

2018 2학기
iLED 연구실 세미나

Using Voice & AI assistant for learning

2018. 10. 31
공윤지

Today...

- **Part 1. What is voice assistant**
- **Part 2. Using voice & Ai assistant for learning**



What is voice assistant



Amazon Alexa

<https://youtu.be/j4gwyI39uSU>



IBM & Pearson Cognitoys

<https://youtu.be/lpOKCTqO3ik>

What is voice assistant

Intro

- Uses of AI technologies and robots to support language learning have been explored for several years(Hans, 2012)
- It is only recently that increased affordability and reliability of AI technologies have made exploring this vision in everyday classrooms practical
- AI has the potential to provide more and more motivating, opportunities for children to engage in spoken interaction in the target language. (Underwood, J., 2017).

Similar terms : Smart Assistant, Intelligent Personal Assistant, Digital Assistant, Personal Virtual Assistant, Virtual Assistant Bot, Intelligent Virtual Assistant (IVA)

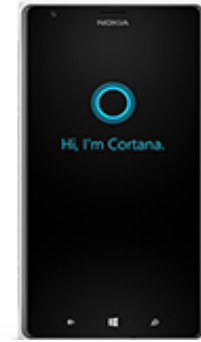
What is voice assistant

Voice Assistant

- is a digital assistant that uses **voice recognition, natural language processing** and **speech synthesis** to provide aid to users through device like phones, applications, speaker
- Currently Voice assistant is built on artificial intelligence, Machine Learning, Voice recognition technology.
- **AI programming uses sophisticated algorithms** to learn from data input and better itself at predicting the user's needs.
- **Voice Assistant, social robot, IoT**

Voice Assistant and AI assistant

Device



Voice Assistant



Amazon

Alexa
Echo

Apple

Siri
Phone

Google

Google Assistant
Google Home

Microsoft

Cortana
Phone

How AI assistant works



Lopatovska, Irene & Rink, Katrina & Knight, Ian & Raines, Kieran & Cosenza, Kevin & Williams, Harriet & Sorsche, Perachya & Hirsch, David & Li, Qi & Martinez, Adrianna. (2018). Talk to me: Exploring user interactions with the Amazon Alexa. Journal of Librarianship and Information Science.

Voice Assistant developed for Educational Purpose

Social Robot



Pepper



Nao

- Social Robot **detect emotion** from the ability to **analyze expressions** and **voice tones**
- is possible to present **individualized learning** conditions to learners. It is useful for **enhancing learners' self-efficacy by providing positive feedback** such as praise or encouragement.
- For Early childhood education

Voice Assistant developed for Educational Purpose

IoToy IBM Cognitoys



- Congnitoys is an **educational interactive toy** dinosaur robot> IoToy
- Cognition has a conversation topic for **words, math, science, humor, fairy tales, and games**. IBM Watson (artificial intelligence computer)
- Respond to thousands of questions to meet student, memorize conversation
- personalized responses, personalized language training
- Specially developed for pre-school

Using Voice & AI assistant for learning

Underwood, J. (2017)

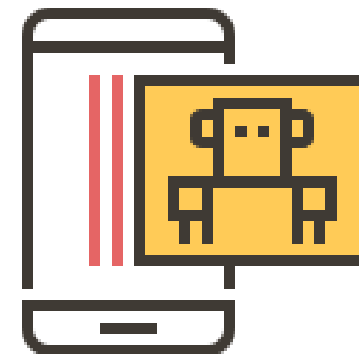
A Case Study of Voice assistant with English as a Foreign Language

1. **Research Question :** Can AI tech provide children with satisfactory answer ?
 - Depends on device : Siri & Google provide correct answers but too fast for primary students
 - Not likely provide satisfactory answer in second language, unlike English
2. **Research Question :** How might we exploit AI to get children speaking in the target language?
 - speaking English meaningful and joyful, even when they often tried again, reformulated, and persisted.

Using Voice & AI assistant for learning

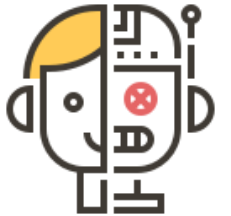
서정은(2017) A Case Study of Early Childhood English Learning based on Artificial Intelligence Voice Recognition System

- The purpose of this study is to investigate how English learners in the EFL environment using AI speech recognition system.
- **Research question** : how they interact and feedback, and how they will communicate.
 - Students were **encouraged by the feedback** of the AI speech recognition system.
 - Also improve **willingness to communicate(WTC)** of EFL learners
 - Recommend **engagement of teacher** in learning



“Using Speech recognition can be easily accessed and used by those who are uncomfortable to the body, those who want a more convenient input device than a keyboard or a mouse

As a result of this, The learning participation rate and the learning effect are also increased in the learning using the artificial intelligent speaker”



Possibilities and challenges

Possibilities

Learning Foreign Language

- willingness to communicate(WTC) of EFL

Pre-school student

Individual Learning

Challenges

**Lack of Instructional model
& Design**

**attitude, perception but not yet
Academy Achievement**

Security & Privacy

- under GDPR

Thank You

