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The Implementation of English Learning Chatbot using Social Media in Indonesian Context

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Abstract: *Some students learn English is something that is not easy so they need a companion to correct if something goes wrong. Learning English can be started by correctly understanding its structure so that it can help and provide a sense of trust when studying the next material such as reading, listening, and writing. This study aims to develop a chatbot application to learn English structure using social media. The main consideration for the use of social media as a means of learning is that most community activities for students in this pandemic season use social media or online-based learning facilities, so it is felt that social media is not something new for the general public and is the best alternative that can be used as a means to convey English structure material. Facebook with its chat fuel facility is used to develop an English structure learning chatbot. Using the chatbot method will automatically assist if someone who is learning has difficulties. The application, which is named ELA-bot or English Learning Assistant Bot, has been implemented in students of the S1 English study program, FKIP UIR. The test results showed that 90.5% of students stated that chatbots have helped in the process of learning English structure.*

Keywords: *Chatbot, Social Media, Learning, English structure.*

INTRODUCTION

In general, a chatbot is a computer program that can perform automated tasks and can function on messaging platforms (Ahmad et al., 2018). Chatbots mimic human conversations by using Artificial Intelligence (AI) (Dale, 2016; Ranoliya, 2017; Molnár & Szüts, 2018). A chatbot is an automated conversation agent that interacts with users using natural human language that can help anytime and anywhere (Zumstein & Hundertmark, 2017; Brandtzaeg & Følstad, 2017; Georgescu, 2018; Pham et al., 2018). Nowadays, with the development of artificial intelligence, chatbots are used in various fields, such as automated phone answering systems, educational support, business, e-commerce, the ultimate virtual assistant, entertainment destination, helping a person complete tasks ranging from answering questions, providing driving directions, turning on the thermostat in the smart home, and playing favorite songs (Ranoliya et al., 2017).

Cui et al (2017); Pham et al (2018) recently, chatbots have received a lot of attention from researchers, indicating that many studies have been conducted, such as chatbots for answering Frequently Asked

Questions (FAQs), chatbot apps for education, or chatbot platform evaluations (Saenz et al., 2017; Pham et al. (2018). Chatbots are a positive aspect that has long been used as pedagogical agents in educational settings (Georgescu, 2018; Sarosa et al., 2020; Zahour et al., 2020). Since the early 1970s, pedagogical agents in a digital learning environment known as Intelligent Guidance Systems have been developed. conversational pedagogical agents use artificial intelligence techniques to improve automation in teaching (Kim & Baylor, 2006). Design knowledge and research are important in developing interesting and useful pedagogical agents that not only take advantage of technological advances, but also understand emotional, cognitive, and social education issues. In addition, conversational agents have been built into software and hardware (Sarosa et al., 2020). The incorporation of chatbots into the educational area over the past decade implies an increased interest in how chatbots are applied to teaching and learning (Bii, 2013). A useful chatbot system can provide availability benefits instantly and the ability to respond naturally through a conversational interface with the same advantages as an interview. Moreover, the chatbot demonstrates the ability to create interaction with users so that it can be leveraged to support engagement and set learning and training goals, strategies, and outcomes. One of the chatbot applications used in the field of education is for English language learning (Sarosa et al., 2020).

Today, the importance of English in the world cannot be denied and ignored because English is the most commonly spoken language. English helps in developing technology (Rodinadze & Zarbazoia, 2012). English has played an important role in the Education sector. Some English learning places train teachers to provide new learning techniques (Pushpa, 2018). Technological and lifestyle developments have enabled new learning of English which is carried out online (chat) through social media. Communication can be in the form of text (text chat) or voice (voice chat) so that it is as if the user is talking to a tutor. The advantage of this system is that users who need to practice English can be served almost 24 hours a day so there is no support for potential student-to-student interaction and student-to-instructor interaction by using the social network Facebook (Smutny & Schreiberova, 2020). Previous research has also concluded that gamification-based teaching practices improve students' attitudes toward lessons and positively affect student learning achievement (Yildirim, 2017). Facebook is a technology company deploying a platform to develop chatbots with natural language capabilities (Jain et al., 2018). Fast implementation of cloud-based framework platforms for chatbots due to their simplicity. Chatfuel is a chatbot creation framework that has been used by several world-class companies because the chatbot created by Chatfuel only takes a short time in answering questions from many users at once (Sarosa et al., 2020). Chatfuel provides an online platform that allows users to create chatbots for Facebook Messenger through an easy-to-use visual interface (Braun & Matthes, 2019; Fang & Bjrning, 2019).

