A Study on Medical English Education of China

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Abstracts: There is a paucity of research about the Medical English (ME) education in China. This study aims to give suggestions on improving the quality of medical English education of China by investigating the current Medical English needs of medical students and the current situation of Medical English teaching. The study was conducted during the second semester of the 2020-2021 academic year at Chongqing Medical University, China. A total of 260 students were surveyed with Needs Analysis Medical English Questionnaire (NAMEQ). Simultaneously, interviews were carried out to further enrich the research. SPSS version 25.0 was implemented to conduct independent T-test and Chi-square test. Descriptive analysis was used to quantify the responses and summarize the variables. All statistical analyses were performed at a significance level of 5%.The subjects with medical background had various interests in English and were willing to spend time improving it. About 99.3% of the students agreed with the importance of ME for their future study and work. Up to 92% of them wanted to improve their reading ability and 73% of them want to learn medical lexicology. Limited learning periods, irrational orders of curriculum arrangements and insufficient practice were reflected in the learning process. Ample and systemic teaching materials including textbooks, auxiliary materials were urgently needed. Based on current research, feasible suggestions were proposed in aspects of improving students' interests and inner motivations, curriculum arrangements, adjustments of teaching materials and so forth, which are conducive to the modifications to the contents and methods of teaching ME.

Keywords: Medical English, Medical Undergraduates, Needs Analysis, Medical English Teaching, Suggestions.

1. INTRODUCTION

Contemporarily, with the rapid development of medical science, international in-depth communication has become increasingly frequent[1], especially in the current pandemic of Covid-19. Medical English, a major branch of ESP (English for specific purposes)[2-4], has become an important medium for the international communication of medical studies, advanced technology, and medical culture[5, 6]. Therefore, basic requirements have been put forward for medical graduates to "maintain the continuous updating of their medical professional level in the rapidly changing medical progress environment". At the same time, medical students are required to "be able to obtain, identify, understand and apply the evidence in scientific literature such as medicine" in science and academic fields and "be able to understand global health problems and determinants of health and disease" in health and social fields[7]. These requirements further highlight the importance of learning English. Therefore, medical colleges and universities should understand and master the students' demand for Medical English and set up a demand-oriented Medical English course, so as to better carry out Medical English teaching activities and improve the students' knowledge reserve of Medical English.

ESP refers to English education that addresses specific communicative needs and practices of particular social or professional groups[8]. The popularity of English has evoked a soaring demand for ESP courses in East Asian countries[9]. Needs Analysis is the basic analysis that most researchers must carry out before setting a language curriculum. When setting up and studying ESP courses, the starting point of curriculum should be based on the cognition of learners' targeting needs as well as learning needs. The former is the analysis of the use of special target language in a specific context. The latter refers to what kind of special language non-native speakers need to learn to achieve the purpose of effective communication in a specific language environment[10].

In China, college English education can be divided into two stages. Stage 1 is a one-year general English

education with standardized exams across the university, requiring students to attain a certain level of general English, including listening, speaking, reading and writing ability. Stage 2 is a one-year professional English education[11]. Take an example for ME courses, setting up ME courses in medical colleges can improve students' ability to learn medical knowledge in English and provide them with language tools for reading English literature, conducting academic research, participating in international academic conferences and so forth. Vice versa, cultivating students' academic ability as well as developing doctors' continuous learning ability will determine the orientation of Medical English teaching. However, ME learning is confined by various factors like limited teaching content, monotonous teaching forms, poor coordination of teaching process and the lack of motivation in teaching evaluation. Additionally, considered as a key issue, consensus on authentic teaching material of ME hasn't arrived.

Despite the growing promotion of ESP courses, little research is oriented to investigate whether current Medical English teaching can meet the learning needs of medical students, thereby providing a scientific basis for medical colleges and universities to carry out targeted clinical medical education. The current research was conducted in a Chinese context and intends to address the following research questions:

What are the target and learning needs of clinical medical students in Chongqing Medical University?

What problems do clinical medical students face in the process of learning medical English?

What are the suggestions for Medical English teachers to set up medical English course?

2. METHODS

2.1. Participants

The subjects of this study are divided into two categories. The first category is 119 students who have taken Medical English courses from 3 random classes. They have a more intuitive understanding about Medical English in Chongqing Medical University, which can ensure the reality and reliability of the information. While the second category is 141 students who haven't studied Medical English systemically from 4 random classes. Among the total 260 students, 83 (31.9%) of them are male students while 177 (68.1%) female students. Besides, 127 (41.5%) of them are sophomore students while 132 (58.5%) junior students. The detailed socio-demographic characteristics of both participant cohorts are described in Table 1.

