

The Influence of Multimodal Teaching on the Learning Effect of Students in Higher Vocational Colleges

Jie Gao^{1,a,*}

¹Jinan Engineering Polytechnic, Jinan, Shandong, China

^agao2051502@163.com

*Corresponding author

Abstract: In 1999, colleges and universities expanded their enrollment on a large scale, and higher education entered the era of "popularization". With the development of higher education, the number of colleges and universities has increased sharply, but the quality of education has not improved, the ideal material conditions have not been achieved, and a relatively perfect higher education system has not been established. This paper proposes a multimodal teaching model to improve the learning efficiency of students in higher vocational colleges. By comparing the traditional teaching classroom model and other teaching models, the experimental analysis is carried out. Finally, the data analysis is carried out by using the questionnaire. The conclusion is that multimodal teaching has greatly improved the learning efficiency of students in higher vocational colleges. Therefore, multimodal teaching is very worthy of research and study by universities and colleges, and use multimodal teaching to improve the learning efficiency of current college students.

Keywords: Higher Vocational Colleges, Student Learning Effectiveness, Multimodal Teaching, Effect Impact

1. Introduction

With the rapid development of economy and society, science, technology and culture are changing with each passing day, and the demand for talents is increasing. Colleges and universities bear the primary responsibility of serving the society. Social needs are the needs of their development, and students' academic achievements are the basis of their school objectives and training plans. Therefore, it is necessary to establish a teaching model based on students' learning effects.

In order to improve the learning effectiveness of students in higher vocational colleges, many scholars have done a lot of research. Mohammed G S proposed microlearning as a new teaching paradigm. Microlearning can divide knowledge and information into small pieces and transfer them to students. Through testing the teaching method of microlearning for primary school students, the author concludes that microlearning is 18% better than traditional learning methods, improves the effectiveness and efficiency, and improves the memory of knowledge [1]. Jnr B A develops a model to promote university policy makers' decision-making in evaluating student learning and academic teaching outcomes, and explores the factors that affect the adoption of blended learning (BL) in universities. Through the questionnaire, the partial least square structural equation model (PLS-SEM) was used to analyze the survey data. Evidence shows that BL's impact on the effectiveness of academic staff is significantly affected by teaching, performance, evaluation and motivation [2]. Zaccone M C studies the relationship between personal motivation, including internal motivation and external motivation, and learning effect. By measuring the intrinsic motivation, extrinsic motivation and learning effect of students who participate in the work of informatics and computer basic courses under different circumstances. The results show that internal motivation has a positive impact on learning effect, while external motivation has a negative impact on learning effect, and gender has a moderating effect [3].

This paper applies the theory of multimodal discourse analysis to conduct a multimodal teaching research on the second year of English majors in the first year of Jinan Engineering Polytechnic. It uses the methods of questionnaire, classroom observation, interview and test to explore the acceptance and practical effect of the multimodal teaching model of language learning. The results show that in the

English newspaper reading class, the multi-mode teaching method can significantly improve students' learning interest; Students can better understand the article, thus improving their reading level; In the process of learning, students can actively construct knowledge.

2. Multi-Modal Teaching and its Impact on Learning Effectiveness of Students in Higher Vocational Colleges

2.1. Student Learning Effectiveness

Today, when the quality of higher education in the world is the king, more and more people focus on students' learning experience and sense of gain, and pay more and more attention to the evaluation of students' learning quality and effect. Since curriculum teaching serves learners' output, students' learning performance evaluation is the key to curriculum achievement evaluation. Therefore, it should take "how to learn" and "how to teach" as the starting point. The traditional teaching evaluation method is to separate teaching and learning, which will inevitably lead to "teaching effect is not necessarily good, teaching effect is not necessarily good" [4]; Students' learning is often referred to as "what they have learned", "what they have learned" and "what they have learned", which inevitably leads to the "unity of learning, thinking and action". Therefore, the establishment of a teaching and learning community, the implementation of an evaluation and evaluation system aimed at the development of students' ability, the overcoming of the unscientific evaluation orientation of "examination only, score only, and intellectual education only", and the promotion of the continuous deepening of higher education in terms of changing concepts, changing classes, changing models, and guiding evaluation are the important engines for achieving "evaluation to promote learning, evaluation to promote teaching, and mutual benefit between teaching and learning" [5].

