User Study of
Voice Interaction on Hololens

Group3
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Study Goal

What is the effect of using documentation vs Virtual Assistant on _task completion performance (# of errors made, # of references to help)_?

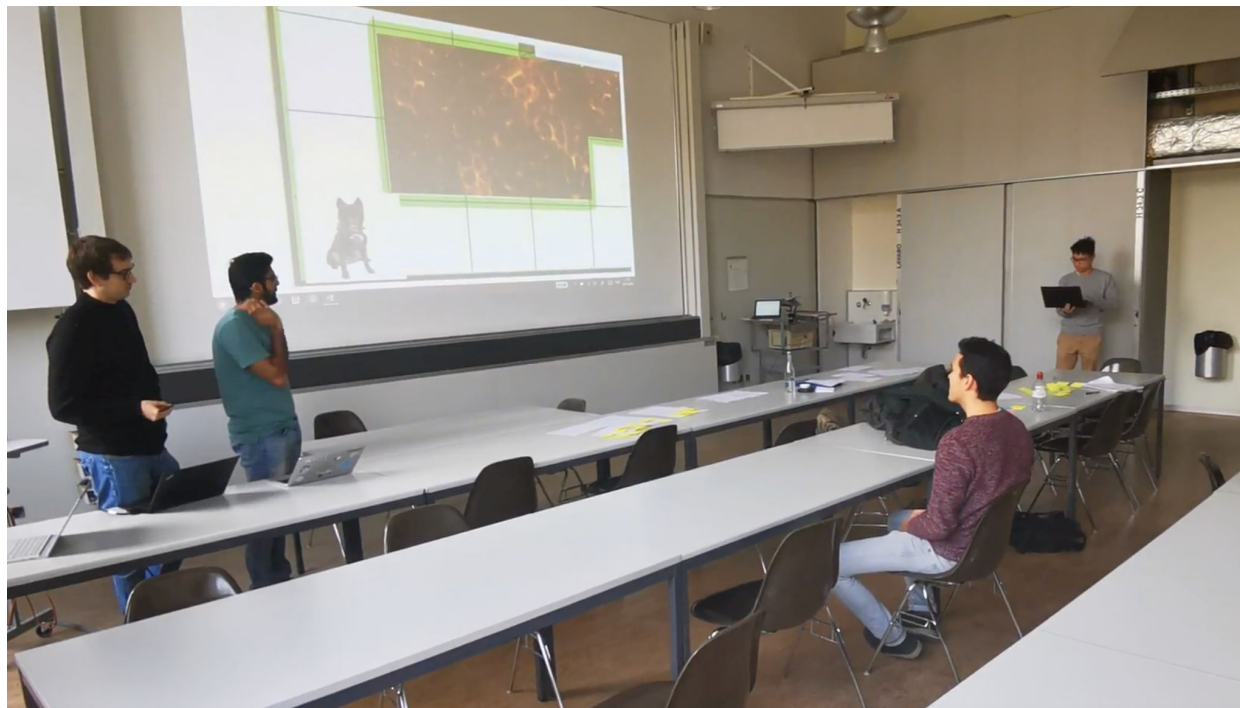What is the effect of using documentation vs Virtual Assistant on _percentage of voice commands_?