Table 1. Descriptive statistics of the sample

Subject	ME Students N=119	NME Students N=141
Sex		
Male	26 (21.8%)	57 (40.4%)
Female	93 (78.2%)	84 (59.6%)
Grade		
Year 2	81 (68.1%)	46 (32.6%)
Year 3	38 (31.9%)	94 (66.7%)
Major		
Clinical Medicine	119 (100%)	141 (100%)
Other Majors	0	0

Abbreviations: ME Medical English, NME Non Medical English

2.2. Instrument

Needs Analysis Medical English Questionnaire (NAMEQ) was designed on the basis of Needs Analysis models of Hutchison & Waters and Dudley Evans & St John with some modifications[12-14]. There are altogether 22 items (1-22) for students who haven't studied medical English and 5 more items (23-27) for those who have studied it. Fourteen items are designed by single-choice while the rest items by multiple-choice. The questionnaires are designed in Chinese so that all items could be understood by students. The questionnaire was integrated as one and are dispatched in classes on spot on April 29 in 2021. The detailed information about this questionnaire is showed in Table 2. After the questionnaires were finished, the author randomly chose some subjects to have an interview for the sake of getting more detailed information about the needs of ME course of the students. 12

students were chosen as the interviewees, 6 from students who have studied ME, 6 from those not. Interview contents were recorded and transcribed by a teacher not involved in the data collection, and afterwards summarized by the author (see Additional file 1). The interview questions are as below:

Why do you choose to learn Medical English?

How do you study Medical English?

Which aspects of Medical English do you want to improve?

How do you feel about you learning materials in Medical English?

Can Medical English course satisfy your needs? If not, which aspects do you think should be improved?.

Table 2. Questionnaire Composition.

Dimension	Question Number	Forms of Questions
Individual Information		
Gender	1	Single-choice
Majors	2	Single-choice
Grade	3	Single-choice
Present English Learning Situation		
Personal interest on English	4	Single-choice
Ways of learning English	5	Single-choice
Time of learning English	6	Single-choice
CET-6 scores	7	Single-choice
Target Needs		
Basic attitudes about ME	8	Single-choice
Realization of the gap	9	Single-choice
Reason to learn ME	10	Multi-choice
ME usages	11	Multi-choice
Learning targets of ME	13	Multi-choice
Learning Needs		
Emphasis of ME teaching	12	Multi-choice
Plan to learn ME	14	Single-choice
Time to learn ME	15	Single-choice
Needs for medical culture	16	Single-choice
Satisfaction of ME courses	23,24	Single-choice
Evaluation of teaching materials	25	Single-choice
Course Design &Teaching Materials		
Teaching materials	17, 18, 21	Multi-choice
	26	Single-choice
Auxiliary materials	19	Multi-choice
Exercise materials	20	Multi-choice
Methods to use teaching materials	22	Single-choice
Suggestions	27	Statements

3. PROCEDURES

First, a small pilot study including 21 students was conducted at Chongqing Medical University on April 22 in 2021 before the official study and questionnaire. Next, after a series of correction, the final version of questionnaire was put into use to 270 students, among which 260 usable were sent back in the end. After the pilot study, an official questionnaire was organized and modified based on student feedback. The official questionnaires and consent forms were given to study participants via staff members from students' respective medical education offices.

3.1. Statistical Analysis

After questionnaire completion and collection, responses were analyzed and transformed by SPSS version 25.0. Questionnaire answers left partially or fully uncompleted were regarded as incomplete answers or non-responses to answers. If missing data was greater than 5%, the questionnaire was excluded. Data analysis was guided by the statistician at our institution. Descriptive analysis (means, standard deviations, and percentages), independent T-test and Chi-square test were used to quantify the responses and summaries the variables. All statistical analyses were performed at a significance level of 5%.

4. RESULTS

4.1. Analysis on present English learning situation

Of all respondents, over 80% of students have interests in English, which is their inner motivation. About 77% of the students would take at least 1 hour a week to study English. In addition, 92.3% of students choose to study English by themselves. Up to 61.2% of students have passed CET-6 tests (a compulsory English proficiency test for all non-English major undergraduates in China)[15]. For ME students and NME students, their English learning performance showed no significant differences using an independent t-test ($p > 0.05$).