Learning effectiveness evaluation criteria

With the deepening of the reform of the quality assessment of higher education and the structural contradictions in the employment of college students, the importance of the society's quality assessment has also increased [6]. The evaluation of students' academic achievements is essentially the evaluation of students' learning quality and effect. Its connotation is that education and teaching activities should aim at the development of students, evaluate students' learning process, quality and results by means of quantification, measurement and evaluation, and make value judgments [7]. This assessment is not a simple knowledge mastery level, but a comprehensive assessment of knowledge, ability and quality based on training objectives, graduation requirements and curriculum objectives. It includes both explicit education and teaching activities and implicit education. It should comprehensively reflect the quality of talent cultivation in a comprehensive, whole-process and all-factor way. Its evaluation includes two levels, namely, the final learning effect and the stage learning effect [8].

Basic principles of learning effectiveness evaluation system

1) The evaluation criteria can be quantified

Examining students' learning effects through scores can make teachers' evaluation of students' learning effects of courses operable, and use data to evaluate students' learning efficiency

2) The perspective of judgment should be diverse

When formulating evaluation indicators, we should increase the proportion of formative evaluation, establish an evaluation system involving multiple subjects such as self-evaluation, peer evaluation, teacher-student evaluation, peer evaluation, industry evaluation, alumni evaluation, and so on. The evaluation form and evaluation criteria adopted at each stage should be open and transparent, match with the content of learning output results, and reflect the learning quality and learning energy of students to the maximum extent. [9].

3) It is conducive to cultivating students' personality development

The design of the learning effect evaluation system must help promote the meaningful learning of students, that is, let students experience some different things in the classroom, especially make the experience and harvest of each student can be sustained and expanded. Therefore, when designing learning effect evaluation indicators, we should not only consider from the perspective of "understanding+ memory", but also determine from the aspects of ability, personality, value, etc; To meet the basic requirements of all students, we should also guide students to higher personalized needs, and teach students in accordance with their aptitude. Under the basic condition, we should teach

students in accordance with their aptitude [10].

Defects in current teaching

The traditional teaching thinking is teacher-centered, which pays more attention to the evaluation of teachers' teaching quality and ignores the evaluation of students' learning achievements. According to the previous data, it can be seen from Figure 1.

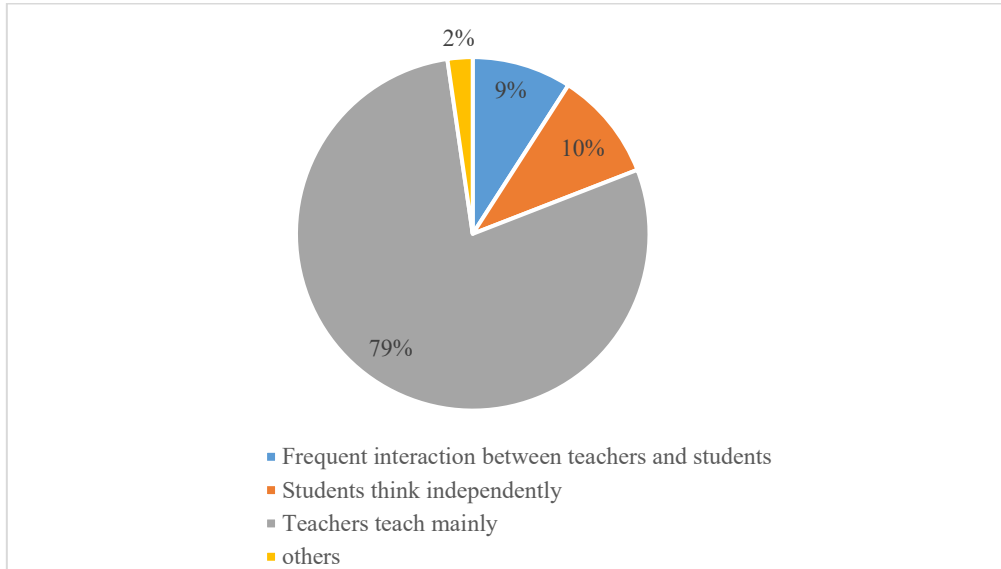


Figure 1: Traditional classroom model.

