

Research on the Impact of "Goal-centered Problem-oriented" Teaching Model Based on Mobile Platforms Concerning College English Writing Level of "Excellence Program" Students

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Abstract: This study focuses on the students of the "Excellence Program" for Electrical Engineering and Automation at Guangdong University of Petroleum and Chemical Technology, and compares and analyzes the impact of the "Goal-Centered Problem-Oriented" teaching mode based on mobile platforms on their English writing proficiency compared to traditional writing teaching from multiple perspectives. The aim is to use pre-test, post-test, interview, and data collection methods from the perspective of students, exploring the application of this teaching model in the English writing of "Excellence Program" students, with the aim of exploring how this model affects their writing interest and confidence, whether it can improve their English writing level, and the specific manifestations of level improvement. At the same time, this research will help teachers fully practice the new concept of English writing teaching, with students as the main body, and improve the existing teaching mode based on their actual situation, ultimately achieving the goal of increasing students' interest and confidence in English writing and improving their English writing level.

Keywords: Mobile platform, Goal-Centered Problem-Oriented, teaching mode, college English writing

1. Introduction

Since 2012, based on Electrical Engineering and Its Automation Traditional advantageous specialty, Guangdong University of Petroleum and Chemical Technology has been in collaboration with Guangdong coastal large petrochemical enterprises, such as Sinopec Maoming Petrochemical Company, Sinopec Zhanjiang Dongxing Petrochemical Company, and Sinopec Guangzhou Petrochemical Company, which steadily promotes pilot work, continuously summarizes and absorbs the latest achievements of education and teaching reform at home and abroad during implementation, scientifically positions the training goals and service areas of each specialty, carefully formulates the training standards and school enterprise training plans for applied engineering and technical talents in each specialty, in order to actively adapt to the corresponding social and economic development. The demand for application-oriented engineering and technical talents is to deepen teaching reform and practice, with practical engineering as the background and engineering technology as the main line, to explore the cultivation mode and methods of outstanding engineer reserve talents in application-oriented local universities that are suitable for the South China region and the petrochemical industry, with distinct characteristics, and focus on improving students' engineering awareness, engineering quality, and ability to adapt to various engineering practice needs.

In the context of cultivating outstanding engineering talents, English teaching should be coordinated with the implementation of the school's Excellence Plan and necessary reforms should be made to the current teaching mode. Professor Zhou Rujin, Vice President of Guangdong University of Petroleum and Chemical Technology, proposed a "Goal-Centered Problem-Oriented" teaching model, emphasizing that teaching should revolve around the school's educational goals, professional talent training goals, and curriculum teaching objectives. Based on the characteristics of the curriculum, the teaching requirements of each course should be refined and decomposed into several objective quality requirements.

The goal oriented teaching model is proposed based on long-term teaching practice and management, from the perspective of how to cultivate talents, after analyzing and summarizing the teaching process. It is a summary and exploration of higher education teaching reform and how to improve teaching and improve the quality of talent cultivation. Based on the goal problem oriented teaching model, the problem is the key, and the design of the problem implies consistency and conformity behind the five major problems. From pursuing causality to pursuing relevance, from simple thinking to complex thinking, guiding students to actively construct epistemological logic.[1]

The "problem oriented" teaching advocates problem-oriented organization of teaching, which is inquiry oriented teaching. Specifically, it refers to the teaching process that is guided by the teacher's inspiration or problem orientation, with students' independent and autonomous learning and cooperative discussion as the premise, and with students' original knowledge, culture, or thinking methods as the reference object, providing students with opportunities to express, question, explore, and discuss problems freely, allowing them to personally Various attempt activities such as group and collective problem-solving activities fully embody the educational concept of "student-centered", allowing students to apply their knowledge to solve practical problems. [2]

This study explores the applicability of the "Goal-Centered Problem-Oriented" teaching model based on mobile platforms from the perspective of students, and whether it can better help teachers teach more efficiently and students learn more efficiently; How much does the application of this teaching model promote students' interest and grades in English writing, and whether it can further improve their English writing proficiency; After thorough investigation and research, the aim is to identify the shortcomings of this teaching model in practice and at the student level, and to find improvement strategies accordingly.

2. The significance of project implementation

This research has rich theoretical significance and positive practical significance.