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Method

Measure performance of voice input

- ◎ **Split in two experiments**

- ◎ **How well can information be passed by voice?**

- ◎ **How effectively do users use voice?**
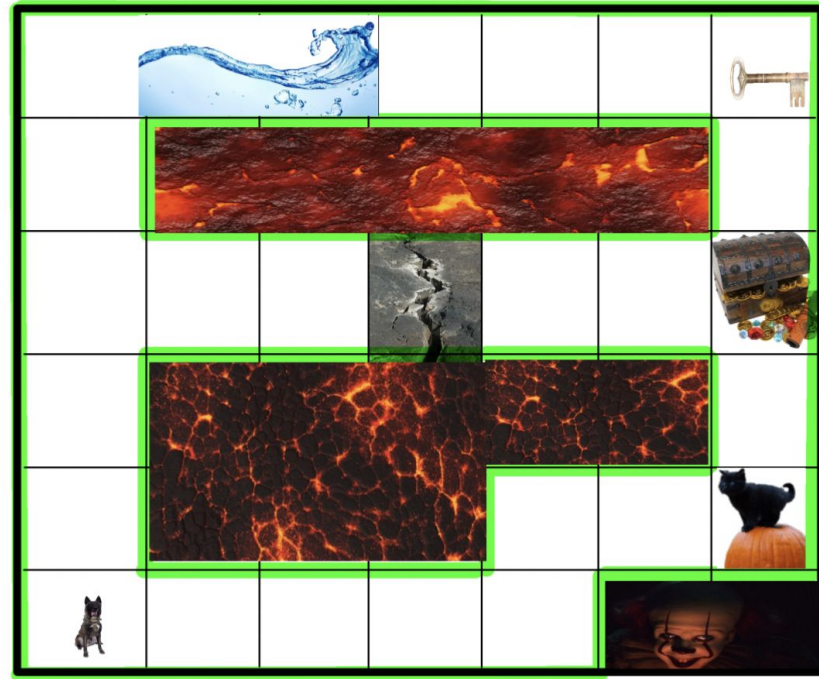
- ◎ **How comfortable do users feel when using HoloLens?**

Experiment Protocol

Task 1: Game

Task 2: E-mail

Results

Effect of reference medium on errors made and references to help while playing the game

■ average # of errors   ■ average # of references to help

Virtual Assistant or Documentation
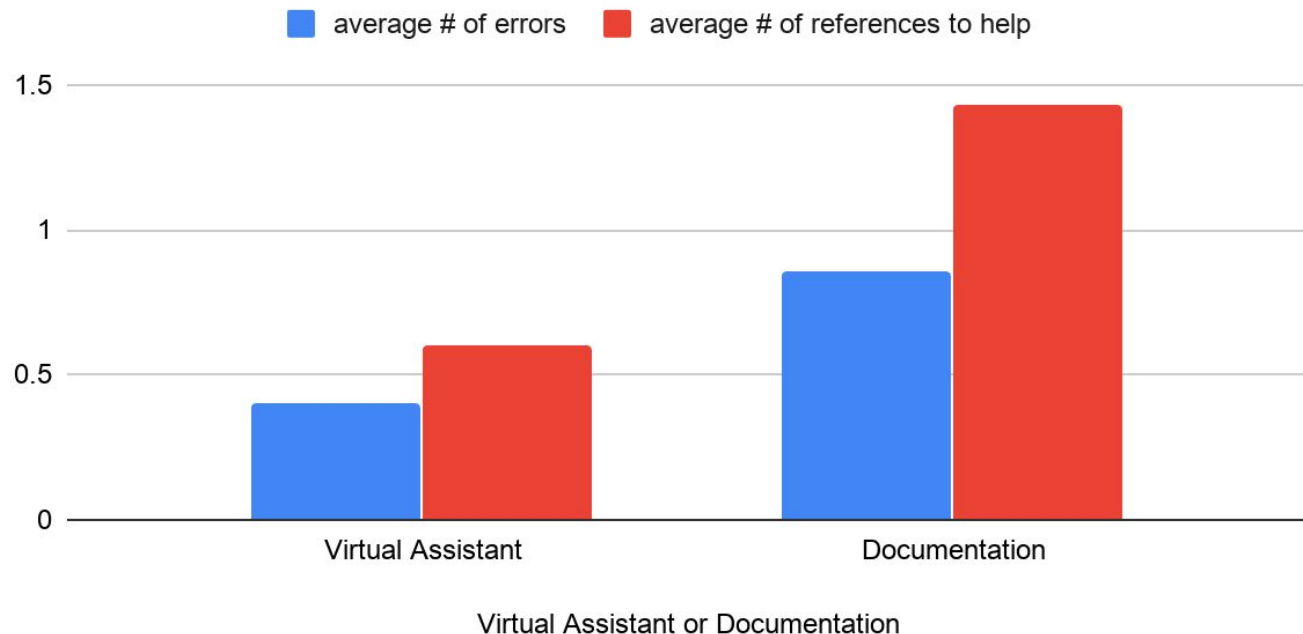
Results

