

# Multi-Interactive College English Teaching Under the Network-Based Multimedia Environment

Zhilan ZENG<sup>a,1</sup>

<sup>a</sup> School of Humanities, Hunan City University, Yiyang, China

ORCID ID: Zhilan ZENG <https://orcid.org/0000-0003-0586-2825>

**Abstract.** As a new teaching method, multi-interactive teaching has been more and more recognized by educators in this fast-growing information age due to its advantage of facilitating communication. However, more empirical studies still need to be done to investigate its effect. This study aims to investigate the impact of multi-interactive teaching method on college students' English proficiency and their learning motivation through a quasi-experimental design. The Experimental Group (44 students) was taught using multi-interactive teaching approach while the Control Group (44 students) learned English in a conventional way over a span of 14 weeks. T-test was adopted to examine whether there was significant difference in English proficiency (listening, reading, writing, and translation) and their learning motivation between the two groups. The findings revealed that except writing, the Experimental Group obtained significantly higher scores than the Control Group. Hence, it is recommended that multi-interactive teaching be used as an effective method to promote students' English proficiency and learning motivation in College English classes.

**Keywords.** Multi-interactive teaching; College English; English Proficiency; Motivation.

## 1. Introduction

The fast-evolving Internet technology in the past decades has significantly boosted the efficiency and initiative of work and study. The reorganization of the education system and the redistribution of resources accelerates the integration and sharing of education resources, so that education is moving toward a more diversified and scientific direction. Internet provides a platform for information resource sharing and cooperative learning. In the virtual reality established by Internet, learners can imitate and explain the simulated world, and they can experience the whole process of knowledge acquisition instead of just getting facts or conclusions from teachers. Liberating students from traditional teacher-centered mode, Internet-aided teaching allows learners immersed in a more social environment where their interest and motivation in learning can be promoted [1-2].

College English is a compulsory course for non-English majors in universities in China. Influenced by the nationwide reform of College English course, EFL (English as

---

<sup>1</sup> Corresponding Author: Zhilan ZENG, E-mail: 35159476@qq.com.

a foreign language) teachers are encountered with great challenges because of shortened teaching time yet increased requirements. Nowadays, EFL college students are not only required to have a good command of the basic language knowledge of English, but also learn how to use English in their life and future work. Solely relying on classroom teaching and learning is far from achieving the desired learning effect. The blossoming of network information technology can bring its superiority into full play and be helpful in promoting English teaching effect. Multi-interaction refers to the mutual communication and understanding between two or more interactive elements. Multi-interactive teaching not only involves the interaction between teachers and students, but also the interaction between learners and learners, and between learners and information technology. The use of network multimedia allows students to study actively and participate in classroom activities instead of passively accepting the knowledge imparted by teachers [3-5]. Multi-interactive teaching approach advocates effective interaction between different elements. Changing their mindset, teachers reset their role in classroom, and guide students to actively acquire knowledge, so that students reconstruct knowledge based on previously acquired knowledge to form deep understanding. Under the background of network multimedia, this research designs a mode of multi-interactive College English teaching under the network-based multimedia environment, and verifies its teaching effect in practice, in order to provide reference for English teaching and learning at universities.

The research questions are as follows.

**Question 1:** Can multi-interactive teaching method improve students' English proficiency (in writing, listening, reading and translation)?

**Question 2:** Can multi-interactive teaching method promote students' learning motivation?

## 2. Literature Review

Multi-interactive teaching method originated from interaction theory, the core of which is interaction hypothesis which means that when difficulty occurs in communication, both sides of the communication must conduct meaning negotiation, so that the input can be understandable and language acquisition is achieved [6-7]. Interaction theory has been continuously updated and developed in the long-term research, laying a solid foundation for multi-dimensional interactions. Multi-interactive teaching refers to a series of teaching activities where various elements interact with each other to encourage students to actively participate in learning and achieve high-quality learning results. In multi-interactive teaching model, a comprehensive and multi-level harmonious interaction is formed through optimizing the way of teaching interaction, making full use of various elements related to learning, mobilizing and promoting students' initiative and enthusiasm to learning [8-10].