It can be seen from the above figure that the regular interaction between teachers and students accounts for only 9%, while the teacher-centered teaching model accounts for 79%. It can be clearly seen from the relative comparison of the two that the classroom model of China's higher education is mainly teacher-centered and seriously neglects the status of students [11].

The supply of talents trained by colleges and universities does not match the demand of the talent market.

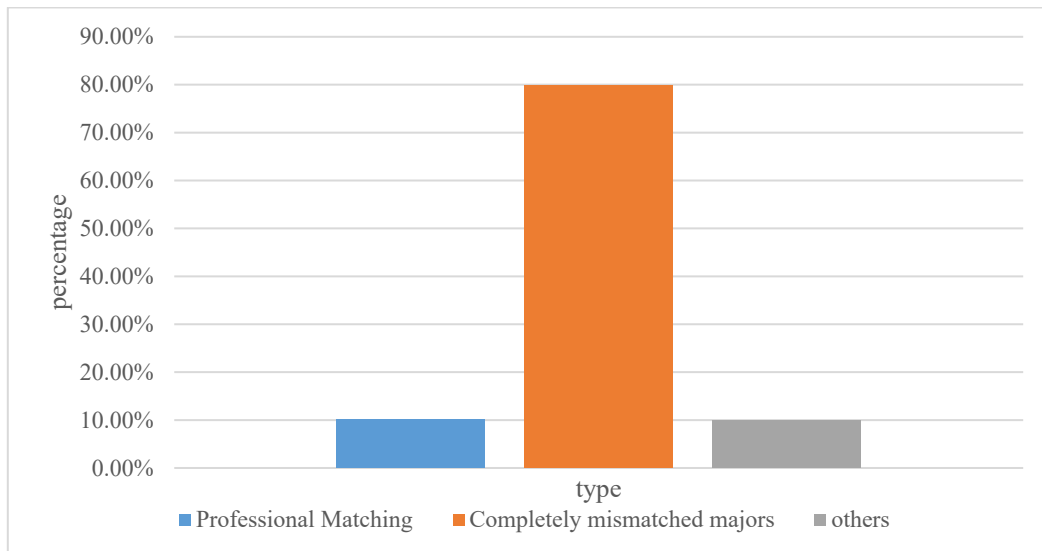


Figure 2: Matching degree of professional learning and internship job demand.

In modern society, there are a lot of phenomena such as the devaluation of academic qualifications, the inability of 985 master's degree to find a job, and so on. In fact, these problems can not all be attributed to the high admission rate of the college entrance examination, and part of the reason is the inaccurate orientation of the talent training in colleges and universities. The goal and demand fit poorly. The root cause is that some majors in colleges and universities have not updated the concept of talent training in time, overemphasized the integrity of the discipline itself, and failed to change from

"discipline-centered" to "competence-centered", thus failing to adapt to the overall goal of college training. Moreover, in the process of formulating vocational education goals, some majors have investigated the new talent needs of industrial enterprises, and the number of survey feedback samples of employers and alumni is too small to fully reflect the real situation of social needs, resulting in deviation in the revision of talent training goals [12]. According to the previous data, the following conclusions can be drawn from the survey of whether the graduates have the corresponding majors in employment, as shown in Figure 2.

2.2. Multimodal Teaching

In 1994, the New London research team applied various models in teaching and put forward the concept of "multiple reading and writing" (O'Toole, 1994). "Multiple reading and writing" aims to improve students' reading and writing abilities (including identifying cultural differences, subcultural differences, regional differences, ethnic differences, technical differences, and contextual differences) as well as the ability to read and write multiple patterns of meaning. Multimodal teaching refers to the process of constructing and understanding different symbolic meanings in the classroom. Its main content includes the design of "context, meaning, mode and media" at four levels [13]. Multi-modal teaching mode refers to the combination of language, pictures, sounds, actions and other structures by teachers to form a most effective way of language expression, and guide students to use a variety of ways to establish meaning and communicate with others. Through the practice of multiple models, students can understand the meaning expressed by different models from multiple angles, multiple angles, multiple angles and multiple angles, which includes the meaning of metaphor literally, so as to ultimately improve students' understanding and application of model combination. The above theoretical and practical interpretation of multimodal discourse analysis has laid a solid theoretical foundation for multimodal teaching behavior in the current digital media environment.

