Research on College English Teaching under the Background of Artificial Intelligence

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Abstract. The application of language service products of artificial intelligence has brought great challenges and opportunities to language teaching in colleges and universities: promoting the teaching model innovation; changing the way of students learning; changing the basic functions of teachers. The teaching mode of college English under the background of artificial intelligence should be influenced by several aspects as follows: based on artificial intelligence in college English listening teaching; college English oral teaching based on robot; based on the number of the teaching of artificial intelligence in college English writing; cloud service based artificial intelligence college English in translation teaching.

1. Introduction
With the continuous development of computer technology, the machine of turning over translation is also maturing, and gradually derived mobile applications, corpus library, language learning system, etc. In recent years, the language of artificial intelligence that has been produced products has come out and is marching towards the commercial market. Artificial intelligence (AI) between products and the language learning field is becoming more and more closing. The language education industry has brought great impacts and challenges. As a language educator, we have to make a deep understanding of the current form of education, the current mode of language education and language talent cultivation whether the formula can meet the needs of the future society for foreign language talents.

2. The development of artificial intelligence in language learning
Machine translation, natural language understanding and speech in the field of artificial intelligence recognition technology are closely related to language learning. Currently our country is leading the world’s artificial intelligence speech recognition technology and it has an accuracy rate of above 97%. Machine doesn’t just understand human language, but also can quickly gives feedback and speech recognition. The application of technology in English teaching can effectively support learners’ progress, practice listening and speaking. However, machine translation has gone through a generation after another generation of evolution upgrade, also from the level of simple literal matching deep to the level of semantic understanding: Realize “understand language, generate translation essay “, almost comparable to the human mind intelligent translation way. Its biggest advantage is that the translation is fluent and more grammatical. Its effect is very close to natural language, very easy to understand. In some context, a machine translation is no different from a human translation.

With speech recognition technology and machine translation technology as the foundation, each speech translating software is also gradually into people’s vision, and with its unique function provides great convenience for people’s life. Such as micros soft newly developed voice translation
software, not only can help users quickly translate the words into the target language, while retaining the user’s voice, timbre and intonation. What’s more, since 2016 each collar domain’s international meetings are frequently attended by machine simulators, even there is a tendency to become standard in international conferences. Tencent is involved 2018 Bo’Ao Asia BBS “future production” on site. At the 2018 annual artificial intelligence industry summit, Sougou came to the venue to provide simultaneous interpretation services for thousands of participants servicing. Thus it can be seen that the artificial intelligence age of language learning is coming.

3. College English teaching in the context of artificial intelligence
The development of science and technology ultimately serves mankind. Artificial intelligence production still cannot match the human language exchange between the human being situation, the collision of sensibility and thought. But there's no denying that AI in the language learning field is easier to exert its advantages and make up for students in English weaknesses in the learning process. Based on this, we will start from listening, speaking, writing, translation and other aspects of language teaching to explore the background of artificial intelligence college English teaching.

3.1 Corpus-based artificial intelligence college English listening teaching
Listening training is the beginning of students' language learning, college English basic courses in teaching. But because the hearing material content is relatively boring, or the difficulty of listening and other reasons, listening classes once become a university living with English learning disabilities. As is known to all, corpus - based English language listening teaching provides students with a wide range of listening options content, students can choose their own interest or future career related corpus for deep learning.

3.1.1. Automatic matching of learning resources
Faced with the huge corpus of English learning, students often have no way to get down It doesn't matter if the hand is not willing to waste too much time on the choice department. AI will be based on students' major, age, English level and learning style, etc. Individual listening learning resources for each student in order to hear their own professional and interesting topics, eliminate the general listening class on the boring, boring feeling. Not only that, AI knows better students, in the process of listening learning, the system will automatically push some of students learn vocabulary, so as to reduce the burden of students' English listening and even English learning.

3.1.2. Creating a situational learning model
Corpus-based artificial intelligence can realize situation and learning interaction. For example, students use mobile phones to carry out a certain object around them scanning, artificial intelligence will automatically recognize it, and the recognition of the object students can display and read the relevant English content according to their needs independently control the rhythm of reading aloud, whether to display the translation, whether to repeat listening and reading and so on. In this way, "listening" in English learning is closely related to students' real life the close connection is beneficial for students to perceive the outside world at the same time be able to input English language. Another example is that artificial intelligence is a student the guide will take the students to the scenic spots or areas they are interested in to choose different life scenarios and degrees of difficulty, everyone can find to suit their own English level of listening audio, so that listening material more fresh. In the whole process, teachers only need to analyze and point to students' listening skills guide, conduct appropriate intervention and listen to students' listening behaviors.