In this study, an application was made in the form of a chatbot or answering robot as a substitute for teachers which was implemented in students to help them learn English if they experienced difficulties. A chatbot application integrated with Facebook social media called ELA-bot using the Chatfuel framework responds by replying to the message (Haristiani, 2019). The design of the chatbot begins with text input from the user using Facebook Messenger. On the Chatfuel Chatbot builder, the administrator has previously determined the chatbot response using Natural Language Processing (NLP) and a forward chaining expert system. NLP technology allows dictionaries to be better organized. Then the AI Rule Block is applied according to NLP and expert systems to present the material. While Organization Exercise Items (OEI) are used to determine the level of questions in the practice questions according to the score obtained by the user (Widjajanti et al., 2015). The corresponding question order method based on the user's level of competence is then selected and sorted.

METHODS

The basic mechanism of a chatbot starts with a message sent by the user. The message is then processed by Natural Language Processing (NLP), and the chatbot. Integration between Facebook Messenger and

Chatfuel framework. The concept of building a chatbot using Chatfuel. Chatfuel provides two options for creating chatbots including being able to use the templates that have been provided. Then create a Facebook page. Facebook pages can be integrated with chatbots on Chatfuel (Kostelník et al., 2019; Sabiq & Fahmi, 2020). After successfully connecting, setting up AI, adding groups, and adding AI rules can be done on Chatfuel. It further adds a conversation scenario by entering keywords from the user as well as adding a bot response in reply to the user. Bot responses can be added as needed, and can be in the form of blocks or text that has been created in the previous process. Then the application can be used on Facebook Messenger.

RESULTS

Based on the applied algorithm users can access Facebook messenger. Then search for the ELA-bot page and use the application. The ELA-bot page is shown in Fig 1. Once the conversation box opens, click the start/start button on the conversation. ELA-bot's initial response contains a greeting accompanied by the login user's name and a command to choose between opening the guide or practicing right away with the click of each option button. As shown in Fig 1 below.



Fig 1. Facebook ELA-bot page



Fig 2. ELA-bot's initial response

The practice guide is shown in Fig 1 and the option to start practicing is shown in Fig 2. Practice there is an option to select a category. Then the practice questions that must be answered will be displayed. The guide as shown in Figure 8, contains an explanation for choosing one of the question's practice categories, the user gets a question with a level according to the selected category, a guide to choosing the right answer, and a notification when you finish doing the exercise, the result of the practice score will appear. If the score result is more than or equal to 80, then the user is in the level-up category and if the score result is less than 40, then the user is in the drop-level category. When the user selects the "practice immediately" button as shown in Fig 2, on the display A conversation appears to select a category, for example, the category "vocabulary". After selecting a category, there will be practice questions that must be answered as shown in Fig 3, 4, and 5 below.