Multimodal discourse analysis

Multi-mode discourse analysis recognizes that language is a social symbol and semantic potential, while other symbol systems besides language are also the source of semantics; This paper puts forward the "pure rational function hypothesis", which holds that multimodal discourse has the same multi-function as discourse containing only linguistic symbols, that is, multimodal discourse has conceptual function, interpersonal function and textual function [14]. This multimodal discourse analysis enables us to incorporate both verbal and non-verbal communication into the study from a broader perspective. The two types of information are transmitted by different media channels: the main transmission channels of language are: simple language (voice and text) and companion language (tone, font, typesetting, sound); Nonverbal information includes physiological information (action, analogy, face, and limb) and non-physiological information (tools, environment), as shown in Figure 3.

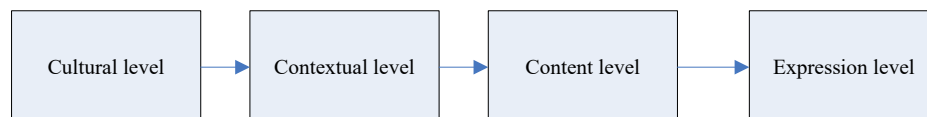


Figure 3: Multimodal frame.

3. Experimental Analysis of Learning Effectiveness of Students In Higher Vocational Colleges Based on Multimodal Teaching

3.1. Research Direction

According to the theory of multimedia and multimodal learning, this paper puts forward the first three research hypotheses and sets four research questions:

- 1) Can students' interest in learning be improved by applying multimodal teaching mode to the teaching class of language learning?
- 2) Whether multimodal teaching mode is beneficial to improve the learning of science and engineering majors
- 3) What is the inspiration of multimodal teaching mode for language anthropology?
- 4) What are the advantages of multimodal teaching mode compared with other learning methods?

3.2 Test Samples

The subjects of this study are the first and second classes of English majors in Jinan Engineering Polytechnic. The two classes are the same college, and the grades are the same. There is no obvious difference in the results, interests, habits and methods of the mid-term and final examinations. Class 1 is the control group and class 1 is the experimental group, with 50 people in each class. In general, the students participating in the experiment have basically the same English ability, and the individual differences are not significant. Therefore, the correctness of the test results will not be affected[15].

3.3. Different Experimental Environments

The students in the control group still maintain the classroom teaching mode of traditional textbooks, while the teachers in the experimental group use multimodal teaching methods to teach the students in the experimental group.

3.4. Experimental Progress

This experiment will conduct a questionnaire for the participating students

Table 1: Results of pre-experiment test.

Experimental Classes			Control Classes		
Fractional Segment	Number of people	Percentage	Fractional Segment	Number of people	Percentage
Over 85	10	20%	Over 85	7	14%
75-85	7	14%	75-85	10	20%
65-74	17	34%	65-74	18	36%
Under 65	16	32%	Under 65	15	30%

Table 2: Results of post-experiment test.

Experimental Classes			Control Classes		
Fractional Segment	Number of people	Percentage	Fractional Segment	Number of people	Percentage
Over 85	12	24%	Over 85	8	16%
75-85	10	20%	75-85	11	22%
65-74	18	36%	65-74	16	32%
Under 65	10	20%	Under 65	15	30%

3.5. Results of Multimodal Teaching Experiment

As shown in Tables 1 and 2, the progress of the experimental group was significantly faster than that of the control group. The experimental group with more than 85 points increased from 20% to 24%; the control group increased from 14% to 16%. Multi-mode teaching is suitable for college English newspaper reading, and its effect is better than conventional teaching. There is a significant difference between the experimental group and the control group through the comparison of reading scores of the fourth level. The results of the questionnaire after the experiment show that most of the students in the experimental class tend to adopt multi-mode teaching. Multi-mode teaching gives students more opportunities to participate in classroom activities and creates a learning atmosphere full of competitive spirit. Multimodal teaching activities require students to cooperate and discuss, so that students can learn to be independent and cooperative in class.

