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Evaluation of teaching-in-English reform in five-year clinical tropical medicine program – Case analysis of curriculum reform of clinical medicine in Hainan Medical University

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ABSTRACT

Objective: To investigate the model, quality as well as effect of teaching-in-English in five-year clinical medicine program of Hainan Medical University.

Methods: The questionnaire was carried out among clinical medicine undergraduates of 2012–2015 grades in Hainan Medical University, to investigate studying time, studying habits and the impact of teaching in English. Additionally results of CET-4, CET-6 and overseas internship from undergraduates of 2012–2015 grade, as well as the result of phased medical licensing examination and post-graduate entrance examination from undergraduates of 2012 were accordingly collected from the Teaching Management Department.

Results: For the Chinese students in international classes, the average time of self-study was 161.49 min, 58.3% had preview before classes, and 90.7% had habit of review after classes. Thus the first time pass rate, total pass rate, first time excellent rate and total excellent rate of CET-4 and CET-6 of international classes were significantly higher than those of regular classes. The result of post-graduate entrance examination in 2016 showed that the score, pass rate and acceptance rate of international classes of 2012 grade were significantly higher those of regular classes ($P < 0.01$).

Conclusions: Teaching-in-English reform in Hainan Medical University has achieved initial success. Chinese students from international classes are superior to those from regular classes in many aspects. However, there are still many problems, and effective measures should be implemented to promote teaching quality continuously.

1. Introduction

Teaching-in-English is an immersion teaching, which teaches in English language, and treats target language, English as a by-product [1–3]. Due to exam-oriented English education for years in China, applying ability of English is poor among medical undergraduates [4]. They can't form English thought pattern, which lead to poor ability to read, write or communicate in English. Teaching-in-English is different from bilingual

teaching [5,6]. In many Chinese colleges and universities, teachers use PPT in English, but still explain in Chinese. This model results in the lack of ability to communicate in English. During teaching-in-English process, students not only learn how to use English as a tool, but also have culture, value and thought pattern remodeled. Teaching-in-English creates an environment for thinking medicine problems in English, and contributes to mastering medical English vocabulary and enhancing reading and writing ability [7].

Hainan Medical University founds international classes for clinical medicine students from 2013. In international classes, students from China and foreign countries attend classes together. The length of schooling is five years, and the enrollment amount is 60 every year (30 Chinese and 30 foreign students). Based on the principle of voluntary registration, the students are recruited from freshmen majored in clinical medicine. This study investigates the model, quality as well as effect of teaching-in-English systematically, to discuss the necessity and feasibility of teaching-in-English education reform, and to promote the implement of teaching-in-English.

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2. Materials and methods

2.1. Subjects

A total of 240 clinical medicine undergraduates of 2012–2015 grades in Hainan Medical University were selected, including 120 students from international classes, and 120 from regular classes. This investigate was carried out from November to December 2016. Clustering sampling was performed in international classes, while system random sampling was performed in regular classes. Questionnaires were distributed and collected by counselors. These questionnaire items included learning attitude, self-evaluation of foreign language ability, communication situation with foreign students, impact of teaching-in-English *etc.* Additionally results of CET-4, CET-6 and overseas internship from undergraduates of 2012–2015 grade, as well as the result of phased medical licensing examination and post-graduate entrance examination from undergraduates of 2012 were accordingly collected from the Teaching Management Department.

2.2. Statistical analysis

The questionnaire results were input by Epidata3.0, while CET-4 and CET-6 scores were sorted out by Excel. The data were analyzed by SPSS18.0. Descriptive statistical methods were used in preliminary analysis. *Chi*-test was used to compare self-evaluation of foreign language ability, CET-4, CET-6, as well as post-graduate entrance examination. The inspection level was $\alpha = 0.05$.

3. Results

3.1. Basic characteristics

A total of 240 questionnaires were distributed, and 240 were recycled, with recycle rate as 100%. All questionnaires were

effective, with effectiveness rate as 100%. There were 45% male subjects and 55% female, and the age was (21 ± 2) years old.