3.2 Robot - based artificial intelligence college English speaking teaching
The purpose of language learning is to communicate Proficient in using. Students' English and Japanese expression level is more realistic. It reflects students' ability of practical application of English. In traditional English in the teaching process, except in class, very little use of English to
hand in Flow environment, occasionally want to practice English and Japanese students are difficult to find. To the right partner, these have become the majority of students dare not to the main reason for speaking English in Japan.

3.2.1 Companion exercises
The emergence of educational robots creates an authentic English learning atmosphere full support was given. Teaching robots can be good friends and learners are inseparable, and use the life, native English and learning Learners interact to create a natural, authentic and lasting English communication, the international environment. Educational robots can provide students with a variety of pairs talk about the scene and develop a positive and effective dialogue with the students. In the dialogue process, the robot can be based on the students' thinking time and language flow to give a certain degree of timely vocabulary tips and pronunciation correction. After the conversation, the robot can be in place play the role of "teacher", appropriate to the student's overall performance, as well as some Suggestions. Through human-computer interaction in a conversational form providing opportunities for learners to practicing Japanese, and to help students to ease with the tension and awkwardness of the real person dialogue also solved the students' own practice day the blindness of language has brought a lot to the teaching of English and speaking convenience, and increase the fun of learning English and Japanese for students.

3.2.2 Study in groups
Before, teachers most headache is every new semester, students English and speaking level will have a certain degree of regression, because in the cold. The summer vacation lacks Japanese practice environment and communication object. Education machine people can not only improve the above problems, but also master English the teaching of Japanese and Chinese extends beyond the classroom. Use educational robots outside the classroom even during holidays, teachers and students can talk to each other video session with other members of the online group practice. At this point, the educational robot switches to the role of "assistant", the interlocutor provide some basic sentence patterns and fixed collocation under a certain topic to promote the daily English between teachers and students through the application of Japanese expressions deep communication of dialogue.

3.3 Artificial intelligence college English writing teaching based on correcting network
Correction network is based on corpus and hundred computing technology online correcting system, it can give students' English compositions timely and effectively feedback and objective evaluation. The automatic correcting system of correcting net can do it first connect the context, read the whole article, then make a judgment, find out the text spelling errors, grammar errors, and so on, and give specific modification advice. Teachers can combine the technical advantages of correcting network and make use of the automatic system the function of identification is to cultivate students' English writing skills accustomed to them. First, the teacher corrects the net through the writing system in the learning space post writing tasks to students after receiving writing tasks available in the system in seeking the guidance of writing method and the conception of writing frame, let the students be clear about your writing. In the process of writing what exactly, what does the system do according to the students' writing process, provide students with a certain vocabulary reference. Exercise the students' language organizing ability, give the subsection suggestion, assist the students complete the writing task. Then the students submit the finished articles to the system for approval in addition, scores and evaluations given by the system can help students in the first place understand your own writing skills and shortcomings in writing place. At last, students will revise sentences according to the specific comments given by the system change, let students in the process of revision to experience the fun of writing, enhance its confidence in English writing. In addition, through writing to students in English analyze the mistakes in the process and find out the students' written expressions then do some targeted training, such as correcting online to correct questions, sentence training questions and
written questions, etc. The English foundation of the students, and fundamentally improve the students’ writing level.

4. Student autonomous learning system
Ebbinghaus has done a lot of researches and experiments, and mapped out a curve based on memory patterns-the Ebbinghaus Forgetting Curve, which is very famous for revealing the law of forgetting. (figure 1)

![Ebbinghaus Forgetting Curve](image)

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4.1 one-compartment model
Think of the human brain as a chamber, after a certain amount of material D is memorized, the amount of memory retained after time t is equal to X(t), assuming that the rate of forgetting is constant k, can be written:

\[ x(t) = De^{kt} \quad (2.1) \]

The curve obtained by this function is consistent with Ebbinghaus forgetting curve. Plot the measured data and use the least square method a line can be determined to obtain the specific value of k, which can be expressed as:

\[ t_{1/2} = \frac{0.693}{k}, \quad t_{1/2} = t \]

In above expression, t is a constant, which describes the time that memory stays half of the original quantity, and is called is the semi-memory period, both of which are used to reflect the strength of memory ability. T, the larger, indicates the memory energy of the material 2. the stronger the force, the smaller the value of k, and vice versa.