Multi-interactive teaching advocates the interaction between students and students, teachers and students, students and technology, students and learning materials. Its theoretical basis mainly includes constructivist learning theory, situated cognition theory, metacognitive learning strategy theory. Constructivist learning theory emphasizes the cognitive subject of learning and the collaboration between students and teachers. Multi-interactive teaching allows language learners to subtly comprehend the required knowledge. The tacit knowledge hidden in people's behavior and event comes into play while learners interact with peers, teachers, learning materials or situations. According

to situated cognition theory, real, meaningful and purposeful learning activity is an important way for learners to acquire knowledge. For students, learning is not just about acquiring a mass of factual knowledge, but also about how to construct meaning and form solutions to problems through learning and collaboration. Multi-interactive teaching helps students build cooperative communities where they participate in community activities, interact with others, and work together on the social construction of the knowledge they have learned. Meta-cognition refers to human's thinking about their own behavior in the process of acquiring knowledge, which can be interpreted as thinking about the way of thinking. Learners not only need to know what method is most beneficial to their learning, but also understand the learning process and choose effective learning strategies. In multi-interactive teaching, teachers skillfully combine meta-cognitive strategy with foreign language teaching through providing autonomous learning guidance, and conducting various classroom activities to help students grasp some learning skills and develop good learning habit [11-15].

Compared with the traditional teaching method, the multi-interactive teaching method has the following characteristics: 1) The integration of teaching elements. It blends teaching methods, teaching content, and teaching structure together, turning relatively abstract educational ideas into concrete strategies, and encouraging students to feel, judge, practice, and adjust their learning behavior in an all-round way; 2) The openness of teaching environment. The interactive teaching actually gives students greater learning initiative and autonomy, so that students' learning space is expanded. The information technology environment facilitates the collaboration between students and teachers; 3) Diversity of teaching forms. The multi-interactive teaching promotes the active interaction of various teaching elements. It focuses on students' proactive and cooperative acquisition of knowledge, attaches importance to learning ability, and promotes students' all-round development; 4) Multiple levels of interaction. Interactive teaching does not insist on the uniformity in the learning methods, learning process, and use of media. Instead, it is a kind of approach with student-centered, task-based, interest-focused characteristics; 5) Equality of teacher-student relationship. In the interactive teaching model, teachers respect students' personality and experience, encourage students' exploration, collaboration and innovation, and try to construct relaxed and harmonious atmosphere where students can learn language in accordance with their own needs; 6) Diversity of assessment system. Teaching evaluation in the network technology environment includes summative and formative assessment, the latter of which is done by evaluating students' in-class and extra-curricular performance, students' autonomous learning on different learning platforms and so on, to promote students' maximal engagement [16-18].

In recent decade, with the diversification of society and the in-depth study of multi-interactive theory, researchers have carried out extensive research from different perspectives. Fruitful developments in the construction of interactive teaching and learning, specific implementation of interactive approach in class, and its effects are witnessed [19-21]. In spite of fruitful study in interaction theory in education, there is still in need of empirical study into the application of multi-interactive teaching method in foreign language class. And how to bring network technology into full play in education should be on the list of things worth studying. Interaction between human and network information technology, between human and teaching resources, distance teaching technology, distance teaching concepts carried by modern technology in EFL teaching and learning should be taken into full consideration [22-24].

### 3. Methodology

This research is carried out in a public university in Hunan, China, which has hardware equipment such as digital language laboratory, network multimedia classroom, independent learning center based on information technology such as computer network, which provides necessary guarantee for the implementation of the interactive teaching mode in College English class. A quasi-experimental study was employed in this study. Eighty-eight second-year students aged from 18 to 20 in two classes are the research objects. Class A is the Control Group, with 44 students majoring in Civil Engineering, and Class B is the Experimental Group with 44 students majoring in Management. There is no significant difference in students' English proficiency between the two groups before the experiment.

The experiment lasted 14 weeks, about 3 months. The Control Group followed the conventional teachers-centered way, in which teachers explained linguistic knowledge, especially vocabulary and grammar. In textual analysis, the teacher in control group usually selected key sentences and explain them sentence by sentence through structure analysis and translation. The Experimental Group adopted a multi-interactive teaching mode, aiming at cultivating students' language skills, encouraging their participation and promoting their learning motivation. In this teaching model, students were divided into small groups, and they completed curricular and extracurricular assignments in groups. The teachers adopted information network technology such as Rain Classroom, Unipus, WeChat, QQ to develop students' skills in listening, reading, writing, and translation. The interaction between teachers and students, between students and students, between students and machines ran through the whole teaching process.

