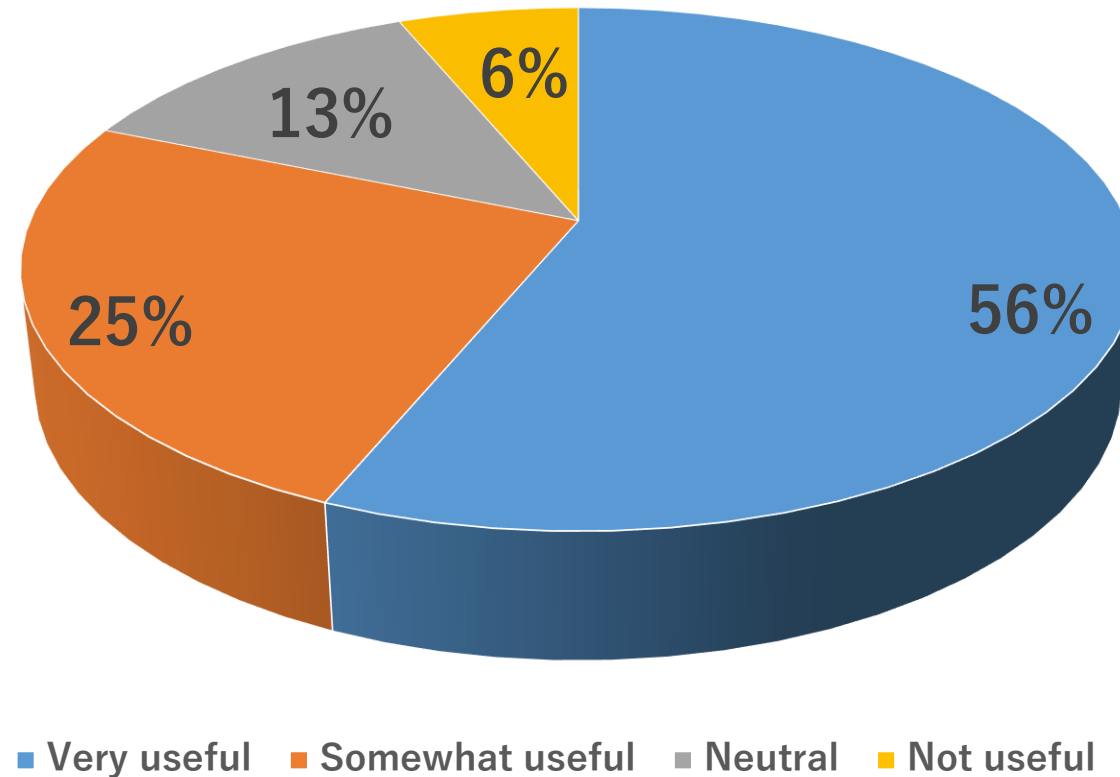
## Pronunciation

**uses standard pronunciation**

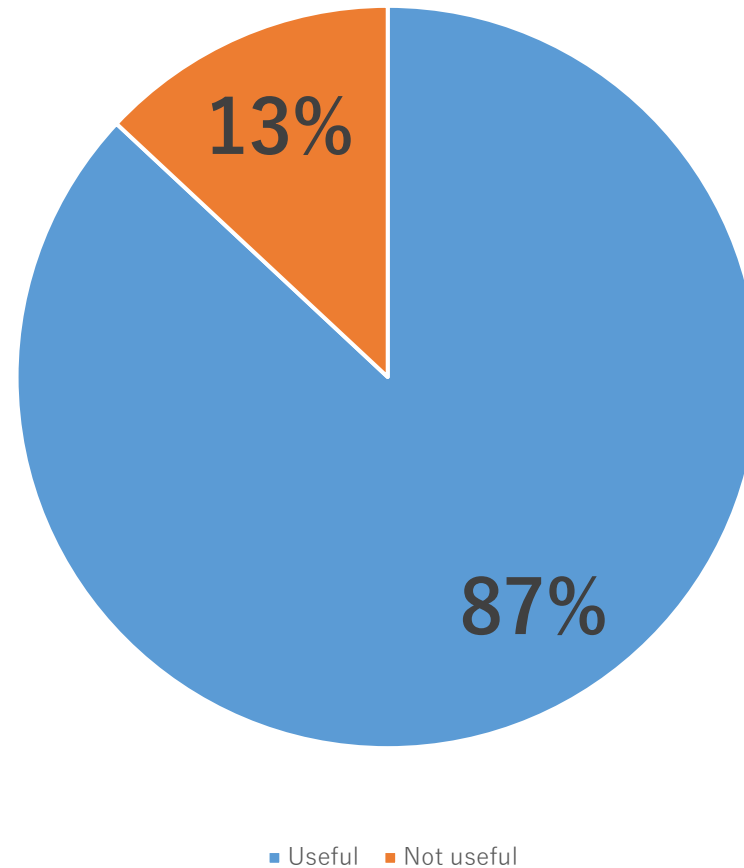
**listening to news developed awareness of correct pronunciation**