4.2 two-compartment model
Two-compartment model has been proposed in which the brain is treated as two compartments (compartment 1 and compartment 2) and stored separately short-term and long-term memory. At time t, the memory amount of room 1 and room 2 is set as x1(t) and x2 (t) respectively, then:
\[ \begin{align*}
\frac{dx_1(t)}{dt} &= K_{21}x_2(t) - (K_{12} + K)x_1(t) \\
\frac{dx_2(t)}{dt} &= K_{12}x_1(t) - K_{21}x_2(t)
\end{align*} \]

Where \( K \) is the forgetting velocity constant, \( K_{11}, K_{12} \) and \( t=0, x_1(t)=0 \) and \( x_2(t)=0 \) where 1 is the conversion velocity constant between room 1 and 2. Considering the early solution:

\[ x_1(t) = \frac{D(d-K_{21})/\alpha - \beta e^{-at}+D(K_{21}-\beta)/\alpha - \beta e^{-bt}}{\alpha - \beta e^{-at}} + D(K_{21}-\beta) / \alpha - \beta \]

\[ x_2(t) = \frac{DK_{12}/\alpha - \beta (e^{-at} - e^{-bt})}{\alpha - \beta} \]

Where \( \alpha \) and \( \beta \) are determined by the following formula:

\[ \alpha + \beta = K_{12} + K_{21} + K \]

\[ \alpha \cdot \beta = K_{12} \cdot K \]

or:

\[ \alpha = (K_{12}+K_{21}+K) + \sqrt{(K_{12} + K_{21} + K)2 - 4K_{21} \cdot K / 2} \]

\[ \alpha = (K_{12}+K_{21}+K) - \sqrt{(K_{12} + K_{21} + K)2 - 4K_{21} \cdot K / 2} \]

and:

\[ A = D(\alpha - K_{21}) / \alpha - \beta \quad B = D(K_{21}-\beta) / \alpha - \beta \]

then equation becomes:

\[ x_1(t) = A e^{-at} + B \]

According to the literature, the model of the law of memory forgetting can get the number which is very consistent with the Ebbinghaus forgetting curve model:

\[ S(t) = \frac{1}{1+Vt} \]

you can get:

\[ t(s) = \frac{1}{s \cdot 1 / V} \]

What it shows is that the amount of memory is only related to the rate of forgetting the specific content, the rate of forgetting per person is not the same, the forgetting speed is a variable, not a constant, which conforms to the characteristics of human memory. In this model, the undetermined parameter has only one initial rate of forgetting for a long time. Conversion rate constant between room 1 and 2, Considering the early solution.

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References

[1] Chen Lidan. On a Few Aspects of Cross-cultural Communication From the Perspective of One Belt and One Road [J]. Journal of Jiangxi Normal University (Social Sciences), 2016, 49(1): 69-73.

[2] Zhou Qingsheng. Language Communication in the Belt and Road Construction [J]. Journal of Xinjiang Normal University (Philosophy and Social Sciences), 2018, 39(2): 52-59.

[3] Wang Kunping, Ren Junfan. Challenges for the Going out of China’s Culture under the Background of “One Belt, One Road” [J]. Journal of Changsha University, 2017, 31(4): 55-57.

[4] Zhang Biao. A Localized Study of the Planning of Foreign Language Education in Ethnic Border Areas of Yunnan Province under the Background of the Belt and Road Initiative [J]. Journal of Research on Education for Ethnic Minorities, 2017, 28(4): 63-68.

[5] Joseph S. Nye and translated by Zheng Zhiguo. Confusion in Hegemony of USA: Why Cannot USA Be a Law on Itself? Beijing: World Affairs Press, 2002:5-6.
[6] Joseph Nye and translated by Wu Xiaohui. Soft Power: Way of World Political Circle to Success, Beijing: Oriental Press, 2005:11.

[7] Shi Wenjun. A Brief Talk on Problems in TCM English Teaching [J], Intelligence, 2013, (31): 122-123.

[8] Mao Hong, Tang Qiqun, Qiu Changlong. ESP Teaching of TCM English from the Perspective of Internationalization [J], Testing and Evaluation (College English Teaching and Research Edition), 2014, (02): 142-143.

[9] Zhou Yuehong. A Preliminary Study on the Reform of TCM English Teaching in Colleges and Universities of TCM [J], World Journal of Integrated Traditional and Western Medicine, 2015, (02): 100-101.

[10] Yang Ying. Five-year Review and Reflection on Chinese Traditional Medicine English Teaching in China -- Quantitative analysis of periodical papers from 2009 to 2013 [J], Time Literature (Second half of the month), 2015, (05): 88-89.