

The Impact of Artificial Intelligence Virtual Oral Tutoring APPs on Chinese Youth's Anxiety in Oral English learning——Interview Research Based on Users of Artificial Intelligence Speaking Tutoring APPs

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Abstract

Foreign language learning anxiety is a topic that has long been scrutinized, and the anxiety present in foreign language learning has been studied to guide foreign language teaching as well as the setting of foreign language education scenarios. Today we have entered an artificial intelligence era, with the release of ChatGPT and the wide application of Big Language Modeling AI technology, in which a wide variety of Generative Artificial Intelligence (GAI) oral tutoring APPs have emerged. Due to the relatively short development time of the technology of Great Language Modeling, the foreign language training model for AI foreign language oral coaches built on the basis of this technology is still in the preliminary development stage, and there is less research on the improvement of foreign language learning sentiments brought about by GAI. What is the foreign language learning method provided by AI coaches helpful for foreign language learning? Does it alleviate foreign language learning anxiety? It has become a topic worthy of research.

This study adopts the research method of semi-structured interviews to interview 20 Chinese college students and analyze the data text of the interviews. This study is based on the control value theory for questionnaire design and research, and in terms of control factors, it is found that using GAI Oral Coach to learn a foreign language is more controllable, and it can alleviate the learners' anxiety in many aspects of foreign language communication and exchange, such as: communicative anxiety, situational anxiety, oral anxiety, listening anxiety, and cognitive anxiety. In terms of value factors, due to the prerequisites of the control factors, the use of GAI oral coaching helped learners to significantly increase their sense of self-efficacy and emotional comfort, be more likely to feel a mood of accomplishment, and students to give high expectations in terms of future performance improvement. The role of emotional accompaniment and support found in this study was unanticipated before the study, and GAI oral coaches, in addition to helping to alleviate anxiety, can also provide positive emotional value through caring, companionship, and communication. Of course, there are two sides to everything, especially at the stage when GAI is just emerging, and there are still many imperfections to be explored, such as ethics, cognitive-emotional, and value bias. The findings in this paper help to understand how AI technology helps foreign language learning sentiments, and provide support for subsequent related research on AI accompanying foreign language learning.

Keywords

Generative Artificial Intelligence (GAI), Oral tutoring APPs, Foreign language anxiety, Control-Value Theory

1. Introduction

1.1 Foreign Language Anxiety

Anxiety is a subjective feeling of tension, worry, nervousness, and uneasiness, associated with the activation of the autonomic nervous system. Foreign language anxiety (FLA) is a specific situational anxiety response, which only occurs in the context of foreign language learning, and is different from other types of anxiety (Horwitz et al., 1986). MacIntyre & Gardner also find that when a student experiences repeated episodes of state anxiety within language contexts, it solidifies into a situation-specific anxiety, French Class anxiety for example (MacIntyre & Gardner, 1989). FLA as a situation-specific anxiety is a long-followed topic. People experience a wide range of anxiety stress tensions during foreign language learning, and anxiety often hinders personal growth and progress. How will FLA change in the age of artificial intelligence? Will specific situational anxiety be alleviated during conversations with AI chatbots? This will be the main topic of research in this paper. Furthermore according to Tobias' Learning Guidance Model, (which is a theoretical framework for analyzing the cognitive impact of anxiety on the learning process.) According to Tobias, the learning process can be divided into three stages: input, processing and output. At each stage, anxiety affects the learner's cognitive activity in different ways, thus influencing the effectiveness and efficiency of learning (Tobias, 1979). In this paper, we will analyze the effects of GAI oral tutoring APPs on anxiety at different stages of foreign language learning in terms of these three stages: input, processing and output.

1.2 The Emergence of GAI Oral Tutor APPS and Related Research

The term Artificial Intelligence (AI) is not new; it was coined in 1956 by McCarthy, who was building on the work of Turing (Cristianini, 2016). With today's rapid technological advancements in artificial intelligence, the definition of AI is constantly evolving. The current definition of AI is "computational systems that are capable of engaging in human-like processes, such as learning, adapting, synthesizing, self-correcting, and using data to perform complex processing tasks" (Popenici & Kerr, 2017). 2022 Generative Artificial Intelligence (GAI) The release of ChatGPT and the emergence of various types of Large Language Models (LLMs) have triggered a new revolution in AI, especially ChatGPT-4 and Claude 3, which are increasingly being used in a variety of educational environments, including language learning (Xiao et al., 2024), and these technologies have driven the the development of chatbots, and it is thought that chatbots will eventually become the perfect language learning partner, potentially allowing us to learn multiple languages at our own pace, anytime, anywhere (Fryer et al., 2020).