Table 3. English learning performance.

Question	Item	ME Group	NME Group
Q4 Personal interest on English	1 (uncertain)	1(0.8%)	6(4.3%)
	2 (not interested)	7(5.9%)	17(12.1%)
	3 (a little interested)	34(28.6%)	42(29.8%)
	4 (interested)	59(49.6%)	65(46.1%)
	5 (very interested)	18(15.1%)	11(7.8%)
Q6 Time of learning English	1 (0h)	10(8.4%)	17(12.1%)
	2 (0-1h)	29(24.4%)	30(21.3%)
	3 (1-2h)	29(24.4%)	40(28.4%)
	4 (2-3h)	27(22.7%)	16(11.3%)
	5 (> 3h)	24(20.2%)	38(27%)
Q7 CET-6 scores	1 (< 425)	44(37%)	57(40.4%)
	2 (425-500)	35(29.4%)	47(33.3%)
	3 (500-550)	20(16.8%)	18(12.8%)
	4 (550-600)	16(13.4%)	15(10.6%)
	5 (> 600)	4(3.4%)	4(2.8%)

4.2. Analysis on Target Needs

Of all respondents, around 99.2% of the students believe that ME are of great importance to their future study and work. Nevertheless, for the gap between their current level of ME and future required level, only 38% of the students reflect that they know exactly where the gap is. For example, some of them find ME vocabulary and ME reading very difficult. However, 54% of the subjects know there are gaps, but they have no idea what these gaps are. Question 10 lists the reasons why subjects learn Medical English. There was no significance in intergroup item compositions, while, in each of the group, there were both significant differences in item compositions. The reasons that take the large percentage lie in for future work and study. Meanwhile, 26% of them learn ME based on their own interests; 27% of them out of gaining credits of compulsory courses. Question 11 displays which situations ME can be used. It's worth noting that 97%, 82% of the students think that Medical English is mainly used in reading medical literature and publishing English articles, while 56%, 52% of them thinks ME is mainly used in technological communications between medical workers and reading pharmaceutical leaflets. Actually, this, to some extent, reflects students' needs, as both reading and writing medical articles are indispensable for their future study and work. Question 13 exhibits the ability that students aim to improve after learning ME. The students most want to improve their reading ability and medical lexicology and terminology with each accounting for 92% and 73%. Then here come translation, to understand bilingual courses, writing ability and daily communication with each taking a percentage of 61%, 61%, 60% and 52%. The statistical results displaying the target needs of medical English education are shown in Table 4.

Table 4. Target needs.

Question	Item	ME Group	p	NME Group	p
Q10 Reasons to learn ME	Future work	85(71.4%)	$p < 0.001$	91(64.5%)	$p < 0.001$
	Gaining credits	32(26.9%)		37(26.2%)	
	Future study	81(68.1%)		93(66%)	
	English-related tests	51(42.9%)		47(33.3%)	
	Personal interests	42(35.3%)		25(17.7%)	
Q11 ME usages	Talking with patients	33(27.7%)	$p < 0.001$	40(28.6%)	$p < 0.001$
	Chatting with partners	72(60.5%)		73(52.1%)	
	Medical literature reading	118(99.2)		133(95%)	
	Reading drug instructions	59(49.6%)		76(54.3%)	
	Writing case histories	33(27.7%)		35(25.0%)	
	Publish articles	99(83.2%)		113(80.7%)	
Q13 Target Goals	Reading medical literature	111(93.3%)	$p < 0.05$	127(90.1%)	$p < 0.001$
	Translating English articles	81(68.1%)		78(55.3%)	
	Writing English articles	78（65.5%））		78(55.3%)	
	Medical lexicology	86(72.3%)		104(73.8%)	
	Daily communication	65(54.6%)		70(49.6%)	
	For bilingual courses	70(58.8%)		88(62.4%)	

4.3. Analysis on learning Needs

Seven items used to analyze subjects' learning needs. Question 12 demonstrates the focus of ME teaching. No matter for ME students or NME students, ME vocabulary takes the largest percentage, accounting for 88.2% and 81.6% respectively, followed by medical expertise and ME reading. For question 14, about 40% of the subjects show that they have no plan but will follow the teachers' plans. Question 15 displays students' ideas about the starting time of learning ME. According to the results, 50% of the subjects think that ME learning should start in the second year, which is consistent with the contemporary teaching; However, 37% of the students think that ME learning should start in the first year. This, to some extent, reflects students' consideration of the importance of ME. Question 16 demonstrates students' attitudes about medical culture. According to the results, 47% of the subjects find medical culture interesting and should be added to the class; 27% of the students aren't interested in it but think it's necessary to learn about; 23% of the students think that medical culture is interesting but shouldn't be involved too much.