Effect of reference medium on errors made and references to help while completing the mail task

■ average # of errors ■ average # of references to help

Virtual Assistant or Documentation
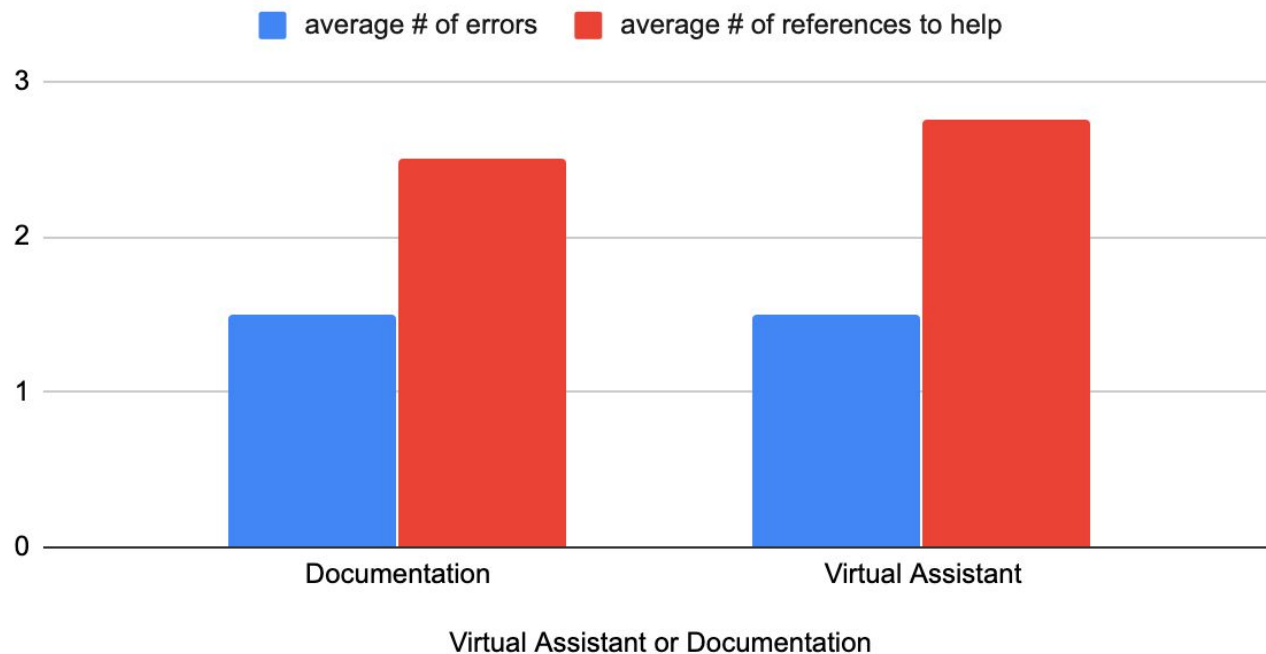
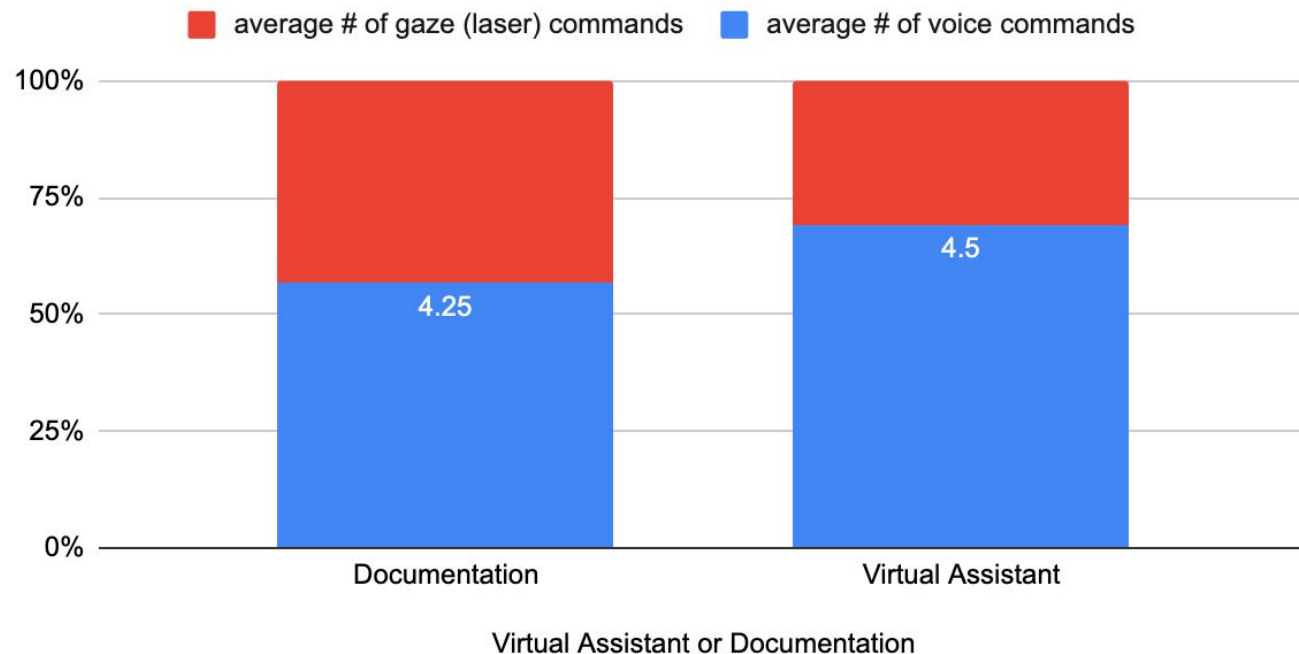**Results**

