



Practice Research of Multidimensional Interactive Teaching Model for Military English Course

Yucheng Zhou^(✉), Wenhui Hao, and Xiaoli Zhang

Information and Communications College of NUDT, Wuhan, China
123008798@qq.com, wenhuihao@sohu.com

Abstract. Based on Activity theory, this paper establishes a multidimensional interactive teaching model and designs an experiment to practice the model. Analysis of data on average score, number of interactive activities, and subjective feelings of the participants shows that the model has played an obvious role in enhancing students' interest in learning, guiding them in the cognition process, internalizing linguistic knowledge and outputting communicative skills.

Keywords: practice research · multidimensional interactive teaching model · Military English Course

1 Introduction

Since the turn of this century, information technology has gradually taken on a relatively new form in that artificial intelligence has emerged as a revolutionarily leading force which is now bringing unusually brilliant changes to the field of education. The design and practice of a smart teaching and learning will definitely be a more challenging mission, which is especially true with the Military English course, in whose classes many on-the-spot situations need to be reproduced with the help of smart teaching tools [1]. It is imperative for educational researchers to come up with a sound and efficient teaching model integrated with both enough interactivity and proper multimodality to ensure that smart AI technology renders service to education in a real sense [2].

2 Methodology

Two classes of freshmen of 2022 in our college will be selected as experimental objects who will be immersed in smart teaching mode and environment, while other two classes of our freshmen of the same level are supposed to proceed with their daily lecture and study in the same traditional way as always. Teachers of the former two classes design and implement multidimensional interactive teaching in accordance with a soundly proposed and approved model of interactivity. Meanwhile, an analysis by contrast will be performed during the teaching action research in order to have a deep insight into the teaching action differences and results between the two groups aforementioned.

© The Author(s) 2024

P. Qi and Z. Chen (Eds.): ICB DIE 2023, AISR 178, pp. 875–880, 2024.

https://doi.org/10.2991/978-94-6463-238-5_112

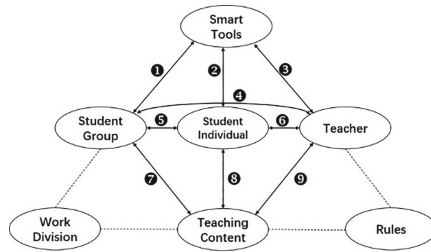


Fig. 1. Multidimensional Interactive Teaching Model

At the end of the practice research, a questionnaire is to be conjured up to pool the data about the subjective views of each individual participant upon a couple of variants like levels of acceptance about multidimensional interactivity, levels of involvement in class activities, levels of personal gains from the new mode of teaching and learning, and so on.

3 Multidimensional Interactive Teaching Model

Under the framework of Activity theory [3], teaching objectives are to be accomplished through a variety of teaching operations, acts, or activities, during which, smart teaching tools are employed as important media for the interaction among the indispensable participants in the scope of Rules and Work Division [4]. Based on the theory and mechanism described above, a preliminary model of multidimensional interaction is designed as follows for the Military English course.

As shown in Fig. 1, ①②③ can be viewed as a human-device interaction between Smart Tools and other participants, which belongs to the first level interaction; ④⑤⑥ can be regarded as an interpersonal interaction among student group, individual student and teachers, which belongs to the second level interaction; ⑦⑧⑨ represent a human-knowledge interaction between participants and teaching content, which belongs to the third level interaction. These three levels of interaction take place respectively in the before-class, in-class and after-class activities.

4 Practice Research

4.1 Principles

- (1) **Principle of interactivity.** Teachers are supposed to become partners, friends, or co-learners of their students [5]. On the other hand, students are no more passive receivers of knowledge, they are guided by teachers, exploring and practicing according to their own needs [6].
- (2) **Principle of military.** In choice of different modes of teaching content, teachers are required to select and process those resources which reflect military history, culture, characters, battle scenes, or those materials reflecting most updated international military situations [7].