At the same time, a large number of AI chatbots for language learning and communication have appeared, and foreign language learning assistance software featuring AI oral coaches have also sprung up, such as Call Annie from the United States and Hi Ehco from China's NetEase, ERNIE Bot from China's Baidu, and FIF, an AI oral coach for assisting English learning researched by China's KU Xunfei (computer science company). The foreign language learning services provided by these platforms are basically similar, users can choose different scenarios and topics according to their own level and interest, such as travel, work, study, etc., and different AI virtual human coaches, different accent styles to carry out a natural and smooth dialog, you can carry out voice chats, you can also carry out a video call, the GAI coaches will be based on the user's answer to give appropriate feedback and guidance, so that users feel like chatting with a real person. For example, Call Annie, powered by GPT-3.5, adopts natural language processing and machine learning techniques to maintain a humanlike conversational flow (Wan & Moorhouse, 2024).

Research on chatbot-assisted learning has been of great interest. ELIZA was the world's very first chatbot, developed by Joseph Weizenbaum in 1956 (Weizenbaum, 1983). Since then, there has been a proliferation of technological developments and academic research on chatbots assisting education and learning, with some scholars investigating the linguistic accuracy of chatbots by comparing different chatbots (Coniam, 2014), and some scholars have studied the use of chatbots in distance education (Heller et al., 2005), and some scholars have investigated the effectiveness of chatbots interacting with users on social media platforms (Smutny & Schreiberova, 2020), and some scholars have suggested that chatbots play three roles in education, namely teaching assistants, learning partners, and personal tutors (Li & Yu, 2022).

However, these studies above, we can regard them as the pre-chatbot era, where chatbots are still stuck in a more basic stage of technological development, the emergence of GAI completely change the level of intelligence of chatbots, take the accuracy of language, not only the accuracy is greatly improved, but also according to the context of the depth of understanding of communication. However, previous studies have provided many valuable research directions for later research. For example, in recent years, some scholars have studied the Potential Benefits of ChatGPT in Promoting Teaching and Learning (Baidoo-anu & Ansah, 2023) ; based on the perspective of positive psychology, some scholars have studied the changes of learners ' learning emotions in the process of interaction with AI robots (Xiao et al., 2024) ; some scholars have studied how GAI can improve EFL oral skills in interaction (Tai & Chen, 2024). These studies have brought great research inspiration to this study. This paper focuses on the influence of GAI on learners ' foreign language learning emotions in the process of interactive dialogue with learners.

1.3 Control value theory

The theory of control value is mainly based on the formation of achievement emotions, also known as the control value theory of achievement emotions. It is an important theory in the study of academic emotions. It was proposed by Pekrun in 2006 (Pekrun, 2006). It is based on the premise that the assessment of control and values is the core of achievement emotional arousal, including activities-related emotions, such as enjoyment, depression and boredom during learning, and outcome emotions related to success or failure, such as joy, hope, pride, anxiety, despair, shame and anger. The theory holds that academic emotions are mainly determined by two key factors : control appraisal and value appraisal.

1) Control evaluation : refers to the individual 's evaluation of the degree of controllability of the learning process or results, the author called subjective control. For example, students think that they can control learning tasks and usually experience positive emotions, such as pleasure and self-confidence.

2) Value evaluation : refers to the individual 's value judgment of learning activities or results, the author called subjective value. Value evaluation can be divided into intrinsic value (such as interest and fun in learning) and extrinsic value (such as test scores and rewards).

The control-value theory emphasizes that these two evaluations can not only independently predict academic emotions, but also produce complex interaction effects. For example, high control evaluation and high value evaluation usually lead to positive academic emotions, such as pleasure and pride, while low control evaluation and low value evaluation may lead to anxiety and helplessness.