Percentage of voice commands used **increased from 59% to 72%** when using the virtual assistant

Effect of reference medium on # of Gaze commands and # of Voice Commands while completing mail task

average # of gaze (laser) commands ▪ average # of voice commands

100%

75%

50%

25%

0%

4.25

4.5

Documentation

Virtual Assistant
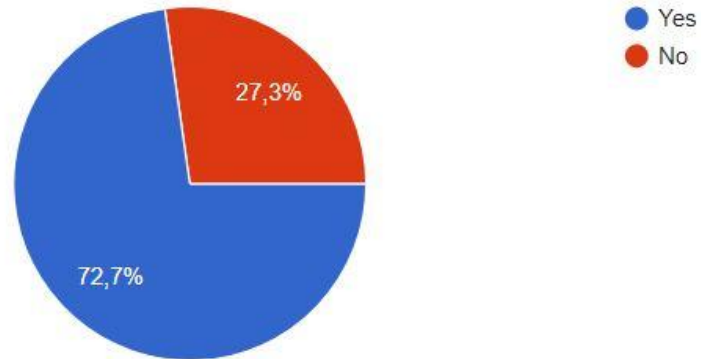
Virtual Assistant or Documentation

Results

Effect of reference medium on average time to complete mail task
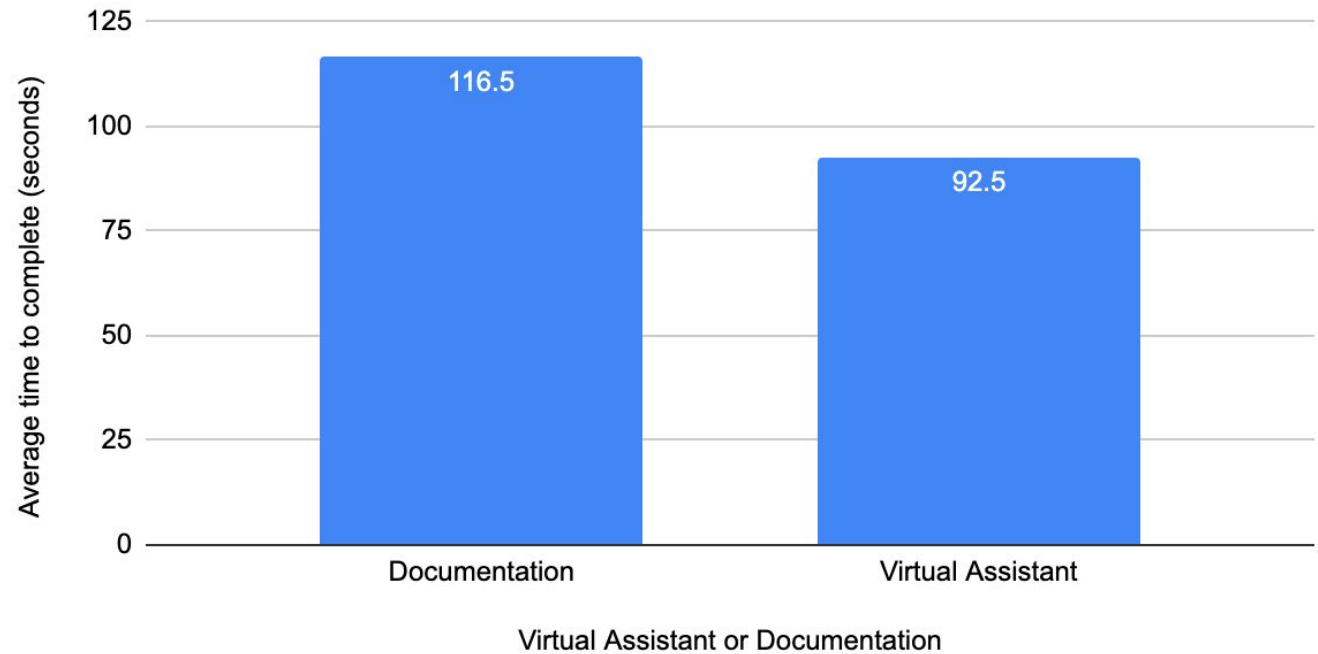
Results

If all applications would implement a voice assistant, would you use voice more often?
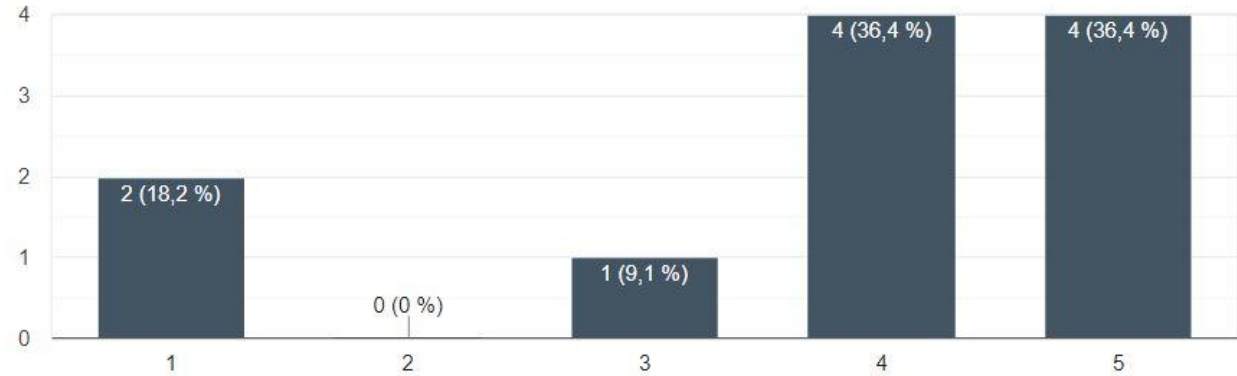