(1) Theoretical significance

This study focuses on the students of the "Excellence Program" and uses Krashen's input hypothesis theory and Swain's output hypothesis theory as theoretical foundations to study English writing teaching. This can provide more research data for the "goal problem oriented" teaching model based on mobile platforms and promote its further development and improvement.

(2) Practical significance

This study, from the perspective of students, investigates the impact of innovative teaching models by teachers on the English writing level of "Excellence Program" students. It can provide methods and suggestions for learners to improve their English writing ability, improve their English writing level, and provide relevant strategic guidance for the effectiveness of college English writing teaching.

Not only does it enhance the spirit of cooperation among students, but it also enhances their interpersonal communication skills, allowing them to learn to actively learn and explore, apply theoretical knowledge learned to the experimental process, and solve problems encountered during the experimental process, which is conducive to stimulating students' interest in exploring experiments and their desire for theoretical knowledge learned. [3]

Five major types of problems are carefully designed before class, with key explanations during class, encouraging students to develop their thinking abilities, and promoting innovative thinking development after class. Emphasis is placed on the development laws and characteristics of students throughout the entire process, solving practical problems faced at each stage, and achieving full process education. [4]

3. Key issues to be addressed

This study focuses on the feasibility and effectiveness of applying the "Goal-Centered Problem-Oriented" teaching model based on mobile platforms to the teaching of college English writing for "Excellence Program" students. To understand the role of the "Goal-Centered Problem-Oriented" teaching model based on mobile platforms and their views on this teaching model, this study proposes three key issues to be addressed: (1) Can the "Goal-Centered Problem-Oriented" teaching model based on mobile platforms improve students' English writing skills and the specific

manifestations of their improvement. (2) How does the "Goal-Centered Problem-Oriented" teaching model based on mobile platforms affect students' interest and confidence in English writing?

4. Results and Discussion

The data collected from the experiment were analyzed to verify the research questions raised in the research design. The data used for analysis in this study mainly comes from the following two aspects: scores of writing tests and questionnaire surveys. All data comes from first-hand materials collected in teaching, with quantitative analysis as the main method and qualitative analysis as the complementary tool. All data were collected and carefully analyzed before and after the experiment, most of which were done using SPSS 20.0.

4.1. Results of the Experiment

For the purpose of studying whether there existed significant difference in students' English writing proficiency, a pre-test was given to the two classes of "Excellence Program" students majoring in Electrical Engineering before the experimental study. The writing test was carried out among all the students of the two classes in the classroom at the same time. The writing topic was about "How to be successful" which was selected in accordance with the topic of Unit 1 *The Way to Success* published by Foreign Language Teaching and Research Press.

Two expert teachers graded students' compositions under the same evaluation criteria, Independent Samples T-test was applied to study their scores and the result was presented in the following table.

Table 1: Independent Sample T-test of pre-test between the two classes.

Class	N	M	SD	t	df	Sig.(2-tailed)
1	38	69.620	6.285	.565	96	.563
2	39	68.938	5.664			

As was shown in Table 1, the value of significance was .563, which was much higher than 0.05, meaning that there was no obvious difference in students' writing proficiency between the two classes. According to the statistical theory, the class which had better performance was generally selected as control class (CC) while the other was selected as experimental class (EC). Therefore, class 1, with a slightly higher mean, was selected as CC which adopted the traditional English writing teaching mode, while class 2, with a lower mean, was regarded as EC which adopted Goal-Centered Problem-Oriented teaching mode.

In order to ensure the reliability and validity of the whole research, it was necessary and important to make sure all the factors are the same which can have an effect on the experiment results. In this experiment, the writing class in both EC and CC were taught by the researcher's college English teacher, with the researcher as the teacher's capable assistant. Therefore, the process of the whole teaching experiment could be better monitored by the researcher. Besides, the students in the two classes used the same textbook and reference book, having the same teaching period and learning environment. Finally, two expert teachers assessed students' writing compositions in both pre-test and post-test under the same evaluation criteria, which ensured the objectivity and reliability of their writing scores.

During the teaching experiment, Goal-Centered Problem-Oriented teaching mode was employed in EC while the traditional English writing teaching mode was adopted in CC. In order to discover the potential effects of Goal-Centered Problem-Oriented teaching mode on students' English writing proficiency, a detailed comparison of students' writing scores in the post-test between EC and CC was presented. The descriptive statistics could be found in Table 2.