Figure 1 is the operation chart of the multi-interactive teaching model. To begin with, teachers design the multi-interactive teaching model and work as facilitators to guide students to construct knowledge based on specific teaching objectives, students' proficiency and teaching resources. On the other hand, students construct knowledge through participating in learning activities and cooperating with teachers. Secondly, students interact with teachers, other students, and machines (computers, mobile phones, network facilities, and so on) in three-dimensional environments such as classrooms, extracurricular activity places, and online virtual spaces. Teachers make necessary adjustments in the organization and regulation of the teaching design. Thirdly, guided by the teaching design and the course requirements, students complete the meaning construction through individual efforts and group cooperation, and externalize the acquired language knowledge into specific learning outcomes. Finally, teachers and students conduct timely evaluations of the learning outcomes for the improvement of future teaching and learning, and prepare for a new round of process.

Pre-test and post-test covering listening, reading, writing and translation were conducted, and the data were collected and analyzed through statistical tool. Additionally, the questionnaire surveys were carried out before and after the experiment to investigate the participants' motivation of learning English. The questionnaire consisted of 15 items, adapted from Kellers' (2010) *Motivational Design for Learning and Performance* [25]. Through the comparative analysis between the experimental group and the control group, the influence of student-centered multi-interactive teaching method on university students' English proficiency and motivation has been studied and relevant conclusions have been drawn.

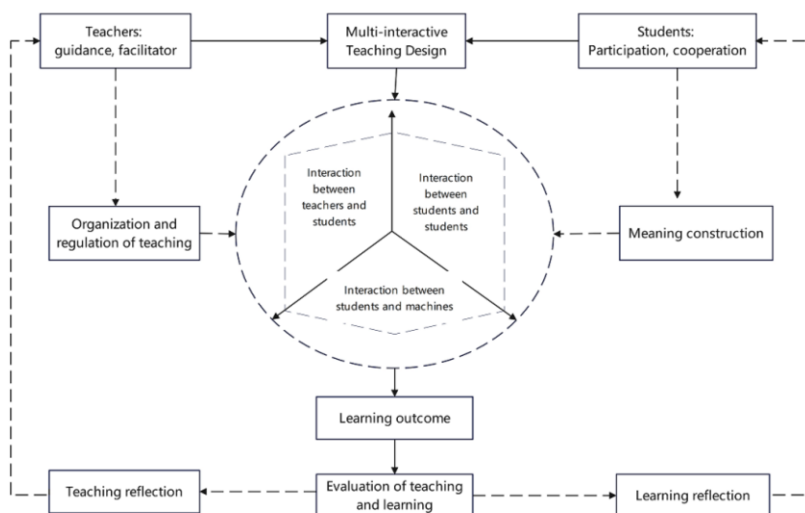


Figure 1. The multi-dimensional interactive teaching model

#### 4. Results and Discussions

The aim of T-Test was adopted to see whether there is significant difference between the Experiment Group and the Control Group in the English proficiency test covering writing, listening, reading and translation, and students' motivation to learn English. Following are the results of the T-Test.

**Ho1:** There is no significant difference in the mean scores for the English proficiency test between the Experimental Group (interactive teaching method) and the Control Group (conventional method).

Table 1. Comparison of mean scores on English proficiency test in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	58.36	5.969	.205	.147	86	.883
Control	44	58.16	7.008				

Level of significance is at  $p < 0.05$

Before the experiment, Independent T-Test was employed to compare the mean scores for English Test between the Experimental and Control group. As can be seen from Table 1 that the mean score was 58.36 for the Experimental Group and 58.16 for the Control Group. The results show that there is no significant difference in students' performance in English Test between the experimental Group and the Control Group in the pretest (*Mean difference* = .205, *t* = .147, *df* = 86, *p* = .883).

Table 2. Comparison of the mean scores for English proficiency test in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	61.60	5.743	3.182	2.455	86	.016
Control	44	58.41	6.395				

Level of significance is at  $p < 0.05$

Table 2 demonstrates the students' performance in English proficiency test after the experiment. In the post-test, the students in the Experimental Group obtained higher scores ( $Mean=61.60$ ,  $SD=5.743$ ) than those in the Control Group ( $Mean=58.41$ ,  $SD=6.395$ ). The results from the Independent T-test displayed that there was significant difference in English proficiency test between the two groups after the experiment ( $Mean\ difference=3.182$ ,  $t=2.455$ ,  $df=86$ ,  $p=.016$ ).