For ME students, 5 more questions were prepared to further enrich the study. Question 23 demonstrates students' satisfaction about ME courses. According to the results, up to 76% students reflect current ME contents could satisfy their basic needs for ME. However, 24% of them think ME courses haven't met their expectations. Question 24 displayed the appropriate periods in a week of ME. As it describes, 40.3% of the students think that 3 periods a week is acceptable; 42% of the students deem that 2 periods is also adequate. As for difficulty evaluation, current teaching materials are acceptable and adequate for 75% of the subjects. The statistical results illustrating learning needs of medical English education are shown in Table 5.

Table 5. Learning needs.

Question	Item	ME Group	p	NME Group	p
Q12 ME teaching focus	Medical vocabulary	105(88.2%)	$p < 0.001$	111(81.6%)	$p < 0.001$
	Medical profession	70(58.8%)		85(62.5%)	
	Academic skills	55(46.2%)		65(47.8%)	
	ME writing	58(48.7%)		53(39.0%)	
Q15 Course opening time	First year	39(32.8%)	$p < 0.001$	56(39.7%)	$p < 0.001$
	Second year	68(57.1%)		61(43.3%)	
	Third year	14(11.8%)		21(14.9%)	
	Fourth year	4(3.4%)		3(2.1%)	
Q23 Learning satisfaction	90-100%	5(4.2%)	$p < 0.001$		
	80-90%	38(31.9%)			
	60-80%	48(40.3%)			
	< 60%	28(23.5%)			
Q24 Periods of ME in a week	1 period	20(16.8%)	$p < 0.001$		
	2 periods	48(40.3%)			
	3 periods	50(42%)			
	4 periods	1(0.8%)			

4.4. Analysis on Course Design and Textbooks

Seven items are used to investigate the design of ME courses. For textbooks, half of the students prefer original textbooks with appropriate Chinese explanations; over 60% of the students prefer classic literature, excellent medical thesis as their auxiliary materials. For the ideal textbook, overall practicality, idiomatic expressions, comprehensive knowledge points and interesting content are all facets worthwhile to be taken into consideration. For students who have studied ME, oral English and professional English should also be added. In addition, extracurricular reading materials, visual materials such as tables and supporting exercise books are preferable supplement source. Besides, unlike past forms of exercise, students prefer reading comprehension, translation and problem-based learning (PBL) as better ones. Last, when it comes to the teacher's roles, pair-work as well as flexible modes alternated by teacher's detailed key points explanation and students' self-learning parts will greatly reduce teachers' common roles and exult students' subject initiatives.

Table 6. Course design and textbooks.