1.4 Research problem

Based on the control value theory, this study designed a semi-structured interview questionnaire, and randomly sampled 20 young Chinese college students to study the emotional experience of learners when using GAI oral tutoring APPs, as well as the impact on anxiety and the formation of their achievement emotions.

Key research questions :

- 1) Will GAI oral tutoring APPs alleviate foreign language learning anxiety ? Achieving emotions ?
- 2) What are the controllable expectations and results of GAI oral tutoring APPs for improving oral performance ?
- 3) What is the value experience of GAI oral tutoring APPs for oral learners ?

2. Study design and data

In this study, semi-structured interviews were used to collect data, and 20 college students were recruited as interviewees in the Chinese social media platform Weibo and WeChat community. When researchers recruit, they fully consider whether the interviewees are representative and consensus. Representativeness refers to whether the interviewees have a deep understanding of the research topic and have relevant practical experience, that is, they have used GAI oral coach Apps ; consensus refers to whether respondents have a high degree of interest in the research topic.

A total of 20 people, aged 18-30 years old, were interviewed in a semi-structured interview for 0.5-1 hours. The interview outline is designed based on the relevant literature and theoretical basis collected in this study, including background information, software usage scenarios, frequency motivation, control factors,

sense of value, learning goals and expectations, emotional impact, software function, cognitive improvement, self-efficacy and so on.

Figure 1: Basic information about the interviewees

Number	Nickname	Address	Gender	Age Group	Educational Stage	Purpose of Learning English	MBTI	Current App Use	Frequency and Type (Paid or Not)
1	YJ	Jiangxi - Ji'an	Male	18~25	Undergraduate	English 4-6	E	Doubao	every day
2	HL	Shandong-Weihai	Male	18~25	Graduate student	English 4-6	I	ERNIE Bot	Once a week
3	SE	Sichuan-Guangan	Male	26~30	Undergraduate	English 4-6	E	LAIX	Three or four times a week ∴ free
4	FXX	Guangdong-Zhongshan	Male	26~30	Graduate student	IELTS TOEFL	E	ERNIE Bot	once a week
5	HS	Henan-Zhengzhou	Male	18~25	Undergraduate	English 4-6	E	Hi Echo	every day ∴ the payware
6	HG	Jiangxi - Jiujiang	Male	18~25	Undergraduate	English 4-6	E	Polyspeak	Three or four times a week
7	JN	Henan-Pingdingshan	Male	18~25	Undergraduate	English 4-6	I	Chatgpt	Three or four times a week ∴ free
8	ZL	Henan -- Shangqiu	Female	26~30	Graduate student	IELTS TOEFL	E	AI Foreign Teachers	Three or four times a week ∴ the payware
9	BB	Fujian-Fuzhou	Male	18~25	Undergraduate	English 4-6	I	Shanbay Listening Speaking	every day ∴ the payware
10	SH	Jilin-Changchun	Female	18~25	Undergraduate	Capability Enhancement	I	Doubao	once a week
11	LY	Jiangxi-Pingxiang	Male	18~25	Undergraduate	English 4-6	E	Speaking Easy	every day ∴ the payware
12	PZ	Hebei - Shijiazhuang	Male	18~25	Undergraduate	English 4-6	I	Quick Translation	Three or four times a week
13	GQ	Heilongjiang-Hegang	Female	18~25	Undergraduate	English 4-6	E	TalkAI	Three or four times a week
14	MO	Zhejiang-Jinhua	Female	18~25	Undergraduate	English 4-6	I	TalkAI	Three or four times a week ∴ the payware
15	LI	Hebei-Shijiazhuang	Female	18~25	Undergraduate	English 4-6	I	Duolingo	every day
16	DZ	Guangxi-Nanning	Female	18~25	Undergraduate	English 4-6	I	FIF Speaking Training	once a week
17	XI	Anhui-Bozhou	Male	18~25	Undergraduate	IELTS TOEFL	I	Hi Echo	every day ∴ the payware

18	LU	Zhejiang-Wenzhou	Female	18~25	Undergraduate	English 4-6	I	Hi Echo	once a week
19	HH	Anhui-Hefei	Female	18~25	Undergraduate	English 4-6	E	Doubao	Three or four times a week
20	YY	Hubei - Xianning	Male	18~25	Undergraduate	Capability Enhancement	E	Doubao	Three or four times a week

Source: Interview data.

