

# Application of PBL Bilingual Teaching Method in Clinical Probation of Gynaecology and Obstetrics

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**How to cite this paper:** Zhang, Y. (2017). Application of PBL Bilingual Teaching Method in Clinical Probation of Gynaecology and Obstetrics. *Creative Education*, 8, 666-670.

<https://doi.org/10.4236/ce.2017.84051>

**Received:** March 17, 2017

**Accepted:** April 27, 2017

**Published:** April 30, 2017

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## Abstract

**Objective:** To explore the effect of the problem-based learning (PBL) bilingual teaching model in clinical probation of gynecology and obstetrics. **Method:** Students in grade 2013 and grade 2014 in the gynecology and obstetrics department were enrolled in this study. 37 students in grade 2013 received a lesson taught using the traditional bilingual teaching model, in which the teacher leads the course. 42 grade 2014 students were taught a similar lesson using the PBL bilingual teaching model in which student group discussions drive the class. In this model, students receive a lecture a week before receiving an English case study. The students discuss the case studies within smaller groups, present the case to the class and then discuss the case with other groups in a classroom discussion. The teachers provide supplemental information as needed. Following the lesson, the effectiveness of each teaching method was evaluated by written theoretical examination and questionnaire survey. **Results:** Students taught with the PBL bilingual method scored significantly higher in basic knowledge, case analysis and treatment selection than students taught with the bilingual method alone ( $P < 0.05$ ; **Table 1**). Students taught with the PBL bilingual method reported experiencing greater interest in learning, and improved independent learning, English speaking, and collaboration skills than those taught with the bilingual teaching method ( $P < 0.05$ ). There was no statistical difference between the two teaching methods with respect to critical thinking and problem-solving skills ( $P > 0.05$ ; **Table 2**). **Conclusion:** The PBL bilingual teaching model improves the learning and comprehension, strengthens critical thinking and problem solving skills and improves English speaking skills in gynecology and obstetrics medical students.

## Keywords

PBL Teaching Method, Bilingual Teaching Mode, Obstetrics and Gynecology,

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 Probation
 

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## 1. Introduction

Obstetrics and gynecology is currently taught using the traditional bilingual method, which incorporates two languages in order to improve speaking skills in other languages (Shrivastava, Shrivastava, & Ramasamy, 2013). However, due to the interdisciplinary nature of the medical field, a teaching method that incorporates multiple disciplines and emphasizes problem solving may be a more comprehensive and effective way to train qualified professionals in obstetrics and gynecology.

A promising teaching method to improve learning among burgeoning medical professionals is problem-based learning (PBL) bilingual teaching. In 1969, Professor Barrows introduced and promoted problem-based learning (PBL)—a student-focused, problem-oriented teaching model—in order to stimulate enthusiasm and interest in learning among students (Chen, Zhao, Chen et al. 2010).

In the present study, we investigate the effectiveness of the application of the PBL bilingual teaching method in training students in obstetrics and gynecology.

## 2. Object and Methods

### 2.1. Research Objective

Grade 2013 and 2014 clinical probation students that have spent five years in the Obstetrics and Gynecology program were recruited for this study. Grade 2013

**Table 1.** Theoretical test comparison (mean + standard deviation).

question type	Bilingual group	PBL bilingual group	T	P
Basic knowledge	53.24 ± 2.22	54.52 ± 2.97	-2.15	0.03
Case analysis	17.36 ± 1.14	27.45 ± 1.13	-38.94	0.0
Treatment progress	4.22 ± 0.95	8.0 ± 0.83	-18.72	0.0

**Table 2.** Comparison of questionnaire survey.

Questionnaire survey	Bilingual group	PBL bilingual group	X2	P
Improve learning interest	23	35	4.46	0.04
Improve self-learning ability	17	29	4.26	0.04
Improve oral English	18	36	12.34	0.01
Ability to the promotion of analytical problems and ability to solve problems,	27	33	0.33	0.56
Enhance teamwork	20	32	4.23	0.04

and 2014 students were taught using the bilingual teaching model and PBL bilingual teaching model, respectively (Zhong, Wu, Liu et al., 2013).

## 2.2. Research Methods

Bilingual (Control) Group: 37 grade 2013 students received the obstetrics and gynecology lesson taught with the traditional bilingual teaching method. Using this method, the teacher covered the following areas and provided relevant case studies: diagnosis, differential diagnosis, treatment principles of obstetrics and gynecology diseases.