**H01a:** There is no significant difference in the mean scores for listening in English proficiency test between the Experimental Group and the Control Group.

**Table 3.** Comparison of mean scores for listening in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	13.52	1.705	-.091	.264	86	.816
Control	44	13.61	1.944				

Level of significance is at  $p<0.05$

Table 3 showed that before the experiment, the mean score for listening in English proficiency test was  $13.52$  for the Experimental Group and  $13.61$  for the Control Group. The results reveal that there is no significant difference in students' performance in listening between the experimental Group and the Control Group in the pre-test ( $Mean\ difference=-.091$ ,  $t=-.264$ ,  $df=86$ ,  $p=.816$ ).

**Table 4.** Comparison of mean scores for listening in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	14.43	1.885	.864	2.215	86	.029
Control	44	13.57	1.771				

Level of significance is at  $p<0.05$

The students' performance in listening in English proficiency test after the experiment can be shown in Table 4. In the post-test, the students in the Experimental Group ( $Mean=14.43$ ,  $SD=1.885$ ) scored higher than those from the Control Group ( $Mean=13.57$ ,  $SD=1.771$ ). The results from the Independent T-test displayed that there was significant difference in listening between the two groups after the experiment ( $Mean\ difference=.864$ ,  $t=2.215$ ,  $df=86$ ,  $p=.029$ ).

**Table 5.** Comparison of mean scores for reading in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	14.50	1.94	.159	.369	86	.713
Control	44	14.34	2.10				

Level of significance is at  $p<0.05$

**H01b:** There is no significant difference in the mean scores for reading in English proficiency test between the Experimental Group and the Control Group.

Similarly, Independent T-Test was employed to compare the mean scores for reading between the Experimental and Control group before the experiment. Table 5 showed that the mean score was  $14.50$  for the Experimental Group and  $14.34$  for the Control Group. The results reveal that there is no significant difference in students' performance in reading between the experimental Group and the Control Group in the pretest ( $Mean\ difference=.159$ ,  $t=.369$ ,  $df=86$ ,  $p=.713$ ).

**Table 6.** Comparison of mean scores for reading in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	15.39	2.104	.886	2.05	86	.043
Control	44	14.50	1.947				

Level of significance is at  $p < 0.05$

Table 6 displays the students' performance in reading in English proficiency test after the experiment. In the post-test, the students in the Experimental Group ( $Mean=15.39$ ,  $SD=2.104$ ) outperformed those from the Control Group ( $Mean=14.50$ ,  $SD=1.947$ ). The results from the Independent T-test displayed that there was significant difference in reading between the two groups after the experiment ( $Mean\ difference=.886$ ,  $t=2.05$ ,  $df=86$ ,  $p=.043$ ).

**H01c:** There is no significant difference in the mean scores for writing in English proficiency test between the Experimental Group and the Control Group.

**Table 7.** Comparison of mean scores for writing in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	15.75	1.894	.114	.262	86	.794
Control	44	15.64	2.168				

Level of significance is at  $p < 0.05$

It can be seen from Table 7 that in pre-test, the mean score for writing in English proficiency test was 15.75 for the Experimental Group and 15.64 for the Control Group. The results show that there is no significant difference in students' performance in writing between the experimental Group and the Control Group in the pretest ( $Mean\ difference=.114$ ,  $t=.262$ ,  $df=86$ ,  $p=.794$ ).

**Table 8.** Comparison of mean scores for writing in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	16.36	1.464	.500	1.325	86	.189
Control	44	15.86	2.030				

Level of significance is at  $p < 0.05$

As is shown in Table 8, in the post-test, even though the students in the Experimental Group ( $Mean=16.36$ ,  $SD=1.464$ ) scored higher than those from the Control Group ( $Mean=15.86$ ,  $SD=2.03$ ) in the part of writing, the difference between the two groups was not significant ( $Mean\ difference=.500$ ,  $t=1.325$ ,  $df=86$ ,  $p=.189$ ).