3.2. Impact of teaching-in-English

3.2.1. Learning attitude

The results showed that besides classroom learning, the average time of self-study was 161.49 min, the time for memorizing medical English vocabulary was 38.83 min in students from international classes; while the average time of self-study was 130.90 min, the time for memorizing medical English vocabulary was 18.99 min in regular classes. A total of 58.3% students had preview before classes, and 90.7% had habit of review after classes in international classes; while 31.3% had preview before classes, and 66.4% had habit of review after classes in regular classes.

3.2.2. Impact of teaching-in-English

A total of 69.2% students from international classes often communicated with foreign students, and 88.3% thought that their thinking patterns were affected positively by this teaching model, and 82.9% expressed enhanced self-confidence. Besides, 80.1% Chinese students of second and over grades from international classes believed that this teaching model changed their career planning and study location to some extent, and they would continue postgraduate education, study abroad or try to obtain medical practitioner license abroad.

3.3. Medical licensing examination at 1st stage

Here is the result of theory exam of medical licensing examination at 1st stage (exam in Chinese language) for clinical medicine students of 2012 grade, which was organized by Hainan Medical University in June 2016: The average score was 257.66 in international class, higher than that of other classes which were clinical medicine Class 1 (236.73), Class 2 (248.78),

Table 1

Result of post-graduate entrance examination.

Class	Passing number (n)	Failing number (n)	Pass rate (%)	Accepted number (n)	Unaccepted number(n)	Acceptance rate (%)	Score \geq 300 (n)	Score<300 (n)	Rate (%)
Regular classes	64	254	20.1	42	276	13.2	41	277	12.9
International classes	24	11	68.6	22	13	62.9	18	17	51.4

Table 2

Result of CET-4 and CET-6.

Item	Class							
	CET-4		χ^2	P	CET-6		χ^2	P
	International class	Regular Class			International class	Regular Class		
First time pass number	104	553	94.401	<0.01	59	79	244.969	<0.01
First failing number	16	806			61	1280		
First time pass rate	86.7	40.7			49.2	5.8		
Total pass number	119	839	67.703	<0.01	83	150	258.001	<0.01
Total failing number	1	520			37	1118		
Total pass rate	99.2	61.7			69.2	11.8		
First time excellent number	14	26	39.863	<0.01	5	6	20.727	<0.01
Not excellent number for first time	106	1333			115	1353		
First time excellent rate	11.7	1.9			4.2	0.4		
Total excellent number	14	27	38.333	<0.01	10	9	51.165	<0.01
Total not excellent number	106	1332			110	1350		
Total excellent rate	11.7	2			8.3	0.7		

Table 3

Evaluation from training hospitals.

Class	English level before internship	Language training after arrival	Departments shift	Evaluation items	General comment
Regular class	CET-6	15 days	Endocrinology Department,	Nursing, doctor-patient	Common
International class	CET-6 or IELTS 6.5 or TOFEL 85 and above	No	Respiratory Medicine Department, Neurology Department, Intervention Therapy Department, Ophthalmology Department, Infectious Disease Department	communication, medical theory, operating skill, professional level	Well to excellent

Class 3 (229.31), Class 4 (243.72), Class Emergency (240.76) and Class Psychology (250.04).

3.4. Result of post-graduate entrance examination

The score ($\chi^2 = 33.635$), pass rate ($\chi^2 = 39.541$) and acceptance rate ($\chi^2 = 52.363$) of international classes of 2012 grade were significantly higher those of regular classes ($P < 0.01$) (Table 1).

3.5. Result of CET-4 and CET-6

The score ≥ 550 was excellent in CET-4, and score ≥ 520 was excellent in CET-6. Table 2 showed that the first time pass rate, total pass rate, first time excellent rate and total excellent rate of CET-4 and CET-6 of international classes were significantly higher than those of regular classes ($P < 0.01$).

3.6. Overseas exchange programme

Hainan Medical University has overseas exchange programme with Medical College of Utah University and Medical Center of Nebraska University for many years. According to the programme, four to eight senior students majored in clinical medicine will be exchanged to others' hospitals for 3 months every year. After the internships, Chinese students received highly evaluation by training hospitals (Table 3).