PBL bilingual group: 42 students of grade 2014 received the obstetrics and gynecology lesson taught with the PBL bilingual teaching method. Each person in the class received an English version of a case study with questions to be completed a week before the course. The students were then divided into 3 groups of 14 people. Members of each group studied, gathered information and consulted with other members of the group. As a unit, the group presented and discussed the specific cases with the rest of the class and provided a final summary of the case. Following each presentation, the teacher provided a summary with supplementary information as needed.

The teachers included physicians with more than a year of attending experience and experience working or studying internationally. The lesson content was selected and designed by all the teachers to ensure that the lessons were comprehensive, accurate, and touched on specific points. The syllabi for the two teaching methods contained similar content. There was no statistical difference between the English level of the two groups of students ( $> 0.05$ ). See **Table 3**.

## 2.3. Evaluation Index

The effectiveness of the teaching methods was evaluated using theoretical examination and questionnaires (Gade & Chari, 2013).

1) Theoretical examination: Following each teaching session, the students completed a written exam related to the topics presented in the course. The exam contained 100 questions: 60 questions pertained to basic knowledge, 30 questions pertained to case analysis, and 10 questions pertained to treatment selection.

2) Questionnaire: Questionnaire were issued immediately after the end of the written examination. Questions included those related to improvements in the students' interest in learning, independent learning, English speaking skills, critical thinking and problem solving skills, and teamwork skills.

**Table 3.** Comparison of the English level.

Grouping	Number of cases (cases)	<National English level 6	$\geq$ National English level 6	P
Bilingual group	37	34	3	>0.05
PBL bilingual group	42	39	3	

## 2.4. Statistical Methods

SPSS 21.0 statistical software was used. Count data was analyzed by T-test. Measurement data was analyzed by analysis of variance (ANOVA). Results were considered statistically significant if  $P < 0.05$ .

## 3. Results

### 3.1. Comparison of Theoretical Examination Scores

Students taught with the PBL bilingual method scored significantly higher in basic knowledge, case analysis and treatment selection than students taught with the bilingual method alone ( $P < 0.05$ ; **Table 1**).

### 3.2. Comparison of Questionnaire Survey

Students taught with the PBL bilingual method reported experiencing greater interest in learning, and improved independent learning, English speaking, and collaboration skills than those taught with the bilingual teaching method ( $P < 0.05$ ).

There was no statistical difference between the two teaching methods with respect to critical thinking and problem-solving skills ( $P > 0.05$ ; **Table 2**).

## 4. Conclusions

Bilingual teaching aims to improve professional medical knowledge and skills while also improving English speaking skills (Wang, Zhang, Gu et al., 2016; Zhong, Zeng, Cai et al., 2010). A drawback to a purely bilingual teaching method is that it is difficult to arouse enthusiasm for learning among the students. This method is also highly-focused on developing English vocabulary rather than professional knowledge and skills.

The PBL teaching method is currently the most widely used teaching model in the world (Telner, Bujas-Bobanovic, Chan et al., 2010). PBL engages students by presenting real cases for the students to solve. Using this method, students teach themselves how to research medical professionally, and to be cognizant of specific disease symptoms and progression. The students then learn to work as a team to discuss the case and develop a sound theory. Through preparation of detailed medical reports and heated discussions, the students mastered the basic medical knowledge and critical professional skills with less teaching effort.

Our study revealed that the PBL bilingual teaching method improved basic knowledge, case analysis and treatment selection among students when compared to the bilingual only teaching method ( $P < 0.05$ ). This shows that PBL bilingual teaching can effectively improve learning among the students. The PBL bilingual method may improve learning by pulling the students' full attention and interest into the teaching session.

Our study also showed that Students taught with the PBL bilingual method reported experiencing greater interest in learning, and improved independent learning, English speaking, and collaboration skills than those taught with the

bilingual teaching method ( $P < 0.05$ ). These findings demonstrate that the PBL bilingual teaching method improves professional skills that are applicable in local and international clinical settings (Hu, Zhang, Sun et al., 2013; Gurgel, Miller, & Smith, 2011).

In conclusion, the PBL bilingual teaching model improves the learning and comprehension, strengthens critical thinking and problem solving skills and improves English speaking skills in gynecology and obstetrics medical students. While this method clearly improves upon the traditional bilingual teaching method, the PBL teaching method should be continually reviewed and updated over time.

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