4. Conclusion

The traditional English reading teaching mode is affected by many factors, such as hyperactivity disorder, anorexia, dryness, and the new word "blocking the way", which makes students' reading time and efficiency low. Based on the theory of multimodal discourse analysis and multimodal teaching mode, this paper discusses teaching, and on this basis, combined with the design and implementation of multimodal classroom, discusses its application in newspaper English teaching. At the same time, there are some shortcomings in this paper, that is, the real test time is short, the scope of research objects is small, and the test content and methods are also limited. It is hoped that future research can be further

explored in terms of increasing research time, expanding research samples, and enriching research content and methods.

References

- [1] Mohammed G S, Wakil K, Nawroly S S. *The Effectiveness of Microlearning to Improve Students' Learning Ability. International Journal of Educational Research Review*, 2018, 3(3):32-38.
- [2] Jnr B A, Kamaludin A, Romli A, et al. *Exploring the role of blended learning for teaching and learning effectiveness in institutions of higher learning: An empirical investigation. Education and Information Technologies*, 2019, 24(6):3433-3466.
- [3] Zaccone M C, Pedrini M. *The effects of intrinsic and extrinsic motivation on students learning effectiveness. Exploring the moderating role of gender. International Journal of Educational Management*, 2019, ahead-of-print (6): 1381-1394.
- [4] Jia X. *A Review of the Teaching Model of Mental Health Education Courses in Primary and Secondary Schools in the New Media Environment. Education Study*, 2021, 3(2):225-227.
- [5] Kruger J S, Kruger D J, Suzuki R. *Assessing the Effectiveness of Experiential Learning in a Student-Run Free Clinic. Pedagogy in Health Promotion*, 2018, 1(2):91-94.
- [6] Huang Y H. *Influence of Instructional Design to Manage Intrinsic Cognitive Load on Learning Effectiveness. Eurasia Journal of Mathematics Science and Technology Education*, 2018, 14(6):2653-2668.
- [7] Borshecheva O V. *Pedagogical conditions of blended learning effectiveness in teaching a foreign language in a non-language university. Pedagogy and Psychology of Education*, 2020(4):72-80.
- [8] Khor C Y, Chua F F, Lim T Y. *Learning Effectiveness and Efficiency in Tertiary Mathematics Education under Core-and-Spoke Model. International Journal of Information and Education Technology*, 2020, 10(7):505-510.
- [9] Liu C W, Ho L A, Chueh T Y. *Exploring the learning effectiveness of financial literacy from the microworld perspective: Evidence from the simulated transactional interactive concurrent system. Journal of Computer Assisted Learning*, 2020, 36(2):178-188.
- [10] Edokpolor J E. *Resource adequacy and utilization and teaching and learning effectiveness in Vocational Education Programmes in Nigerian universities. Contemporary Educational Researches Journal*, 2019, 9(2):39-51.
- [11] Djatmika, Wibowo A H, Sugini, et al. *Multimodal Strategies in Teaching Children with Autism: A Discourse Analysis. Systematic Reviews in Pharmacy*, 2020, 11(2):219-229.
- [12] Yang Y. *Study on the Construction of Multimodal Interactive Oral English Teaching Model. Open Journal of Modern Linguistics*, 2018, 08(4):137-142.
- [13] Kummin S, Surat S, Kutty F M, et al. *The Use of Multimodal Texts in Teaching English Language Oral Skills. Universal Journal of Educational Research*, 2020, 8(12):7015-7021.
- [14] Zapata A, Kleekamp M C. *"Wearing Only Our Skin": the multimodal literacies classroom as a living arrangement. English Teaching: Practice & Critique*, 2022, 21(2):113-127.
- [15] Wang Huijun, Wang Haili. *"Research on the Teaching Mode of Flipped Classroom from a Multimodal Perspective". E-education Research*, 2019(12).