Table 1. Questionnaire Design

Question	Scaled Answer					
1. To what extent did you like learning English before?	A. 0	B. 1	C. 2	D. 3	E. 4	F. 5
2. To what extent do you like learning English now?	A. 0	B. 1	C. 2	D. 3	E. 4	F. 5
3. To what extent do you like interacting with your teacher?	A. 0	B. 1	C. 2	D. 3	E. 4	F. 5
4. To what extent do you like interacting with your partners?	A. 0	B. 1	C. 2	D. 3	E. 4	F. 5
5. To what extent do you like learning online?	A. 0	B. 1	C. 2	D. 3	E. 4	F. 5
6. To what extent do you enjoy the learning process in class?	A. 0	B. 1	C. 2	D. 3	E. 4	F. 5
7. To what extent do you expect to learn like this in the future?	A. 0	B. 1	C. 2	D. 3	E. 4	F. 5

- (3) **Principle of fun. Interest is the best teacher.** Teachers are encouraged to adopt attractive teaching resources and novel teaching method to motivate the students to get interested and involved in the topic and the content, inducing them to dare to speak, be willing to speak and finally be good at speaking [8].
- (4) **Student-centered principle.** Students are the main participants of the whole teaching and learning process [9], during which, everything concerned ranging from the select of materials and the design of interaction down to the academic evaluation in the end, should focus on the students themselves [10].

4.2 Design

136 students of two classes are chosen as experiment object for the implementation of multidimensional interactive teaching model of Military English course. Teachers of these two classes are encouraged to adopt smart tools and innovative teaching method to give full scope of students' initiative. 128 students of other two classes serve as control group in whose classes everything goes on as usual. Essential data will be collected in three aspects: academic performance, on-the-spot class videos of 20 hours, and a questionnaire with 7 questions shown in Table 1. The whole practice is designed as in Table 2.

4.3 Data Analysis

- (1) **Academic Performance.** As shown in Fig. 2, the average score of experimental group 1 and that of experimental group 2 are respectively 80.6 and 81.8, while the corresponding scores of the control groups are 77.8 and 78.2. The academic performance of the former two groups is apparently better than that of the latter ones. However, this doesn't necessarily mean that it results solely from the practice of the multidimensional interactive teaching model because we need to further the analysis in perspective of other dimensions.

Table 2. Experiment Design Scheme

Group	Experiment Rendering	Data Collecting
Experimental Group (136 freshmen of 2 classes of 2022)	(1) Preview through U-campus (2) Model-based in-class interaction (3) After-class interaction via We-Chat (4) Inter-evaluation among all participants	(1) Final exam grades (2) Recorded class video (3) Questionnaire
Control Group (128 freshmen of 2 classes of 2022)	(1) Traditional teaching devices (2) Traditional teaching method (3) Traditional mode of evaluation	(1) Final exam grades (2) Recorded class video (3) Questionnaire

- (2) **Class video.** Figure 3 shows a sharp dividing line between the experimental groups and the control **groups** in terms of the number of interactions among participants. The number of interactions between any participants in the two experimental groups is greatly enhanced compared with that in the two control ones. What is especially worthy of our attention is that the number of student-student interactions in the experimental groups is respectively 190 and 197, which shows that students are more willing to cooperate with each other when facing difficulties in their learning. This may also mean that their linguistic communicative capabilities are more likely to be cultivated and promoted. Besides, teacher-student interactions in experimental groups exceed those in control ones on a large scale. This may result from the well-established interpersonal relations founded through after-class online learning on U-campus and WeChat, which indicates that students in the experimental groups are more likely to turn to their teachers for help whenever encountering academic problems.
- (3) **Questionnaire.** Table 3 demonstrates almost no difference in levels of original interest in English study. But after a five-month study, the experimental groups made a significant leap forward compared with the control ones. Data for Q6 and Q7 shows that students in experimental groups enjoyed much more the teaching and learning process and hope to learn English in this way in the future, compared with those in the control groups.