**H01d:** There is no significant difference in the mean scores for translation in English proficiency test between the Experimental Group and the Control Group.

**Table 9.** Comparison of mean scores for translation in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	14.59	1.530	.023	.064	86	.949
Control	44	14.57	1.810				

Level of significance is at  $p < 0.05$

Table 9 demonstrated that in pre-test, the mean score for translation in English proficiency test was 14.59 for the Experimental Group, very close to the Control Group,

14.57. The results display that there is no significant difference in students' performance in translation between the two groups in the pre-test ( $Mean\ difference=.023, t=.064, df=86, p=.949$ ).

**Table 10.** Comparison of mean scores for translation in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	15.41	1.945	.932	2.289	86	.025
Control	44	14.48	1.874				

Level of significance is at  $p<0.05$

The students' performance in translation in English proficiency test after the experiment can be shown in Table 10. In the post-test, the students in the Experimental Group ( $Mean=15.41, SD=1.945$ ) obtained higher scores than those from the Control Group ( $Mean=14.48, SD=1.874$ ). The results from the Independent T-test showed that there was significant difference in translation between the two groups after the experiment ( $Mean\ difference=.932, t=2.289, df=86, p=.025$ ).

**Ho2:** There is no significant difference in students' motivation between the Experimental Group and the Control Group.

**Table 11.** Comparison of students' motivation between two groups in pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	37.61	5.899	-.182	-.146	86	.884
Control	44	37.80	5.793				

Level of significance is at  $p<0.05$

Table 11 showed that in pre-test, the mean score for the Experimental Group's motivation in questionnaire survey was 37.61, coming close to the Control Group, 37.80. The results display that there is no significant difference in students' motivation between the two groups in the pre-test ( $Mean\ difference=-.182, t=-.146, df=86, p=.884$ ).

**Table 12.** Comparison of students' motivation between two groups in post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Experimental	44	42.18	4.731	3.909	3.782	86	.000
Control	44	38.27	4.962				

Level of significance is at  $p<0.05$

Students' responses in questionnaire survey in Table 12 showed that in the post-test, the students in the Experimental Group ( $Mean=42.18, SD=4.731$ ) scored higher in motivation than the Control Group ( $Mean=38.27, SD=4.962$ ). The results revealed that the difference in students' motivation between the two groups after the experiment was significant ( $Mean\ difference=3.909, t=3.782, df=86, p=.000$ ).

**Table 13.** Comparison of students' motivation between pre-test and post-test

		Mean	SD	t-value	df	p-value
Control	Pretest-Posttest	-.477	1.677	-1.887	43	.066
Experimental	Pretest-Posttest	-4.568	2.386	-12.70	43	.000

Level of significance is at  $p<0.05$

Paired-Samples T-test results in Table 13 also demonstrated that in the questionnaire survey, there was no significant difference in the Control Group's motivation between



the pre-test and post-post ( $Mean=-.477, df=43, p=.066$ ). However, there was significant difference in the Experimental Group's motivation between the pre-test and the post-test ( $Mean=-4.568, df=43, p=.000$ ). The students from the Experimental Group were more motivated in learning English in multi-interactive teaching mode than those from the Control Group studying English in conventional teaching environment.

The above findings show that the multi-interactive teaching model has a positive impact on students' English proficiency in listening, reading and translation, which are in consistent with some researchers' study that multi-interactive teaching method allowed each student to experience the interactive process of information search, interpretation, evaluation, which was a kind of learning in itself. Compared with traditional teaching environment, foreign language learning under the network-based multimedia context makes the input more optional, "i+1" input more feasible and operable, which is conducive to reducing students' learning anxiety. More importantly, the diversity of online resources exposes students to versatile English used by native English speakers, promoting students' language awareness, and the ability of discerning, correlating and using information. It can also be seen from the above results that even the Experimental Group makes no significant progress in writing. It was understandable there was no significant difference in students' writing ability after 14-week's interactive teaching, because it was challenging for students to make rapid progress in writing without a great deal of time and energy.

The questionnaire survey showed that in multi-interactive learning environment, students' learning motivation had been significantly improved. Inside and outside the classroom, the interaction between students and students, students and teachers, students and machines (modern technology) went through the whole teaching process, which made students study in a state of being emotionally and mentally at peace. Teaching tasks combining individuality and integrity make teaching process more dynamic, evaluation more accurate and objective, learning more autonomous, thereby mobilizing students' enthusiasm. The sense of accomplishment after completing tasks and receiving teachers' appropriate feedback triggered their learning motivation.