- Yes
- No

72,7%

27,3%

Results

What kind of interaction do you prefer while using HoloLens?

- ● Voice
- ● Laser Pointer

38,5%

61,5%
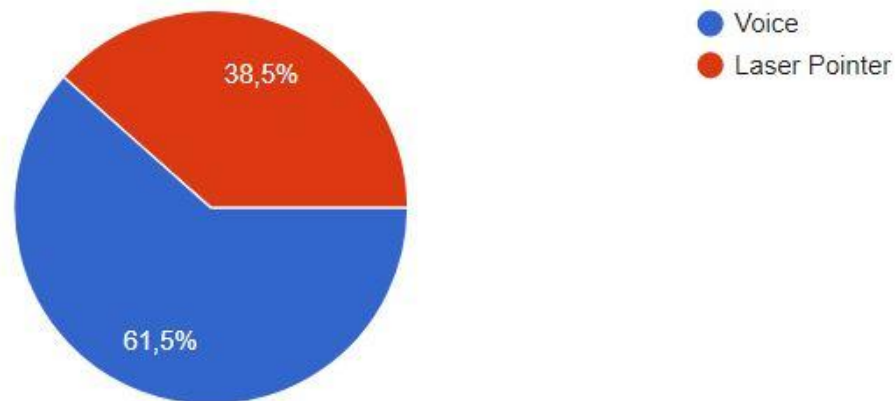
Results

Overall Reaction to Cortana Voice Assistant

2 (18,2 %)	0 (0 %)	1 (9,1 %)	4 (36,4 %)	4 (36,4 %)
1	2	3	4	5

Overall Reaction to Documentation

0 (0 %)	0 (0 %)	1 (16,7 %)	5 (83,3 %)	0 (0 %)
1	2	3	4	5
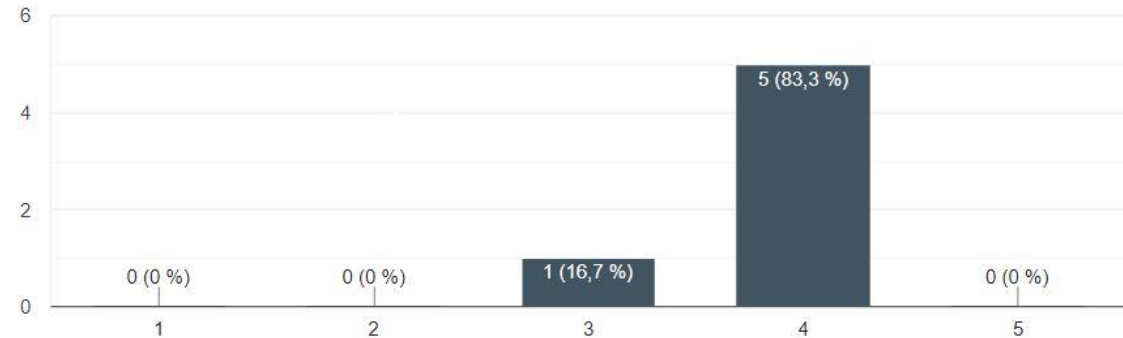
Implication

User Study on Voice Interaction

- ◉ Virtual Assistant helps increase usage of voice

- ◉ More variety of activation commands needed

- ◉ Ability to modulate speed of sentences or skip/repeat
  them

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