Table 2: Independent Sample T-test of Post-test between EC and CC.

Item	N	M	MD	SD	t	Sig.(2-tailed)
Post-test	EC	38	75.275	4.475	3.544	.001
	CC	39	70.800			

Table 2 presented the output of Independent Samples T-test about the post-test between EC and CC. It could be found that the mean scores of EC equaled 75.275 while that of CC was 70.800. The mean gap between EC and CC was 4.475, with EC higher than CC. What's more, the value of the Sig. (2-tailed) was .001 ($P < .05$), which implied that the significant difference existed between students'

writing proficiency between EC and CC after Goal-Centered Problem-Oriented teaching mode was employed for four months.

4.2. Results of the Interview

With an aim to discover students' attitudes toward the effects of Goal-Centered Problem-Oriented teaching mode on their English writing proficiency, an interview was conducted in EC right after the teaching experiment. Based upon the analysis of the interview data, students' attitudes toward Goal-Centered Problem-Oriented teaching mode are presented in the following two aspects.

4.2.1. Results of Students' English Writing Proficiency in Specific Aspects

In order to explore what were the effects of Goal-Centered Problem-Oriented teaching mode on students' English writing proficiency in depth. Students' writing compositions were evaluated by two expert teachers from three aspects: organization, content, and language. A detailed comparison of students' writing scores in terms of organization, content, and language was shown as follows.

Table 3: Post-test of EG and CG in Organization, Content, and Language.

Writing Aspects		EG	CG	Sig (2-tailed)
Organization	Mean	15.04	14.721	.167
	SD	1.058	1.088	
Content	Mean	22.31	21.31	.021
	SD	1.680	2.211	
Language	Mean	18.68	18.40	.470
	SD	1.852	1.736	

As was shown in Table 3, it can be revealed that students make a prominent progress in writing content as P-value is less than 0.05. In terms of organization and language, no evident distinction between two groups is manifested since each P-value is much more than 0.05. On the whole, EG has got improved a lot concerning organization, content, and language with Goal-Centered Problem-Oriented teaching mode. Consequently, this empirical study indicates that Goal-Centered Problem-Oriented teaching mode partly plays a positive role students' writing proficiency.

4.2.2. Results of Students' Interest and Confidence in English Writing

The second part of the questionnaire is an investigation of students' writing interest in multimodal writing instruction (see Table 4). In this way, whether students' enthusiasm and confidence in writing is raised can be clearly seen after the experiment.

Table 4: Students' Attitude towards Writing with Goal-Centered Problem-Oriented Teaching Mode.

Factor	Aspect	Item	Selection for Each Item				
			strongly agree	agree	uncertain	disagree	strongly disagree
Writing Interest	Interest	7	30.65%	61.96%	7.39%	0%	0%
	Confidence	8	35.83%	45.86%	16.72	1.25%	0.34%

From Table 4, over 90 percent of the students consented that if teachers adopted Goal-Centered Problem-Oriented teaching mode in writing class, they would be interested in what they had been taught, and thus more willing to actively participate in the class activities, and no one disagreed with this viewpoint. Moreover, most of students maintained that their writing interest to some extent was boosted when provided with Goal-Centered Problem-Oriented teaching mode and only 7.39% students were not sure if this method indeed stimulated their writing interest. As for confidence, more than 80% students claimed that they had faith in English writing, with only 1.25% students considered that it was not effective.

5. Conclusion

By comparing and analyzing the impact of the "Goal-Centered Problem-Oriented" teaching mode based on mobile platforms on their English writing proficiency compared to traditional writing teaching from multiple perspectives, this study focuses on the students of the "Excellence Program" for Electrical Engineering and Automation at Guangdong University of Petroleum and Chemical Technology, through the diverse means of pre-test, post-test, interview, and data collection methods from the perspective of students, exploring the application of this teaching model in the English writing

of "Excellence Program" students, in order to explore how this model affects their writing interest and confidence, whether it can improve their English writing level, and the specific manifestations of level improvement. At the same time, the study will help teachers fully practice the new concept of English writing teaching, with students as the main body, and improve the existing teaching mode based on their actual situation, ultimately achieving the goal of increasing students' interest and confidence in English writing and improving their English writing level.

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