applied sciences

MDPI

*Article*

# Using chatbots as AI conversational partners in Language Learning.

## SUPPLEMENTARY DATA

**ANNEX A – PRE SURVEY**

Socio-demographic data and technological affinity

1. Age: 20-29 / 30 -39 / 40+
2. Gender: male / female / other
3. How many electronic devices do you have (you may tick several options): [ ] PC or Mac, [ ] laptop, [ ] tablet, [ ] smartphone [ ] chatbot
4. How concerned are you about privacy when using electronic devices? (for example, access to your information by third-parties, use of cam, etc) 5-point scale: 1= not concerned at all to 5= extremely concerned

Previous knowledge about chatbots

5. Are you familiar with the following chatbots? Y/N [ ] Alexa (Amazon), [ ] Cortana (Microsoft), [ ] Siri (Apple), [ ] Bixby (Samsung), [ ] Watson (IBM), [ ] Google Assistant
6. How often do you use the following chatbots (5-point scale: never, rarely, sometimes, quite, very often): [ ] Alexa (Amazon), [ ] Cortana (Microsfot), [ ] Siri (Apple), [ ] Bixby (Samsung), [ ] Watson (IBM), [ ] Google Assistant
7. From what you know about chatbots, rate their usefulness in the following areas on 5-point scale (1 = not useful at all to 5 = very useful): [ ] Commerce (on-line shopping, etc), [ ] Education (quizbots, academics, lessons, etc), [ ] Psychological issues (mental health, etc), [ ] Social Networking (Facebook, Whatsapp, Instagram, etc), [ ] General information (leisure, movies, TV series, etc).
8. Please, rate your level of satisfaction with chatbots in general on a 5-point scale: 1= not satisfied at all to 5 = completely satisfied

**ANNEX B – POST SURVEY**

**The Chatbot-Human Interaction Satisfaction Model (CHISM)**

Rate your level of satisfaction on a 5-point scale (1 = not satisfied at all to 5 = completely satis fied) for each of the following items as explained in class.

| Dimension | Item | Choices 1 2 3 4 5 |
|---|---|---|
| **Linguistic** | 1. Semantic coherent behavior (coherence, off topics) | ()()()()() |
| | 2. Sentence structure and complexity (sentence length, diversity) | ()()()()() |
| | 3. R&S technologies (quality of voice recognition and synthesis) | ()()()()() |
| | 4. Lexical richness (vocabulary range, diversity of topics, different registers, colloquial expressions, contracted and abbreviated forms) | ()()()()() |
| | 5. Grammatical accuracy (correct usage of sentences, syntax) | ()()()()() |
| | 6. Error detection and correction (chatbot corrects errors, errors do not interrupt conversation) | ()()()()() |
| | 7. Chatbot response interval (human-chatbot sentence interval, chatbot proactiveness in conversation) | ()()()()() |
| | 8. Natural conversational interaction (non predictable, use of discourse markers, contextual use of language) | ()()()()() |
| | 9. Non-verbal language (use of emojis and memes) | ()()()()() |
| **Technological** | 10. Multimedia content (linked to apps and social networks, videos and video calls, AR tech, games) | ()()()()() |
| | 11. Design (avatar, friendliness, static or animated, customizing options) | ()()()()() |
| | 12. Interface (multiplatform, data storage, adaptivity, ease of use) | ()()()()() |
| **Experiential** | 13. Engagement (active participation in the conversation) | ()()()()() |
| | 14. Enjoyment (feeling of pleasure while conversing) | ()()()()() |

| | | |
|---|---|---|
| | 15. Further interest (willingness to interact more with the chatbot in the future) | ()()()()() |

**Technology Acceptance Model - TAM2**

Dimensions: Perceived Ease of Use (PEU), Perceived Usefulness (PU), Usability (US), Per ceived Behavior Control (PBC), Attitude (ATT), Behavioral Intention (BI), Self-efficacy (SE), Personal Innovativeness (PI).

