

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?



“



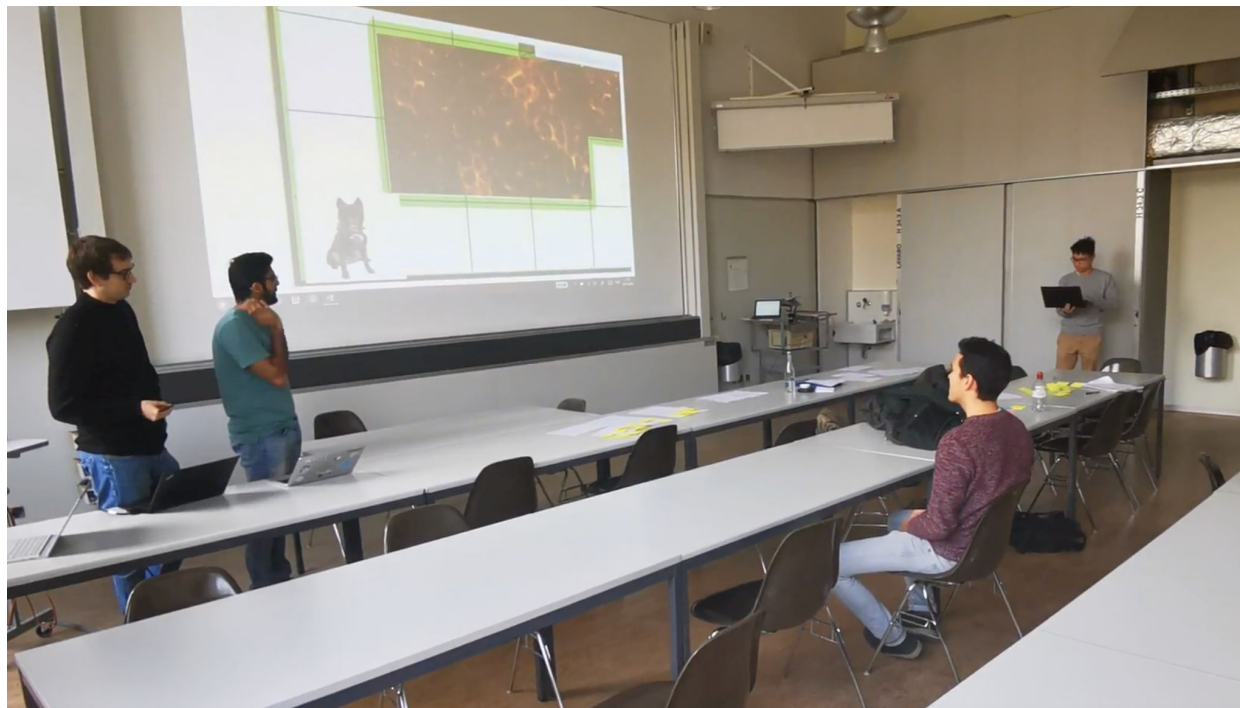
Method

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?