3. Findings and discoveries

3.1 Higher controllability

In the study, it was found that the vast majority of interviewees believed that it was very controllable to improve oral practice through dialogue with coach ai. As a tool, the prominent feature of AI spoken language coach app is its tool attribute. First of all, as a tool, it can be switched at any time and used in conjunction with other tools to improve efficiency. As YJ said, ' while using this software, you can click to see the part of speech and detailed usage of the word ' ; in addition, at the macro level, ' the progress, frequency and environment of learning ' are controllable. You can learn anytime, anywhere, or choose your own comfortable and independent environment space. At the micro level, ' the topic type, difficulty level and communication rhythm of learning are controllable ', as ZL said : ' When using AI oral coaches, I can control the frequency, topic and rhythm of exercises. This controllability makes me feel more relaxed, reduces tension, and enhances learning self-confidence. '

3.2 Higher expectations for the future

The study found that users ' expectations for using AI oral coaches to help themselves improve their English scores are relatively high. On the one hand, every AI oral coach has a character personality setting. They drive learners to learn with a positive and full mood, without negative impatience. As long as learners have enough time to devote, they will be able to have more learning gains. As the interviewee HH said, ' He will not be impatient with me as a real teacher. I can let him teach it over and over again, and even let him teach the same word hundreds of times. I think this is very good. ' On the other hand, some AI oral coaches will customize the relevant topic content according to the user 's interest preferences, which is equivalent to tailoring learning materials for users, which is more conducive to the improvement of performance, ' AI is able to customize a study plan based on my English level and study habits, thus improving learning efficiency ' (Interviewee LU). However, the improvement of performance is related to the science and efficiency of the tool, as well as the user 's personal input and effort. The study found that users with high value expectations are often also high frequency users.

3.3 Anxiety and achievement emotions

Based on the above research results of the controllability of man-machine dialogue and the sense of value of AI coaches, it is found that the two deeply affect the user 's emotions, and the main emotions are anxiety and achievement emotions. Next, it will be analyzed from three aspects :

A : Knowledge input stage

Relieve listening anxiety, pronunciation standards and can be repeated listening. On the one hand, the design of the AI Oral Coach app, generally all the conversations can be heard repeatedly, so in the process of user communication, if he did not hear the other side of the output content. Listen back again, so that you don 't have to worry too much about whether you don 't understand this sentence, which will affect your anxiety in the listening input stage. AI oral English coach 's foreign language pronunciation is very standard American or English pronunciation. For learners, the hearing impairment is greatly reduced and the anxiety is alleviated to a certain extent. If you really do not understand can also see real-time translation, faster to receive information. ' I also used the software of the real coach before, the teacher 's ability level is

very strong but I don't think it is suitable for me, I think if there is a problem, I need to practice repeatedly, repeatedly ponder, until I can fully grasp, so ai can accompany me to practice, no emotion, but also very strong ai practice' (interviewee GQ).

B : Knowledge processing stage

Relieve cognitive anxiety, gain information increment and sense of achievement. In addition, when learners do not know much about a certain question, or do not have a very professional understanding and do not know professional expression, they can ask questions to AI, and ai will give a positive response and guide them to understand the knowledge of this professional field. On the one hand, through AI's wonderful professional answers, learners can obtain new cognitive improvement and information increment. On the other hand, AI's answers can enrich the foreign language corpus for learners and gradually transform into their own foreign language expression. Therefore, users do not have much cognitive anxiety when facing topics they do not understand. On the contrary, when users get positive questions, they can also get positive responses from AI coaches, thereby further enhancing confidence and forming a kind of achievement emotion. As the interviewee Li said 'AI is very timely in response, and the content of the response is very good, the quality is very high, so in this kind of a communication experience, for you is very positive role in promoting.'