Rate your perception about the integration of chatbots in language learning on a 5-point scale (1=completely disagree to 5 = completely agree)

| **Dimensions and items** | **Choices** 1 2 3 4 5 |
|---|---|
| 1. (PEU) I find chatbots easy to use | ()()()()() |
| 2. (PEU) Learning how to use chatbots is easy for me | ()()()()() |
| 3. (PEU) It is easy to become skillful at using chatbots in language learning | ()()()()() |
| 4. (PEU) I find chatbots in language learning to be flexible to interact with | ()()()()() |
| 5. (PEU) The interaction with chatbots in language learning is clear and understandable | ()()()()() |
| 6. (PU) Using chatbots in language learning would increase the students' learning performance | ()()()()() |
| 7. (PU) Using chatbots in language learning would increase academic productivity | ()()()()() |
| 8. (PU) Using chatbots would make language learning easier | ()()()()() |
| 9. (PU) Using chatbots in language learning allows the learners to study outside of the classroom | ()()()()() |
| 10. (PU) Using chatbots in language learning is useful for context-based interactions as in real life | ()()()()() |
| 11. (PU) Chatbots enable students to learn more quickly in language learning | ()()()()() |
| 12. (PU) Chatbots make it easier to innovate in language learning | ()()()()() |
| 13. (PU) The advantages of chatbots in language learning outweigh the disadvantages | ()()()()() |
| 14. (US) I believe that using chatbots will increase the quality of language learning | ()()()()() |
| 15. (PBC) I am completely satisfied in using chatbots for language learning | ()()()()() |
| 16. (PBC) I am very confident in using chatbots in language learning | ()()()()() |
| 17. (AT) Using chatbots in language learning is a good idea | ()()()()() |
| 18. (AT) I am positive towards using chatbots in language learning | ()()()()() |
| 19. (AT) Using chatbots in language learning is fun | ()()()()() |
| 20. (BI) I intend to use chatbots in language learning frequently | ()()()()() |
| 21. (BI) I intend to learn more about using chatbots in language learning | ()()()()() |
| 22. (SE) I feel confident in using chatbots in language learning | ()()()()() |
| 23. (SE) I have the necessary skills for using chatbots in language learning | ()()()()() |
| 24. (PI) I like to experiment with new technologies in language learning | ()()()()() |
| 25. (PI) Among my peers, I am usually the first to explore new technologies | ()()()()() |

## ANNEX C (TEMPLATE ANALYSIS - TA)

### INSTRUCTIONS

Read carefully the instructions and follow these steps:

**Download chatbots**
- **Download** the three chatbots, click on the links, and sign up. You can use them on your smartphone or tablet
- You can also use the web-based option, if available.

**Download TA**
- Download the **TA** (Word format) from the **Moodle platform**
- **Pay attention to the information you will need to provide** about your interaction with the chatbots (**10 screenshots** with the dates) and use them on a **regular basis (4 weeks)**.

**USE chatbots**
- **Start using the chatbots.** You will use them **as future language teachers from a critical perspective**, not as language learners. You will adopt the role of a future educator to evaluate them.
- Take your own **notes** about each of them (**advantages and limitations**).

**Submit TA**
- **Complete** the **TA** about each conversational agent
- **Submit** (Moodle activity) your report within the deadline

### AI CONVERSATIONAL PARTNERS

As explained in class, focus on the following aspects while you interact with the chatbots:

**LINGUISTIC**
- What is the semantic coherence? Can you find off-topics? Is the conversation predictable (scripted)?
- What about the vocabulary range of the chatbot? Can you converse about different topics?
- What about the grammatical accuracy (any errors)? Does the chatbot provide error corrrection?
- What about the use of humor (intentional meaning)?
- Does it look/sound 'natural' or humanlike to you?

**TECHNOLOGICAL**
- Do you find the interface easy to use?
- What do you think about the avatar (friendly, static or dynamic, customizable, etc)?
- What about the multimedia content (images, videos, sounds, etc)?

**EXPERIENTIAL**
- How engaging are the conversations?
- How much did you enjoy while conversing with the chatbots?
- Would you like to chat more with each of them in the future?

### TEMPLATE ANALYSIS

Provide your comments and illustrate them with examples:

| Conversational agent | Advantages | Limitations |
|---|---|---|
| **KUKI** kuki.ai | -<br>-<br>- | -<br>-<br>- |
| **REPLIKA** replika.ai | -<br>-<br>- | -<br>-<br>- |
| **WYSA** wysa.io | -<br>-<br>- | -<br>-<br>- |

**Remember to include 10 screenshots of your interaction (min. 3 per chatbot)**