

Accessing Language Using Online Chatbots

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Evolution has exponential timing
It'll be half as long
'Til the next breakthrough that
Blows our minds
It's up to humans to brave on with
experimentation
Move forth the species by using our
imagination."
-- "Evolution", by 311.

Why chatbots?

One of the major problems students face in their study and acquisition of language is finding access to it in a comfortable environment which suits their personality and interests in a meaningful manner. This is especially so when it comes to accessing language outside of classes such as during semester breaks. Students have an even more limited number of options in terms of readily available, low-cost alternatives that involve skills they need to practice to avoid delay or fossilization in linguistic development. Internet-based chatbots can offer students an interesting alternative to such passive activities as watching movies, reading books, writing personal journals or listening to their favorite target language music. Chatbots can also offer a stress-free medium for communicating in English. There are a wide array of sites such as discussion forums, video streaming sites or networking sites such as Facebook or Mixi, but students may feel apprehensive about commenting on classmates page for fear of saying the wrong thing. Chatbots also can serve as a scaffolding device for those who or are still in the early stages of their foreign language development or are terrified of interacting with people. Possibly the best part about chatbots is that a majority of them are free of charge, they

can be accessed at anytime through the internet, and they will wait indefinitely while a student is using a dictionary to find a word – it's the gift that keeps giving.

Chatbots and artificial intelligence.

A chatbot (also known as talk bots, chat bots, or chatterbots) is an internet-based computer program designed to simulate an intelligent conversation. They have been around for over thirty years in limited capacities yet have been developing exponentially since inception. Though they may appear to interpret the user input, most just scan for keywords within the input and generate a reply with a similar wording pattern or the most matching keywords from a local database. Every year, the annual Loebner Prize competition is held which awards the chatbot that shows the highest level of artificial intelligence. For the Loebner Prize, a chatbot must undergo a Turing test in which a human judge is faced with two computer screens- one is a computer, the other is controlled by a human. A judge asks questions to the screens and based upon the answers, decides which screen is controlled by the human and which is the computer program (Fryer and Carpenter, 2006; Saygin, Cicekli, & Akman, 2000). No chatbot to date has claimed first prize, as first prize would mean true artificial intelligence so the highest honor so far has been third prize.

A study published in 2006 by Fryer and Carpenter involving 211 first and second year students which investigated the perceived usefulness of chatbots concluded that: (1) 85% of students reported feeling more relaxed interacting with a computer than a person even to the point that they preferred talking with a chatbot for 20 minutes rather than a human. (2) Chatbots will repeat material without hesitation and do not get bored or angry. (3) Some chatbots have a 'voice' which allows students to practice speaking and listening skills. (4) Students think that chatting with a chatbot is new, novel and

interesting. (5) Students can access a chatbot anytime and a majority of them are free of charge. (6) Most chatbots are not designed to correct spelling, which promotes fluency in expression.

KUIS students' reactions to chatbots

I undertook a similar study on a smaller scale in 2007-08 involving 42 students ranging from lower-intermediate to advanced abilities. After receiving permission from participants, they were encouraged to tryout several chatbots including *Jabberwacky*, *God*, *ALICE*, and *George* and their initial reaction to chatting with artificial intelligence was amazement. None of the participants had ever heard of a chatbot and were generally surprised that there was such technology available for language learning on the Internet for free. Participants were instructed to interact with several chatbots then fill out a brief questionnaire rating themselves according to a simple Likert scale (1 = strongly disagree, 4 = strongly agree) as well as give any additional comments about their experience with chatbots (see figure 1 and 2). As participant numbers were low for this study, data and comments received should only be seen as an indicator general student opinion concerning chatbots.

Figure 1 –

Data	Ave	SD
I enjoyed chatting with chatbots.	3.86	.35
I will chat with chatbots again.	3.64	.58
I am comfortable chatting in English with chatbots.	3.79	.42
Chatbots can help me improve my English.	3.55	.55
Chatbots are a good way I can practice my writing.	3.86	.35
I am interested in learning more about chatbots	3.43	.74

In terms of directions for future research, I am currently investigating the long term effects of participant usage of chatbots in terms of monitoring the level of interest,

frequency of interaction and whether usage is either a trend or something more worthwhile.