Question	Item	ME Group	p	NME Group	p
Q17 Teaching materials	Original textbook with English explanation	30(25.2%)	p < 0. 001	28(19.9%)	p < 0. 001
	Original textbook with Chinese explanation	76(63.9%)		98(69.5%)	
	Selections and compilations of original textbooks	9(7.6%)		11(7.8%)	
	General English textbooks	4(3.4%)		4(2.8%)	
Q18 Auxiliary materials	Classic literature	84(70.6%)	P < 0. 001	97(68.8%)	P < 0. 001
	Foreign excellent textbook excerpts	62(52.1%)		83(58.9%)	
	Excellent medical thesis and excerpts	68(57.1%)		90(63.8%)	
	Stylistic materials for application	36(30.3%)		27(19.1%)	
	International communicational literature	38(31.9%)		33(22.0%)	
Q19 Preferable supplementary resources	Supporting exercise books	62(52.1%)	P < 0. 05	76(53.9%)	P < 0. 05
	Extracurricular reading materials	69(58.0%)		84(59.6%)	
	Teaching reference books	50(42%)		69(48.9%)	
	Visual materials like tables	73(61.3%)		73(51.8%)	
	Multimedia teaching software	46(38.7%)		53(37.6%)	
	Web links and QR codes	34(28.6%)		43(30.5%)	
Q20 Exercise forms	Reading comprehension	74(62.2%)	P < 0. 001	101(71.6%)	P < 0. 001
	Filling in banks	29(24.4%)		51(36.2%)	
	Short answer question	18(15.1%)		26(18.4%)	
	Choices	42(35.3%)		56(39.7%)	
	Group work	40(33.6%)		34(24.1%)	
	Topic discussion	41(34.5%)		41(29.1%)	
	Sentence or paragraph translation	61(51.3%)		74(52.5%)	
	Problem-based learning	65(54.6%)		71(50.4%)	
Q21 Ideal English textbooks	Idiomatic expressions	76(63.9%)	P < 0. 05	71(50.4%)	P > 0. 05
	Comprehensive language points	60(50.4%)		86(61%)	
	Interesting content	59(49.6%)		71(50.4%)	
	Modern theme	42(35.3%)		51(36.2%)	
	Overall practicality	84(70.6%)		71(50.4%)	
Q22 Ways of using textbooks	Teachers explain all points	49(41.2%)	P < 0. 001	66(46.8%)	P < 0. 001
	Teachers only explain important and difficult points	53(44.5%)		52(36.9%)	
	Students study by themselves and teachers answer questions	5(4.2%)		7(5%)	
	Students study by themselves and teachers supplement extracurricular knowledge in class	12(10.1%)		16(11.3%)	
Q26 Supplementary contents of ME textbooks	Grammar point part			40(33.6%)	P > 0. 05
	Oral English part			59(49.6%)	
	Medical professional part			59(49.6%)	
	Listening part			51(42.9%)	

5. DISCCUSION

Interest is one of the strongest motivations for learning English, and motivation is considered to be one of the main factors influencing English learning[16, 17]. According to Lennartsson[18], the motivation and willingness to learn a second language are considered to be more important than social factors. Interest plays an important role in learning as well as cultivating students' thinking ability. When students are interested in what they have learned, they are expected to pay more attention to it, process information more effectively, and adopt more effective

learning strategies, such as critical thinking, connecting new and old knowledge, and turning to deep learning[19]. In addition, pair-work is an interactive mode used in modern language classroom. In pair-work, face-to-face interaction leads to a more audible dialogue, stimulating activity participation. Additionally, students can learn and teach each other some obscure vocabulary, thereby gaining mutual improvement[20, 21]. However, according to the statistics, only 3.5% of them study English by pair-work. Taken together, time and methods are two critical factors affecting English learning, which are connectively related to personal interests, needs, and efficiency. ME teachers should proceed from the needs of students, pay attention to their personality, improve their interests and help them establish strong learning motivation according to their actual needs by making full use of various resources. For example, teachers can randomly ask students questions, apply time-limited pair work or group work, vocabulary dictation, pre-class presentation and so forth during class. After class, teachers could share related cutting-edge ME news or discoveries periodically and encourage students to find topics in frontier fields. Besides, formative evaluation and summative evaluation should be dispatched with an appropriate ratio.

Around 99.3% of students agree with the importance of ME. Coincidently, when it comes to why students choose to learn ME, 2/3 of the students say they learn ME for their future study and work. 92% of students know there is a gap between their current ME level and the ideal required level. Nonetheless, only 38% of them know what the gap is. The realization of the gap will clearly form into the students' intrinsic motivation. For ME usages, 97% and 82% of the students think that ME are mainly used in reading medical literature and publishing articles, which to some extent, reflects students' needs, as 92% and 73% of them want to improve their reading ability and medical lexicology. For medical workers, ME reading ability is a necessary skill. Through reading a large number of literatures, they will have a clear understanding of the frontier development, thus constantly improving their diagnosis and treatment ability, and better solving various problems in clinical practice. For researchers in basic medicine, reading a lot of literature is the foundation of looking for topics and establish hypothesis, after which they can verify the conjecture through experiments. Once experiments are successful, they can obtain new results, and finally publish them on international journals via mastering certain medical English writing skills. Taken together, teachers should help students to have a deep understanding of the importance of ME as the Ministry of Education has put forward new requirements for medical school students. They can communicate with students now and then to learn about student's current learning situation and help them to discover their lacks, potentials and the gaps between real ME level and that of the required level. Only when students clearly see the gaps, will they have the motivation to solve and improve it. Apart from face-to-face talk, questionnaires are also useful tools to conveniently collect and analyze statistics. For medical school students, medical vocabulary is the precondition and foundation of ME reading and paper writing. Considering the current teaching modes, some corrections should be made to the orders and arrangements of ME related courses.