Fig 3. ELA-bot practice guide



Fig 4. View selecting categories

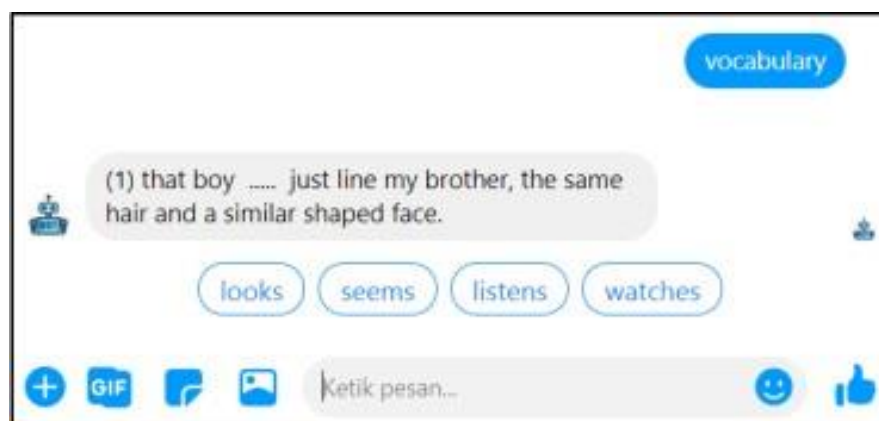


Fig 5. View selecting categories

Fig 3 shows the form of practice questions from the category "vocabulary". The type of practice questions is in the form of multiple choices. After all the questions have been answered, a score result of the exercise performed will appear as shown in Fig 5 below.

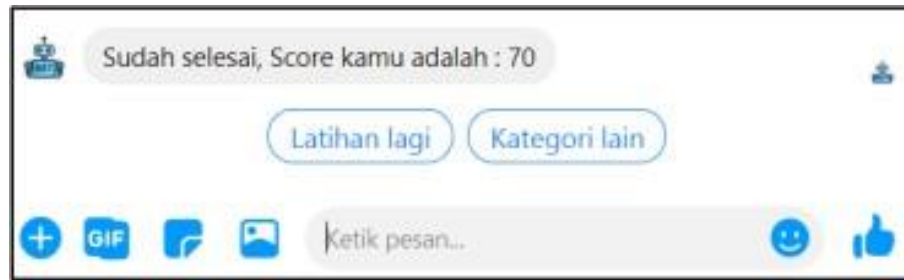


Fig 6. Display of score results

Based on Fig 6, users can find out the score from the results of the practice questions that have been answered. Once the result score appears, the user can choose to exercise again with the same category by pressing the "Practice again" button. If the user wants to do the exercise again with a different category, the user can press the "Other categories" button. The Chatbot application or English Learning Assistant has been implemented in 30 students of the S1 English Study Program, Faculty of English Language Education. There are three assessments in the questionnaire shown in Table 1 below.

Table 1. Testing Questionnaires

No	Question	Responses	
1	Has the chatbot helped to learn English?	Help	Unhelpful
		29	1
2	Is the material presented interesting enough?	Pull	Unattractive
		26	4
3	Do chatbot applications burden the performance of student mobile phones?	Loading i	No Burdensome
		10	22

Based on Table 1, you can obtain the percentage of student responses to chatbot applications as shown in equations (1), (2), and (3).

1st question = 96.5%

2nd question = 88%

3rd question = 74.5%

So it can be known that 98.5% stated that chatbots have helped them learn English, 90% said that the material presented was quite interesting and 75.4% stated that chatbot applications do not burden the performance of their mobile phones.

CONCLUSION

Chat-bot est une application qui apprend en répondant aux conversations des utilisateurs. The test results showed that 98.5% stated that the chatbot had helped them learn English, 90% conveyed that the material presented was sufficiently interesting and 75.4% of chatbot apps don't overload their phone's performance. This shows that the collection of information and models for organizing practice questions in the application has helped students learn English independently.