**having pronunciation understood instilled confidence**

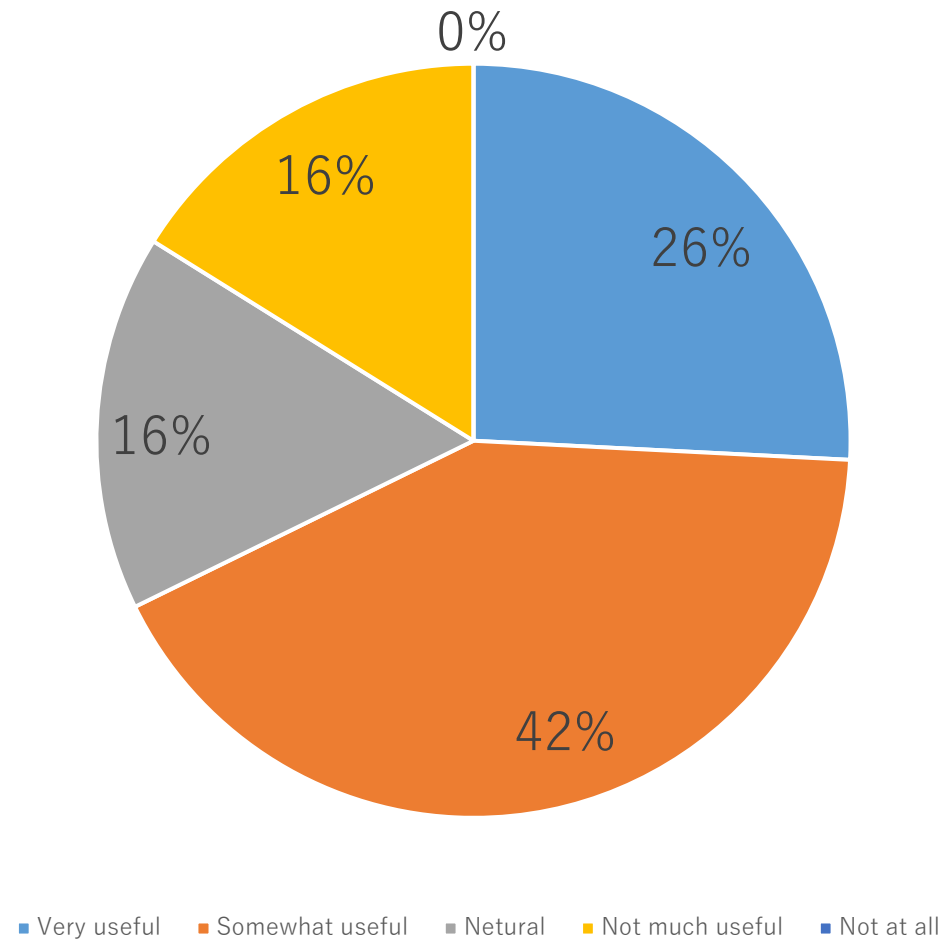
Is it useful to use AI speaker for learning English? **81%** January 201,2020.



Is it useful to use AI speaker for listening ?  
**87%** January 21, 2020.



Is it useful to use AI speaker for speaking?  
68% (n=31) January 21, 2020.



# Feedback Comments:

- (S1) I could set up an AI speaker to a particular time to make a study a part of my **daily routine** to listen to the news. Alexa has many **useful applications** to study English.
- (S2) An AI speaker helped me to improve my listening comprehension and speaking skills in English. It was much easier to study, and I was **more motivated** to study English with this AI speaker. I was **more exposed** to listening to English, which was the **significant advantage** of using an AI speaker.





## Implication

- 1. Students prefer to use AI to study English.**
- 2. AI will be their English interaction partner or help with the assignments.**
- 3. AI will be integrated to Future job.**



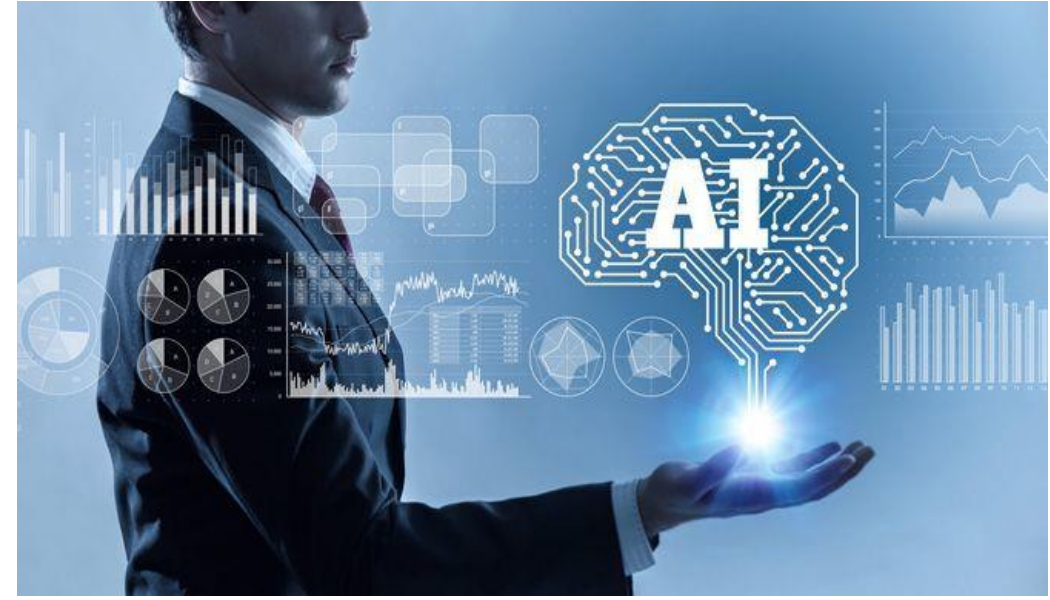
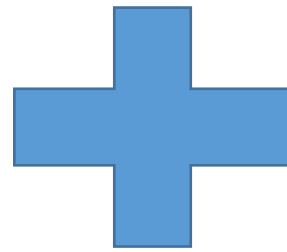
# Research Question:

➤ How effective is the use of AI in teaching EFL in Japan?

**Useful** for learning Speaking and Listening.



# AI/ICT + Face to Face Communication



Integration