## 5. Conclusion

This study was carried out in a university in China, lasting about three months. Taking the advantage of information network technology, it designed a multi-interactive teaching mode and applied it into College English class, in hope of improving students' English language proficiency. The results of the research showed that this teaching model has a positive impact on students' motivation as well as English ability in listening, reading and translation. Through creating a multi-level curriculum system, multi-dimensional teaching and learning environment, multiple evaluation methods and multi-interactive practice, this teaching mode fully utilizes network teaching platform and information technology, aiming to meet the reform requirements of College English today, the needs of contemporary college students.

Aside from analyzing the results of the experiment, the study has also carried out some reflections. Firstly, in multi-interactive teaching model, teachers can help students develop their online autonomous learning ability. Internet is an open learning environment filled with infinite information, which is challenging for students to distinguish. To resist various temptation on Internet, students need to foster their autonomous learning ability. Teachers could play their role in strengthening the

management of online learning and offer support whenever students are in need. Specifically, teachers can make full use of online learning platform to aid teaching, such as recommending learning materials, assigning and marking homework, giving feedback, to ensure that students learn English in a good environment. Secondly, the evaluation system could be optimized. One way is to conduct longitudinal evaluation instead of vertical one, to put more emphasis on students' development. The other way is to highlight the weight of formative evaluation, during which students benefit through reflection. Thirdly, teachers' digital literacy needs to be promoted. University teachers should embrace the trend in this information technology era, improving their ability in identifying information, designing teaching activities, and carrying out teaching in virtual environment according to teaching content, students' proficiency and characters, and equipment conditions.

While adopting the multi-interactive approach under the network-based multimedia environment, EFL teachers need to establish teaching objectives and specific requirements according to specific situations. To be specific, it is suggested that teachers consider the following principles: 1) Group collaboration needs to be fully valued. Computer-assisted group collaboration requires each group member to clarify individual and group responsibilities, and work together to complete learning tasks. Additionally, group collaboration requires members' mutual trust, complement and encouragement. Centered on topics, discussions can be conducted, so that students can exchange opinions and get inspirations from others; 2) Evaluation needs to be fully valued. A comprehensive evaluation involving students' knowledge, skills, learning strategies, attitudes, and value is preferable to a single evaluation in which knowledge and skill is regarded as the sole criterion. Meanwhile, self-evaluation is also encouraged. Students can promote their motivation, understanding of learning through reflecting on and making critical analysis of their own efforts.

The research is not without its shortcomings. First, the research object of this study only involves 88 students from two faculties. To make the study more generalized, future study should involve more students from more faculties such as medical, arts, English. Second, the experiment only lasted one semester, about three months. For a comprehensive course covering listening, speaking, reading, writing and translation, it is recommended that the future experimental research period be appropriately extended so as to reveal more about the changes in students' learning attitudes, concepts, and language skills. Third, due to the small proportion of speaking in actual College English class in China, students' speaking ability has not been investigated in the research. As an important element of learners' communicative competence, it is suggested that the development of students' speaking ability be studied by researchers in future.

## References

- [1] Li Y, Zhao S, Ma Q, Qian C, Lin, Q. A feature analysis of regional classroom teaching in the trend of interactive instruction[J]. *Interactive Learning Environments*, 2019, 27(2): 137-162.
- [2] Shcherbakova I, Ilina M. Foreign language communicative competence formation of university students by using interactive teaching methods[J]. *The New Educational Review*, 2019, 57(3): 173-183.
- [3] Suanyot S, Dibyamandala J, Mangkhang C, & Wannapaisan C. Enhancing communicative competence in English as a foreign language through hybrid learning[J]. *Journal of Positive School Psychology*, 2022, 6(3): 9617-9822.
- [4] Ristic J, Capozzi F. Interactive cognition: An introduction[J]. *Visual Cognition*, 2022, 30(1): 1-5.
- [5] Yang L. An "Interactive Learning Model" to enhance EFL students' lexical knowledge and reading comprehension[J]. *Sustainability*, 2023, 15(8): 6471.