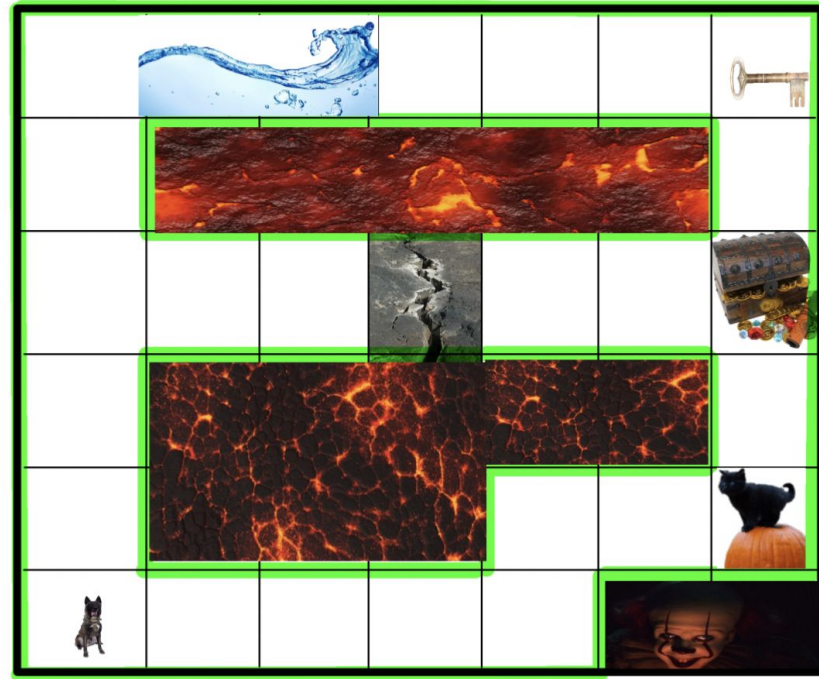


Experiment Protocol





Task 1: Game





Task 2: E-mail

Mail

Search Mail and People

^ Favorites

받은 편지함 126

보낸 편지함

^ Huh Mina

받은 편지함 126

임시 보관함

보낸 편지함

지운 편지함

메모

정크 메일

받은 편지함

Filter

Piazza Team
11/20/19 Daily Digest for 263-5210-00L on P Wed 7:02 PM
11/20/19 Daily Digest for 263-5210-00L: Probabilistic ...

Anna Laura John via Events-a...
[VIS] Snowdayz 2020 Wed 2:22 PM
*** English version below *** Liebe VISler An alle Sc...

ETH Juniors
[ETH Juniors] We want you! Wed 11:35 AM
Hello Mina, Macherinnen und Macher an der ETH - ...

Tuesday

Microsoft Outlook
This is an email! Tue 9:14 PM
Delivery has failed to these recipients or groups: hel...

Microsoft Outlook
This is an email! Tue 9:05 PM
Delivery has failed to these recipients or groups: hel...

Piazza Team
11/19/19 Daily Digest for 263-5210-00L on Pi Tue 7:07 PM
11/19/19 Daily Digest for 263-5210-00L: Probabilistic A...

eventmanager--- via Events-a...
[VIS] Beekeeper's Board Games Night / Beel Tue 5:55 PM
-----English version below ----- Liebe Studierende ...

Alarmierung ETH Zürich
Entwarnung HCI-1 Tue 3:59 PM
15:54 ENTWARNUNG Evakuierung im Gebäude HCI-1 ...