No matter for students who have studied ME or those who haven't, medical vocabulary, medical expertise and ME reading are the main focuses which should be attached with great importance. Besides, 40% of the subjects show that they have no plan but most of them will follow the teachers' plans; 75% of them think that current teaching materials are acceptable and adequate. Meanwhile, most students claim that current ME contents could satisfy their basic needs for ME. However, 24% of them think ME courses haven't met their expectations. Many factors contribute to this situation. First, the difficulty of understanding leads to students' lack of interests. Most medical English comes from Greek, Latin and so on. Therefore, the threshold of medical English is very high, and a large number of difficult derivative words increase the difficulty of memory. Second, it's undeniable that students can learn a lot from the class. However, only a few of them put what they learned into practice. For suggestions, increasing the class hours of ME vocabulary, the teacher resources and the number of ME vocabulary classes are all good ways to allow more students to have a chance to study this course. Besides, ME teachers can develop pedagogic content knowledge (PCK) to transform content knowledge into understandable concepts to students[22]. Similarly, teacher's knowledge of basic and clinical medicine (e.g., knowledge about organ, cellular, and molecular levels) may improve the effects of ME courses[23]. Secondly, ME teaching should be closely combined with practice, which will avail in stimulating students' interests and motivations. The best form of combination is that vocabulary from the bilingual professional classes can be reviewed and further expound in ME classes. Thirdly, medical reading should be strengthened, which is also a method to put ME vocabulary into practice. Nevertheless, the selected reading materials should be appropriate in length and novel in theme, such as articles from Cell Press and some mini-

reviews. Fourthly, teachers should emphasize goals of each class. Meanwhile, periodical tasks and review goals should also be set to help or remind students to review. In the end, considering the urgent needs of the subjects three periods a week is commonly supported by around 40.3% of the students. Besides, opening some ME courses early in the second semester of the first year might be a referable idea. In this way, students can choose ME vocabulary in the second semester, ME reading in the third semester and other ME courses in the fourth semester.

Ample and systemic teaching materials including textbooks, auxiliary materials are urgently needed. A good textbook can make students' learning efficiency get twice the result with half the effort. Overall practicality, idiomatic expressions, comprehension language points, interesting content, oral English and professional English are all considered in an ideal book. However, an ideal book is hard to come true. In CQMU, Medical English Vocabulary, Medical English Audio-visual-Oral, Medical English Humanistic Reading and Academic English Speech are all available ME courses. However, students are only allowed to choose one curriculum. Hence, it's ineluctable to face various imbalanced phenomenon. The following three aspects might help to solve the problem. 1) teachers from the above courses can set apart a little time to introduce and supplement some comprehensive medical knowledge from other courses; 2) turn some characteristic courses into comprehensive ME courses. However, this takes great efforts and perseverance; 3) to increase the number of the courses and allow freshmen to choose the curriculum. Besides, unlike past forms of exercise, students prefer reading comprehension, translation and problem-based learning (PBL) as better ones. PBL can equip students with an integrated system of knowledge, skills, and humanistic care[24, 25]. At last, the development and perfection of authentic ESP materials needs the collaboration between language and subject specialists. Apart from that, ESP related activities (e.g., training for ESP instructors and practitioners) should also be regularly held[26].

6. LIMITATIONS

Although the present study is designed with great discretion, it is far inferior to perfect out of the following limitations. Firstly, the number of the subjects is limited, and the chosen students who have studied ME courses cannot represent all those that have studied ME related courses. Secondly, this research fails to take ME teachers into consideration. More studies in this aspect are needed. The conclusions of the research might be limited because the questionnaire of this study was still in the developmental stage.

7. CONCLUSION

The current medical English education is insufficient to satisfy the demands of Chinese medical undergraduates in English application. Limited learning periods, irrational orders of curriculum arrangements and insufficient practice are reflected in the learning process. Authentic and systemic teaching materials including textbooks, auxiliary materials are urgently needed. In addition, corresponding suggestions are elaborated in detail in discussion, mainly in improving students' interests and inner motivations, curriculum arrangements, adjustments of teaching materials and so forth.

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