4. Discussion

Fostering students' post competency and leadership is our target which Hainan Medical University has been striving to achieve. International class majored in clinical medicine is a test field, based on which we are trying to cultivate medical talents of elite and leader type. Besides, it is also the trend of medical education reform [8–10]. In our study, the questionnaire result shows that most students from international classes are willing to accept teach-in-English model, and suggest practicing in long term. Most students consider that this model boosts their English level and specialized knowledge level, broadens their international perspectives, and has positive effect on learning frontiers of knowledge and participating in international communication activities. Exam is an important method to check teaching efficiency. Considering non-uniform difficulty due to English examination evaluation system applied in international classes, it is impossible to compare the final exam result between international classes and regular classes. However, joint exam of seven subjects shows that the score of international classes is increasing year by year, and is

significantly higher than that of regular classes. Meanwhile, the results of CET-4, CET-6 and post-graduate entrance examination are also significantly higher in international classes. It indicates from subjective and objective point that teaching-in-English has eligible quality and has achieved phased success in Hainan Medical University.

The English language levels vary greatly since students selection for international classes is voluntary. From the first semester, immersion English teaching is arranged. All advantageous teaching resources are integrated. Students from China and foreign countries attend classes together to form studying groups. Besides, on the base of international education standard, new teaching-in-English curriculum system is created. We strengthened teacher training, encourage teaching reform, introduce foreign original textbooks and reinforce the culture of students' comprehensive competence, to make favorable language learning and application environment. Recently, to promote international communication and respond to national call of developing international students education rapidly, we choose the 'South China Sea strategy' and 'Belt and Road' as direction of tropical medicine internationalization, and take advantage of our feature, tropical medicine, which highly matches geographical and climatic spectrum of diseases and highly meets social need in South Asia and Africa. On the basis of international students' education development, we push forward teaching-in-English reform steadily, and pioneer in English education reform among provincial medical colleges and universities.

To sum up, English education reform has achieved initial success, and effective measurements are still need to realize the initial goal. Firstly, teacher training should be strengthened, especially for teachers responsible for clinical internship. Incentive mechanism of teaching-in-English should be implemented, and the teaching will be related with employment of professional title, promotion and allowance if it is necessary [11,12]. Taking normalized teacher training standard of medical colleges and universities abroad as the reference, teacher training system should be established. More chances of study and further education abroad should be provided. Growth center for English teachers will be set up, and can be affiliated to Department of Personnel or Teaching Management Department. Veteran teachers with rich experience in teaching-in-English and overseas study will be responsible for management and training at home and abroad, and take charge in selection and rating. Secondly, supervision of teaching should also be intensified. Senior overseas professors will be employed as supervision expert, to set up supervision group with veteran teachers of Hainan Medical University. The group will supervise teaching quality and students' studying situations regularly, put forward suggestion and requirement, stress repeated supervision

concept, and help improve teaching quality. Meanwhile, top excellent teachers will be assigned as instructors of international classes to hoist capacity of science research innovation. Thirdly, the exam system should be optimized. We will organize all teaching and researching office to establish English question database in high quality. We can make appropriate introduction of United States Medical Licensing Examination in classroom, such as choosing test questions for final exam or quiz based on classroom teaching content combined with mock questions for United States Medical Licensing Examination. Via these measurements, we can assess students' ability to analyze and solve clinical problems, and appraise their ability of clinical thinking, practice, and communication. Fourthly, we should enhance construction of English website of our university. Educational informationization has been the direction of education reform in every country. By deeply integrating application information technology and medical education, English website will provide a convenient, flexible and personal studying environment [13,14].

Limited by development reality of higher education in China, teaching-in-English can only exist as an elite education, characteristic education or brand education. However, as social development and deepening education reform, teaching-in-English will be a common medical teaching model. In fact, the practice of teaching-in-English in medical colleges and universities has been the index in teaching and research contest to some extent.

Conflict of interest statement

The authors declare that there is no conflict of interest.

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