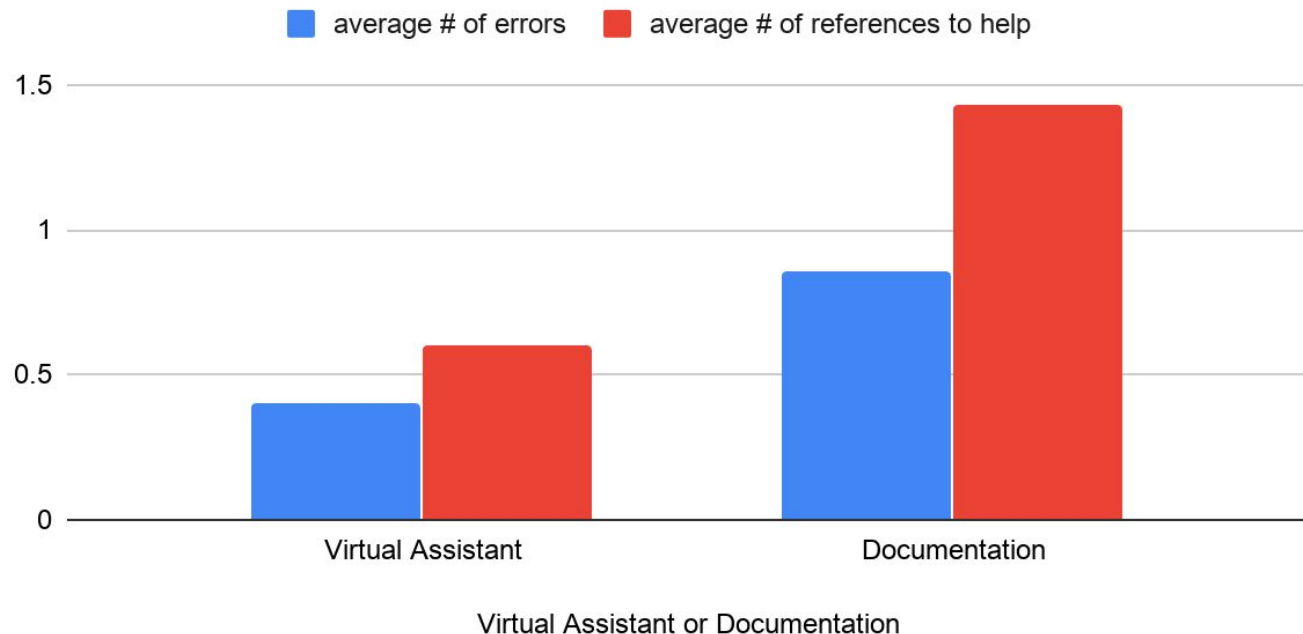
Select an item to read

[Click here to always select the first item in the list](#)



Results

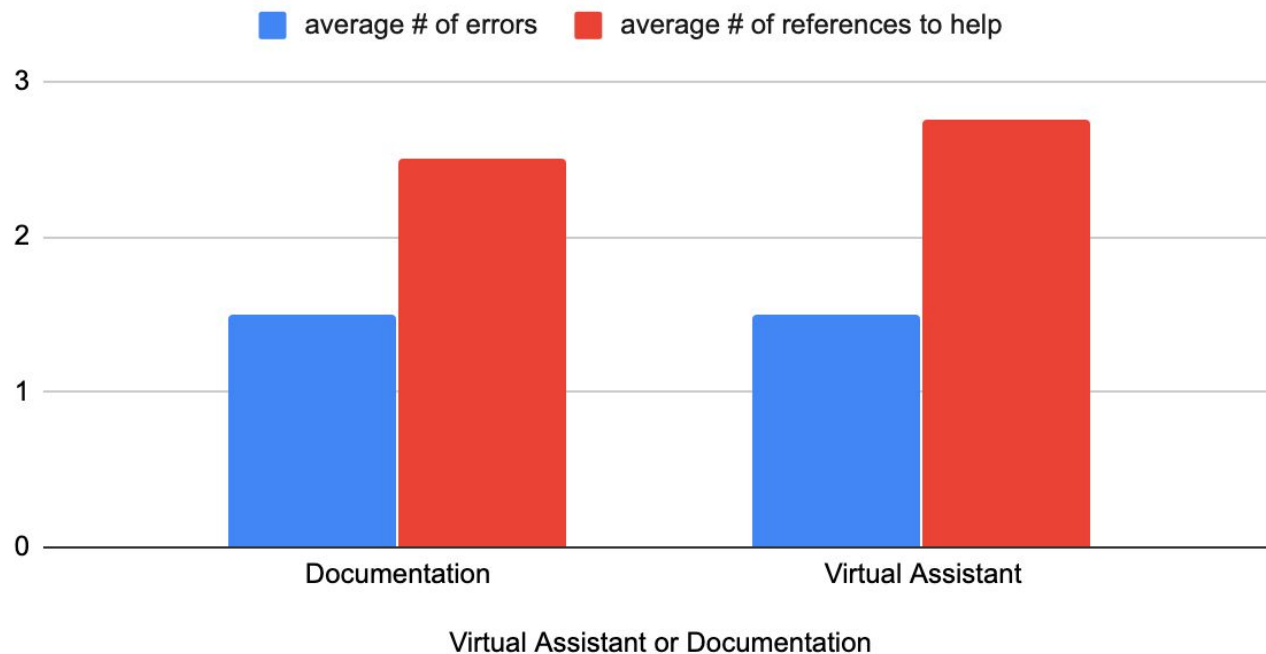
Effect of reference medium on errors made and references to help while playing the game