C : Knowledge output stage

Relieve oral anxiety, growth records enhance achievement emotions. In this interview, it is found that most of the interviewees need to improve their oral English because the oral pronunciation is not standard, and it is easier to speak and practice pronunciation when facing AI coaches and not embarrassed. The dialogue with AI can be recorded in real time and can be replayed permanently. In this process, you can see your changes and growth. AI will record each of your exercises, and you can clearly see your progress trajectory. This sense of achievement is irresistible to any language learner' (Respondent MO). In addition, changes in the accuracy and fluency of language expression also form a positive feedback to enhance the sense of achievement. 'AI can immediately evaluate your pronunciation and grammar and give professional feedback. In this way, you can know where you do well, where you need to improve, and then continue to practice and progress.' (Respondent LU). The AI platform used by some interviewees can provide learners with keywords on related topics, and users can organize language according to keywords to reduce the expression anxiety of lack of foreign language corpus. In addition, when users face topics that are less likely to be expressed, they will choose to ask AI from the perspective of a questioner, thus putting themselves in a safer situation. Such a way also alleviates the anxiety of users with obstacles in oral expression. For example, the interviewee FXX said : I still seem to play a bit of a security card... I will throw the question to him, let him answer more... '

Alleviate communication anxiety, type E and type I personality are applicable. The ' E-type and I-type personality classification ' comes from the very popular MBTI personality test in the past two years. On this side, people are divided into 16 kinds of personality, which are mainly divided into two categories. One is E-type personality and I-type personality. E-type personality is more extroverted, and I-type personality is more introverted and socially fearful. With the popularity of personality test games, many young people are also willing to participate in this test to advertise their own personality. In some AI oral coach APPs, they will also set personality characteristics for each coach participating in the dialogue, such as Hi, Echo. It will also show the personality model of the artificial intelligence coach provided by the platform. At present, the three AI coaches on the platform are E-type personality. In this study, it was found that many interviewees mentioned that this platform is very friendly to type I people and does not require real interpersonal communication. In the face of artificial intelligence coaches, they can be more relaxed and calm without pressure. As the interviewee GQ said, ' This APP is more private and suitable for shy people who dare not speak English in front of everyone. ' On the other hand, for type E personality, they are also very happy to use such software, because it gives type E personality greater opportunities and space for expression. Interviewees generally talked about a phenomenon that artificial intelligence oral coaches will actively respond to any user's questions without allowing the user's dialogue to respond. This provides positive emotional support for users to continue to communicate or increase chat engagement, and also alleviates communication anxiety in the social process. ' He won't let my words fall to the ground. He will respond to whatever I say ' (Interviewee xi)

Alleviate situational anxiety, spend time alone and start chatting anytime and anywhere. Because these artificial intelligence software platforms have no time and space constraints, you can start your foreign language oral practice learning in any situation. In the interview interview, it was found that most people said

they would choose their own time to practice alone, occasionally use it when they spend time, but rarely use it in the presence of other people. Interviewee KK : ' Because of the large number of people outside, I am not too embarrassed to talk to him, ' so learners will choose to talk with AI in the absence of others, thus alleviating the situation anxiety in interpersonal relationships such as the presence of others.

4. Conclusion And Discussion

Through this study, it is concluded that GAI oral tutoring APPs alleviates learners ' foreign language anxiety in many aspects by designing communication methods and use functions, such as communication anxiety, situational anxiety, oral anxiety, listening anxiety and cognitive anxiety. These APPs are very friendly to type I personality (MBTI personality test), that is, social phobia, and are also popular with type E personality. They provide emotional companionship and cognitive support for students who are lonely and helpless in foreign language oral communication. Although the effect of foreign language improvement is different for different students, it has a significant effect on alleviating anxiety in foreign language learning. Based on the theory of control value, it is found that AI oral coaches can effectively improve learners ' sense of achievement in the three stages of knowledge learning while alleviating anxiety. In addition, this study unexpectedly found that artificial intelligence robot foreign language coaches also have the role of emotional companionship for learners. In addition to helping alleviate anxiety, they can also provide non-verbal learning aspects through care, companionship, communication, etc., but positive emotional value in life and growth, and this emotional value can help learners improve their foreign language learning skills from the side. The findings of this paper not only help to understand how AI technology can help foreign language learning anxiety and provide support for subsequent related research on AI accompaniment for foreign language learning, but also suggest that subsequent research can be conducted in the direction of emotional accompaniment and the impact of learners' emotional motivation on performance enhancement.

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