

# Can intelligent personal assistants be used to develop L2 listening and speaking skills?

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## Introduction

- Due to several reasons including anxiety, lack of time, or mere reluctance (Wallace, 2015), students may not make the required effort to interact with another speaker; given this, intelligent personal assistants (IPAs) seemingly offer a practical solution to these issues
- Previous empirical studies involving IPAs for L2 learning have focused on their capacity to understand L2 speech, learner attitudes towards their use for L2 learning, as well as communication strategies when communication breaks down (Dizon, 2017; Moussalli & Cardoso (2016, 2019)
- No study has yet to investigate their use to enhance L2 listening and speaking skills

## Research Questions

1. Were there any significant differences in listening comprehension or speaking proficiency development between an experimental group which interacted with Alexa and a control group which did not?
2. What are EFL students views towards the use of Alexa as an in-class language learning activity?

## Methodology

- N = 28 Japanese university EFL students
- Study utilized a quasi-experimental design with an experimental group (n=13) which took part in a 10-week treatment of student-IPA interaction and a control group (n=15) which did not
- Students in the experimental group interacted with Alexa 12 minutes per week by giving it commands and through the use of Alexa skills and socialbots
- Learners interacted with Alexa individually and in pairs
- If Alexa failed to understand a command or request, the students were instructed to reflect back on what part of their speech was misunderstood and adjust their output
- Listening comprehension and speaking proficiency pre- and post-tests were administered
- Two university native English instructors were asked to rate the students' speaking test responses, interrater reliability was 0.80
- A survey based on the technology acceptance model (Davis, 1989) was used to assess the students' perceptions of Alexa for in-class L2 learning
- Mann-Whitney U test was used to determine if there were significant differences between any potential gains that were made in L2 listening and speaking skills between the control group and the experimental group

## Results

Table 1. Listening and speaking test results

Variable	Group	Pre-test		Post-test	
		M	SD	M	SD
Listening	Control	5.27	2.02	6.20	1.66
	Experimental	5.85	2.51	6.69	1.93
Speaking	Control	19.97	5.81	19.20	5.38
	Experimental	18.77	5.56	20.46	6.08

- Both the control and experimental groups made slight gains in L2 listening development
- However, the difference between the groups' improvements was not significant ( $U = 97, p = .989$ )
- Results from the speaking tests revealed that while the experimental group was able to make a small gain, the control group performed worse on the post-test compared to the pre-test
- The Mann-Whitney U test also revealed that the difference between the two groups' gains, or lack thereof, was significant ( $U = 45.5, p = .017$ )

Table 2. Survey results

Construct	M	SD
Perceived ease of use	4.00	0.89
Perceived usefulness	3.96	0.82
Attitudes towards use	3.96	0.69
Behavioral intention	3.88	0.86
Individual use	3.38	1.04
Pair use	3.23	0.73

- All four TAM constructs had mean values close or equal to 4 (agree)

## Discussion

- Non-significant listening comprehension results suggest that the use of IPAs such as Alexa may not have a significant impact on L2 listening comprehension
- Positive and significant results concerning speaking proficiency highlight the potential of IPAs to support foreign language development
- IPAs may support oral proficiency gains as they offer learners a way to practice the target language in a productive way in an anxiety-free environment
- Survey results imply that the students not only enjoyed using the IPA for L2 learning, but also perceived it to be a useful tool to study English, which supports past research on the use of virtual assistants in foreign language contexts (Dizon, 2017; Moussalli & Cardoso (2016, 2019)
- Limitations:
  - Small sample size
  - Teacher effect might have impacted the results
- Future directions for research
  - Effect of IPAs on specific aspects of oral production such as fluency and pronunciation
  - The use of IPAs for autonomous language learning outside of class
  - Using IPAs to promote willingness to communicate and reduce learner anxiety

## References

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