Figure 2 – A selection of original comments from students

I'm glad to come here today and I'm happy to know about chatbots, its so useful for me.

I will use chatbots in the future because I will take a TOEFL ibt Test.

I use chatbots in the futre because it is interesting.

Yes I though using chatbots are so funny. I liked God, he was smart and funny.

I'd like to use chatbots to my child if I became a mother.

Yes I do [want to use chatbots] I found my typing speed was really bad, so I want improve it!

I didn't know about A.I., so I'm glad now, and I was surprised at AI because they were really like human.

I found it very useful to practice English.

I will use chatbot to used to writing in English.

I liked George, I think he is clever. I asked him to tell me his phone number and he ask me to tell him first.

Implications for learning

As one can see from questionnaire results and comments, students have an overall positive outlook in interacting with chatbots. One student even commented that she would like to use chatbots with her children in the future. Such enthusiasm

and interest is natural as the novelty factor of chatting with a computer is inescapable for a students' first interaction with a new technological learning medium.

Maintaining this enthusiasm towards using English has great potential for improving students' confidence in interacting in English, and extensive interaction could even be seen as preparation for real interactions using English.

As for getting students to use chatbots outside of class, one practical application is to have students review what they covered in class with a chatbot, copy the script into Microsoft word and hand it in as an 'extensive chatting' assignment. A follow up to this would be to share the transcripts in class and have students brainstorm additional questions pertaining to the subject to ask in the next session. The transcripts could also be analyzed and used as a tool for identifying and correcting grammar mistakes. Another application would be to create a classroom chatbot that is designed and used by its creators. Chatbots can be programmed using AIML (Artificial Intelligence Markup Language), which is a free, open-source standard used for creating or 'training' chatbots. AIML is similar to HTML language with a design principle of minimalism and anyone who can design a webpage can also create a chatbot (Fryer and Carpenter, 2006). This being said, not only could students develop their own language abilities, they could learn about programming, killing two birds with one stone. This is an ambitious project, but what better way for students to autonomously access language? Regardless of their structured or unstructured use, AI chatbots have great potential for use inside and outside a language classroom as they allow learners to practice language and develop confidence in an individualized stress-free manner at their own pace and preference. Instructors have great potential to be part of developing AI and chatbots, resulting in a new revolution in language education

and learning taken from the pages of science fiction and made into reality.
On-line resources

A.I Hub <http://www.aihub.org/index.php>
A site dedicated to news about AI developments, chatbot downloads, chat forums and resources

A.L.I.C.E. -- <http://www.alicebot.org/>
Contains information on AIML and two chatbots A.L.I.C.E. and GOD

Jabberwacky -- <http://www.jabberwacky.com/>
Website of chatbot developer Rollo Carpenter also containing chatbots George and Joan

References

Buchanan, (2002). Brief history of artificial intelligence. Retrieved on May 27, 2008, from

<http://www.aaai.org/AITopics/pmwiki/pmwiki.php/AITopics/BriefHistory>

Fryer, L. (2006). Bots for language learning. *The Language Teacher*. 30(8). p. 33-34.

Fryer, L. & Carpenter, R. (September, 2006). Emerging technologies: bots as language learning tools *Language Learning & Technology*. 10(3). pp. 8-14.

Graddol, D. (2000). The future of English. *The British council*. Retrieved on May 27, 2008, from <http://www.britishcouncil.org/learning-elt-future.pdf>

Hexum N.L. & Martinez, D.V. of 311 (August 5th 1997). Evolution. On *Transitor*. Macon, Georgia: Capricorn Records.

Saygin, A.P, Cicekli, I & Akman, V. (2000). Turing test: 50 years later. *Minds and Machines*, 10, 463–518, 2001. Retrieved May 27, 2008 from <http://crl.ucsd.edu/~saygin/papers/MMTT.pdf>