Results

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

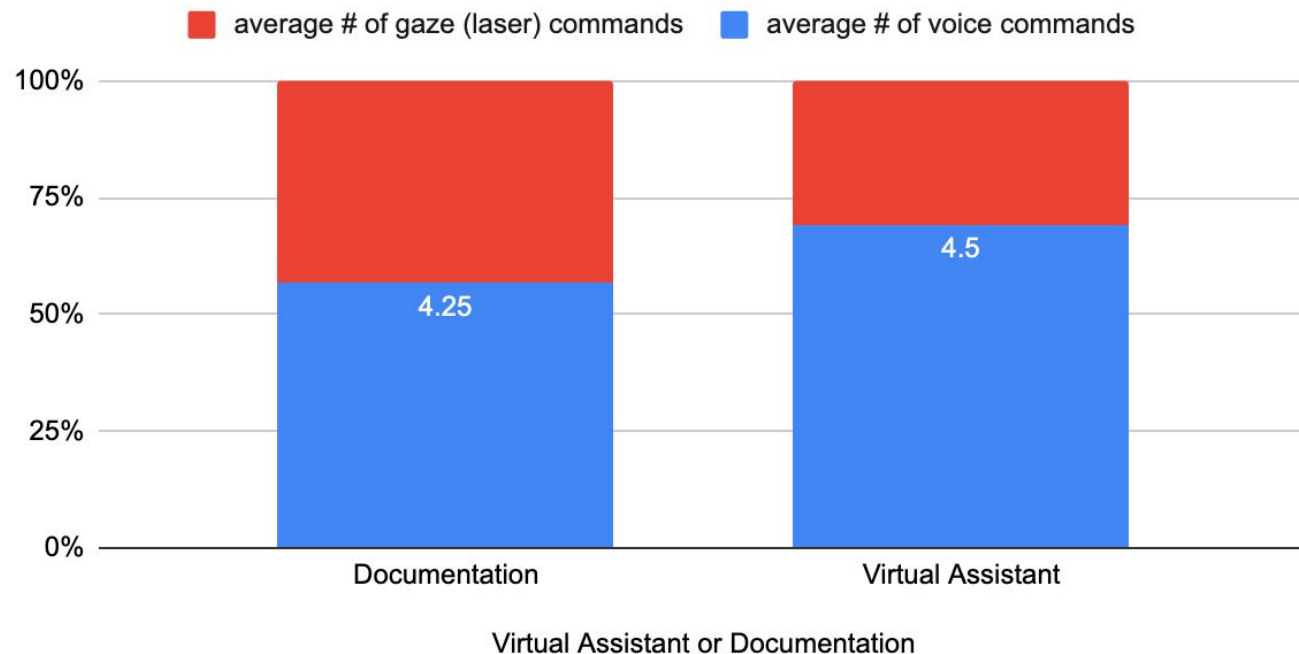




Results

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

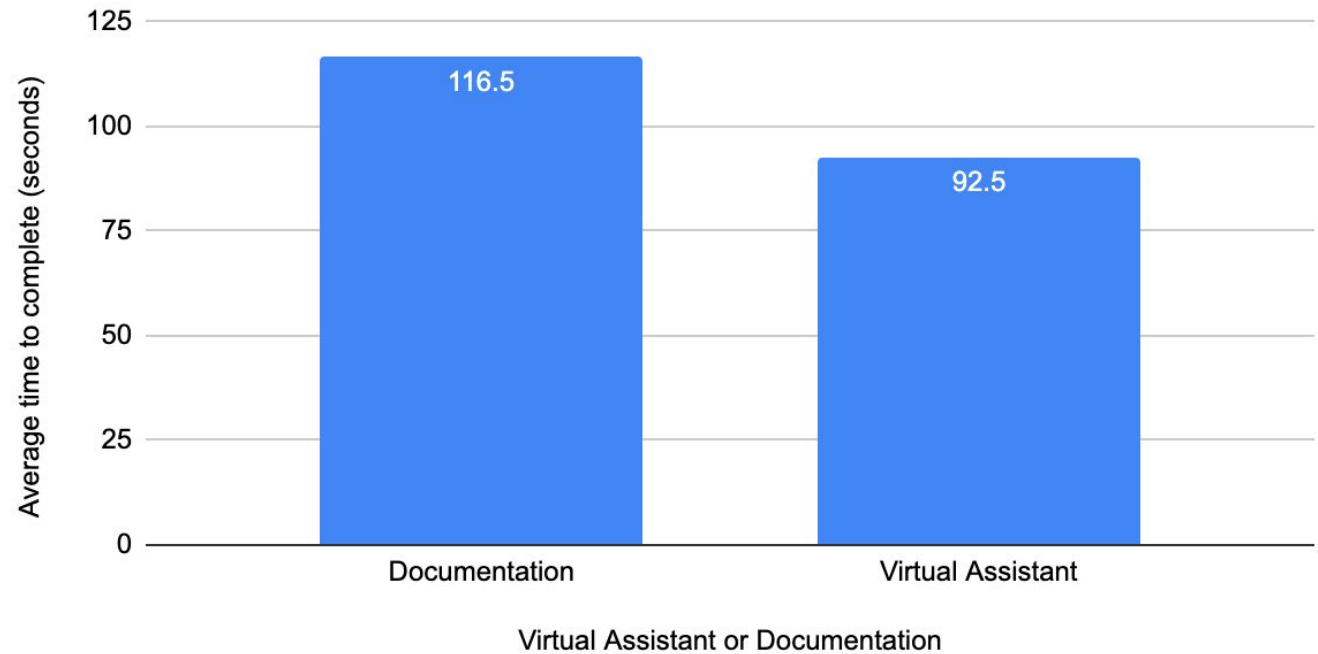
Effect of reference medium on # of Gaze commands and # of Voice Commands while completing mail task





Results

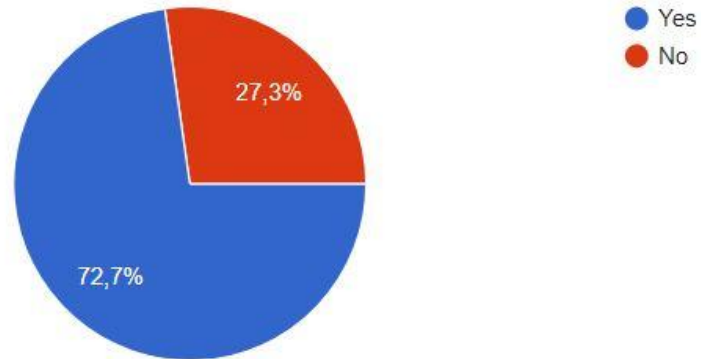
Effect of reference medium on average time to complete mail task