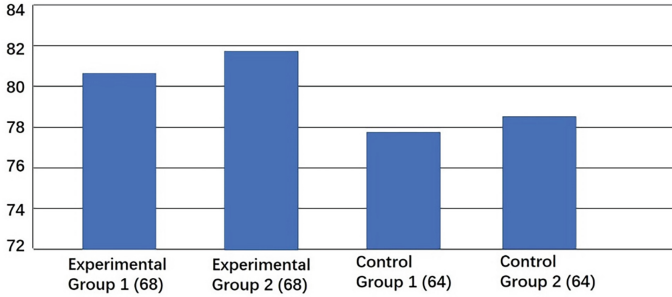


Fig. 2. Contrast of Final Exam Average Scores of the First Term

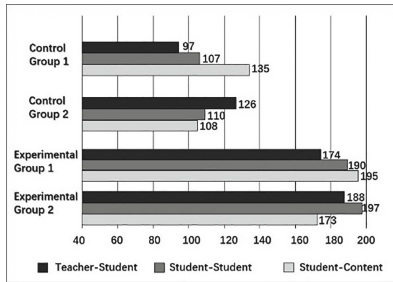


Fig. 3. Number of Different Interactions in Different Groups

Table 3. Questionnaire Data Comparison

Question	EXP. GRP 1	EXP. GRP 2	CTL. GRP 1	CTL. GRP 2
Q1	2.81	2.76	2.79	2.84
Q2	3.85	3.88	2.80	2.86
Q3	3.72	3.81	3.53	3.74
Q4	3.97	3.89	3.43	3.55
Q5	3.41	3.38	2.89	2.77
Q6	3.86	3.98	3.63	3.57
Q7	3.93	3.96	3.03	3.10

5 Conclusions

In practice of the multidimensional interactive model, interactions in many a dimension among participants frequently take place to arouse the interest, guide the cognition, internalize the knowledge and output the skills. This has radically changed the experimental group students' attitude toward the learning, which has, of course, resulted in a significant increase in their academic performance. This new mode of teaching and

learning practice will benefit them in the long run as the students are gradually in the habit of cooperative learning and interactive communication.

Acknowledgment. This work is supported by the research fund from the Department of Education of Hunan province (Grant No. HNJG-2021-0290)

References

1. Kress G, Van Leeuwen T., "Reading Images: The Grammar of Visual Design", M. London: Routledge, 1996, pp.23-45.
2. Stein P, "Rethinking Resources: Multimodal Pedagogies in the ESL Classroom", J. TESOL QUARTERLY, 2000, pp.34.
3. Royce T, "Multimodality in the TESOL Classroom: Exploring Visual-Verbal Synergy", J.TESOL QUARTERLY, 2002(6), pp.78-80.
4. QinHong W., "Multimodalization and Multimodal Discourse Research Under Visualized Environment", M. Beijing: Science Press, 2009, pp.98-105.
5. Li LI, Wenjie LIANG et al., "Research of Present Interactive Teaching in Smart Classroom", J. Gansu, 2018, pp.115-121.
6. Yinghui SHI et al., "Analysis of Teacher-Student Interaction in College Smart Room", J. Zhejiang, 2019, pp.45-51.
7. Linmei LIANG et al., "Case Study on Synchronized and Interactive Class Teaching between Urban and Rural Areas to Promote Resource Share in Mountainous Rural Schools", J. Gansu, 2017, pp.35-40.
8. Jian TIAN et al., "Research of Teaching Interaction Based on Informatized Classroom", J. Shandong, 2009, pp.24-27.
9. Zai ZHAO et al., "Interactive Tactics and College English Class Teaching", J. Hebei, 2011, pp.102-105.
10. Shenglan XUE, "Practice Research of Incorporation of Smart Phone into Class Teaching", J. Gansu, 2018, pp.86-91.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