REFERENCES

1. Ahmad, N. A., Che, M. H., Zainal, A., Abd Rauf, M. F., & Adnan, Z. (2018). Review of chatbots design techniques. *International Journal of Computer Applications*, 181(8), 7-10.
2. Bii, P. (2013). Chatbot technology: A possible means of unlocking student potential to learn how to learn. *Educational Research*, 4(2), 218-221.
3. Brandtzaeg, P. B., & Følstad, A. (2017). Why people use chatbots. In *International conference on internet science* (pp. 377-392). Springer, Cham.
4. Braun, D., & Matthes, F. (2019). Towards a Framework for Classifying Chatbots. In *ICEIS (1)* (pp. 496-501).
5. Cui, L., Huang, S., Wei, F., Tan, C., Duan, C., & Zhou, M. (2017). Superagent: A customer service chatbot for e-commerce websites. In *Proceedings of ACL 2017, system demonstrations* (pp. 97-102).
6. Dale, R. (2016). The return of the chatbots. *Natural Language Engineering*, 22(5), 811-817.
7. Fang, K. Y., & Bjering, H. (2019). Development of an interactive Messenger chatbot for medication and health supplement reminders. In *36th National Conference Health Information Management: Celebrating 70 years of Strength in Diversity* (Vol. 51).
8. Georgescu, A. A. (2018). Chatbots for education—trends, benefits and challenges. In *Conference proceedings of eLearning and Software for Education «(eLSE)* (Vol. 14, No. 02, pp. 195-200). Carol I National Defence University Publishing House.
9. Haristiani, N. (2019). Artificial Intelligence (AI) chatbot as language learning medium: An inquiry. In *Journal of Physics: Conference Series* (Vol. 1387, No. 1, p. 012020). IOP Publishing.
10. Jain, M., Kumar, P., Kota, R., & Patel, S. N. (2018). Evaluating and informing the design of chatbots. In *Proceedings of the 2018 designing interactive systems conference* (pp. 895-906).
11. Kim, Y., & Baylor, A. L. (2006). A social-cognitive framework for pedagogical agents as learning companions. *Educational technology research and development*, 54(6), 569-596.
12. Kostelník, P., PISAŘOVIC, I., Muroň, M., Dařena, F., & Procházka, D. (2019). Chatbots for enterprises: outlook. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*.
13. Molnár, G., & Szüts, Z. (2018, September). The role of chatbots in formal education. In *2018 IEEE 16th International Symposium on Intelligent Systems and Informatics (SISY)* (pp. 000197-000202). IEEE.
14. Pham, X. L., Pham, T., Nguyen, Q. M., Nguyen, T. H., & Cao, T. T. H. (2018). Chatbot as an intelligent personal assistant for mobile language learning. In *Proceedings of the 2018 2nd International Conference on Education and E-Learning* (pp. 16-21).
15. Pushpa, S. (2018). Importance of English. *Tenth Annual Day Special Issue*.
16. Rodinadze, S., & Zarbazoia, K. (2012). The advantages of information technology in teaching English language. *Frontiers of Language and Teaching*, 3(5), 271-275
17. Ranoliya, B. R., Raghuvanshi, N., & Singh, S. (2017). Chatbot for university related FAQs. In *2017 International Conference on Advances in Computing, Communications and Informatics (ICACCI)* (pp. 1525-1530). IEEE.

18. Sabiq, A. H. A., & Fahmi, M. I. (2020). Mediating Quizzes as Assessment Tool through WhatsApp Auto-response in ELT Online Class. *Langkawi: Journal of The Association for Arabic and English*, 6(2), 186-201.
19. Saenz, J., Burgess, W., Gustitis, E., Mena, A., & Sasangohar, F. (2017). The usability analysis of chatbot technologies for internal personnel communications. In *IIE Annual Conference. Proceedings* (pp. 1357-1362). Institute of Industrial and Systems Engineers (IISE).
20. Sarosa, M., Kusumawardani, M., Suyono, A., & Wijaya, M. H. (2020). Developing a social media-based Chatbot for English learning. In *IOP Conference Series: Materials Science and Engineering* (Vol. 732, No. 1, p. 012074). IOP Publishing.
21. Smutny, P., & Schreiberova, P. (2020). Chatbots for learning: A review of educational chatbots for the Facebook Messenger. *Computers & Education*, 151, 103862
22. Widjajanti, K., Sarosa, M., & Kusumawardhani, M. (2015). Organizing Exercise Items in Mathematics Learning. *International Journal of Science and Research (IJSR)*, 4(5), 2162-2167.
23. Yildirim, I. (2017). The effects of gamification-based teaching practices on student achievement and students' attitudes toward lessons. *The Internet and Higher Education*, 33, 86-92.
24. Zahour, O., Eddaoui, A., Ouchra, H., & Hourrane, O. (2020). A system for educational and vocational guidance in Morocco: Chatbot E-Orientation. *Procedia Computer Science*, 175, 554-559.
25. Zumstein, D., & Hundertmark, S. (2017). Chatbots--An Interactive Technology for Personalized Communication, Transactions and Services. *IADIS International Journal on WWW/Internet*, 15(1).