Results

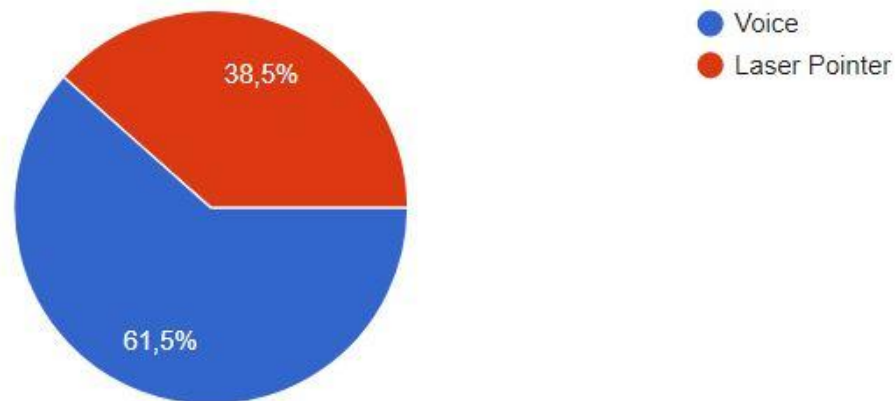
If all applications would implement a voice assistant, would you use voice more often?





Results

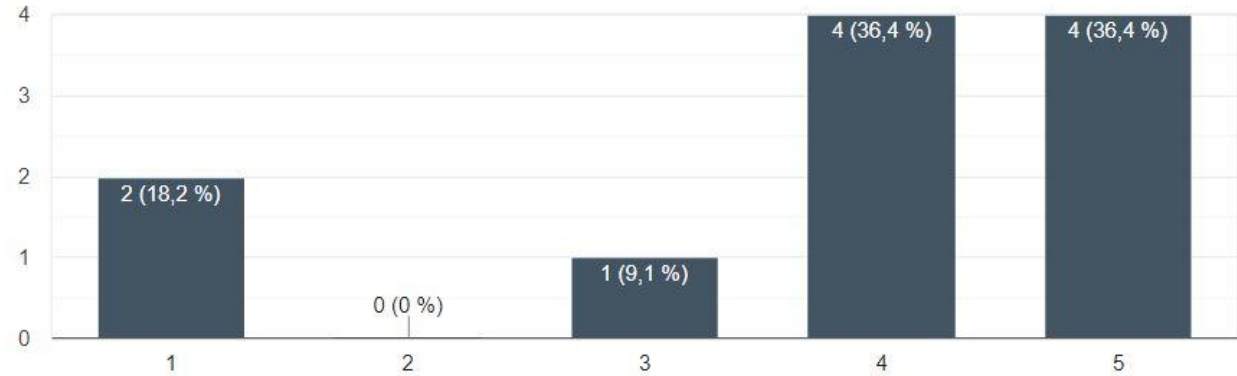
What kind of interaction do you prefer while using HoloLens?



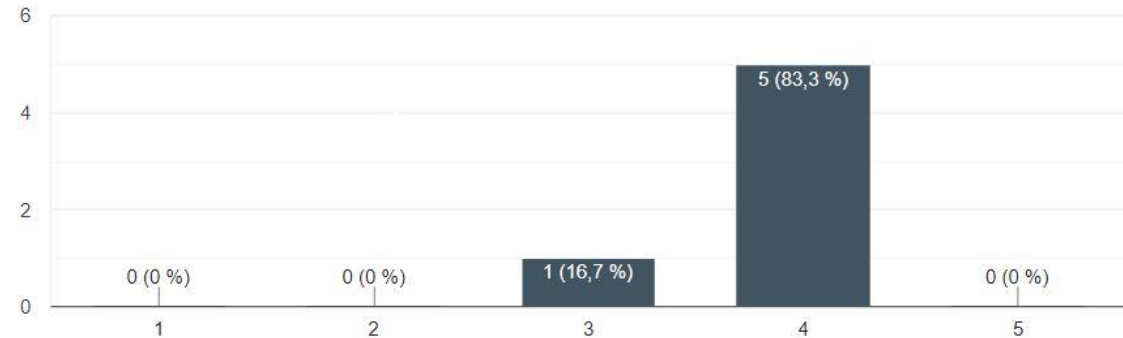


Results

Overall Reaction to Cortana Voice Assistant



Overall Reaction to Documentation





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