- [6] Gao Y. Problems and countermeasures of multi-dimensional interactive classroom teaching mode in College English[J]. *Contemporary Foreign Language Studies*, 2014, (05): 36-39 (in Chinese).
- [7] Majumder S, Chowdhury S, Chakraborty S. Interactive Web-interface for Competency-based Classroom Assessment[J]. *International Journal of Education and Management Engineering*, 2023, 13, (1): 18-28.
- [8] Taslibeyaz E. The effect of scenario-based interactive videos on English learning[J]. *Interactive Learning Environment*, 2020, 28(7): 808-820.
- [9] Wu J. Impact of foreign language proficiency and English uses on intercultural sensitivity[J]. *International Journal of Modern Education and Computer Science*, 2016, 8(8): 28-35.
- [10] Zeng G, Gao Y. Learner engagement in mixed-proficiency triadic interactions in the online multi-interaction environment: A case study of a collaborative writing task[J]. *Foreign Languages and their Teaching*, 2022, (05): 53-64, 146 (in Chinese).
- [11] Agarwal Y, Vamsi P. R, Jain S, Goel J. CodeUP: A web application for collaborative question-answering system[J]. *International Journal of Information Technology and Computer Science*, 2023, 15(4): 33-49.
- [12] He X, Zhou D. The predictive effects of extrinsic motivation on learner engagement in online College English instruction[J]. *Foreign Languages and their Teaching*, 2022, (05): 95-106, 148 (in Chinese).
- [13] Huo W, Rui Y. The mediating effect of L2 motivation between self-efficacy and English proficiency[J]. *Journal of Xi'an International Studies University*, 2020, (2): 54-58 (in Chinese).
- [14] Lile R, Kelemen G. Results of researchers on strategies of teaching/learning/assessment based on interactive learning methods[J]. *Procedia-Social and Behavioral Sciences*, 2014, 163: 120-124.
- [15] Zhang S. Reflections on the diversified and interactive College English teaching model[J]. *Computer-Assisted Foreign language Education in China*, 2011, (07):76-80 (in Chinese).
- [16] Kashinath K, Raju R. L. N. An empirical research on the effectiveness online and offline classes of English language learning based on student's perception in Telangana schools[J]. *International Journal of Modern Education and Computer Science*, 2023, 15(2): 40-53.
- [17] Nafosat Z, Nasiba A, Ozoda N, Baktior D. Interactive Strategies and Methods of Education[J]. *The International Journal of Recent Technology and Engineering*, 2019, (8): 7667-7670.
- [18] Nikolaeva N A, Zonova M V, Sosnina N G. Project work in English language as a method for developing the managerial skills of the future managers of service industry[J]. *Modern Education*, 2017, 73(3): 73-82.
- [19] Fu Z. A study of College English learning motivation in the New Century: Achievements, problems and paths[J]. *Journal of Southwest University (Social Sciences Edition)*, 2022, 48(03): 224-234 (in Chinese).
- [20] Yang L. An "Interactive Learning Model" to enhance EFL students' lexical knowledge and reading comprehension[J]. *Sustainability*, 2023, 15(8): 6471.
- [21] Zhang Z, Hyland, K. Fostering students engagement with feedback: An integrated approach[J]. *Assessing Writing*, 2022, (51): 100586 (in Chinese).
- [22] Shyam R. Sihare, "Colleges Require ICT Facilities to Enhance Educational and Employment Prospects", *International Journal of Modern Education and Computer Science*, Vol.15, No.3, pp. 16-32, 2023.
- [23] Fumiko Harada, Rin Nagai, Hiromitsu Shimakawa, "Predicting Online Student Effort with Accelerometer, Heart Rate Sensors, and Camera Using Random Forest Regression Model", *International Journal of Modern Education and Computer Science*, Vol.14, No.5, pp. 10-23, 2022.
- [24] Abdessamad Binaoui, Mohammed Moubtassime, Latifa Belfakir, "The Effectiveness and Impact of Teaching Coding through Scratch on Moroccan Pupils' Competencies", *International Journal of Modern Education and Computer Science*, Vol.14, No.5, pp. 44-55, 2022.
- [25] Keller J. M. *Motivational Design for Learning and Performance: The ARCS Model Approach*[M]. New York, NY: Springer. 2010.