Needs Analysis of English Writing for Medical Students: A Case Study

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ABSTRACT

English writing ability is a critical talent in English study, comprising a significant part of the curriculum. As a special group, medical students have high English writing expectations. Therefore, medical students will face numerous challenges when writing in English, specifically academic English writing. However, there has been minimal research on the English writing needs of medical students in recent years. The current study uses Hutchinson and Water's needs analysis theory to investigate the English writing needs of sophomore medical students from one Chinese medical university. The current research aims are to understand the needs of medical students for English writing and provide some recommendations for future English writing instruction. This study attempts to answer the following questions: (1) What is the current state of medical students' English writing? (2) What are the current needs of English writing for medical students? The current study found that current English writing courses for medical students are inadequate. Although most students agree that English writing is important, they are not satisfied with their English writing. They devote limited time each week to studying English, and they still have difficulty doing simple written communication and expressions in English, let alone writing related to their major. Although teachers' guidance is helpful, they do not give appropriate attention and guidance. In summary, English writing learning is neglected by teachers and students. All medical students have an immense need for language, logic, and writing resources.

Keywords: medical students; English writing; needs analysis; English for Specific Purposes

INTRODUCTION

In recent years, the key task of college English teaching has changed from cultivating reading ability to students' comprehensive ability. As part of college English teaching, writing reflects a person's comprehensive language abilities, hence students' writing ability should be cultivated. However, the English writing proficiency of college students remains extremely low. Medical students have higher English writing needs than students in other disciplines. Chen (2016) claims that as an output skill, English writing ability is an important part of English language proficiency and crucial to one's overall development. Good writing skills have a huge impact on future employment, further study, and particularly academic research for medical students.

Yan (2014) explains that college students are in the preparation period of academic research and are the main source group of future high-level scholars. Accordingly, the cultivation and evaluation of their academic writing skills can provide a good foundation for future research. Therefore, focusing on the development of medical writing skills in college will play a significant role in subsequent academic research. This aspect is the interest of English for Specific Purposes (ESP).

ESP is one branch of English as a Foreign Language (EFL). Hutchinson and Waters (1987:19) propose that ESP is an approach to language teaching in which all decisions on content and method are based on learners' reasons for learning. They further divide ESP into

English for Academic Purposes (EAP) and English for Occupational Purposes (EOP). EAP stands for academic study, while EOP stands for employment and Medical English is a branch of ESP.

Given the importance of English writing, this paper aims to investigate the needs of medical students in English writing and to answer the following questions:

1. What is the current state of medical students' English writing?
2. What are the current needs of English writing for medical students?

LITERATURE REVIEW

Needs analysis is regarded as a vital step in formulating the design of a language course. It is generally used for collecting data on learners' needs. Long (2005:1) believes that, just as no medical intervention would be prescribed before a thorough diagnosis of the patient's condition, no language teaching program should be designed without a thorough needs analysis. Definition of needs analysis varies by research perspectives (Hutchinson & Waters, 1993; Chen & Wang, 2009; Richards & Schmidt, 2010; Brown, 2016). Chen and Huan (2009) consider needs analysis a technique and method for studying using introspection, interviews, observations, and questionnaires. Needs analysis in the author's study refers to the technique and method of investigating and analyzing medical students' English writing needs by employing questionnaires for information survey. This method aims to determine medical students' needs for writing courses and use them as a basis for optimizing English courses to meet their writing needs.

The needs analysis phase marked the beginning of ESP only after the 1980s. West (1994) argues that the term "need" is a comprehensive term that allows for different interpretations. Theoretical research on needs analysis overseas has different connotations but all cover the same areas, mostly based on learners' perspective (Berwick, 1989; Brindley, 1989; Hutchinson & Water, 1987; Dudley-Evans & St John Dudley's, 1998). Hutchinson and Water (1987:55) divide needs into target and learning needs. Research on needs analysis in China has been based mostly on foreign studies and has achieved good results (Yu, 2002; Shu, 2004; Chen, 2010; Cai, 2012). Shu (2004:32) believes that needs analysis should be divided into social and personal needs.

In recent years, needs analysis research on English writing has been increasing locally and internationally. Several studies have provided evidence that university English writing courses cannot meet the needs of students and have further suggested linking writing to their majors (Luo, 2015; Tao, Yan & Wang, 2018; Shi, 2020). Some scholars have found that language issues remain a major obstacle to their writing (Leki & Carson, 1994; Li & Flowerdew, 2007). Academic writing is relatively rigorous, particularly in medical subjects, but relevant studies related to medical students are relatively rare. Together with these empirical studies, we find that research on medical students' writing needs is inadequate. Therefore, this paper will focus on the writing needs of medical students to understand their writing needs and provide some advice for English writing courses.

METHODOLOGY

RESEARCH DESIGN

This thesis uses a questionnaire approach to investigate the learning needs of medical students in English writing. Participants and data analysis and collection of this study are presented.

PARTICIPANTS

Participants were recruited among sophomore medical students in one Chinese medical university. A total of 430 questionnaires were collected, 313 of which were valid. In view of the length and number of questions, this questionnaire should take at least 150 seconds to complete. Thus, 101 questionnaires had been deemed invalid. Given that the subject of this study is medical students, the 12 questionnaires of management students should also be excluded. Furthermore, four cases that did not fit the normal distribution were discarded successively. A value of skewness and kurtosis, ranging from −1.96 to +1.96, is considered the norm of normal distribution (Hair et al., 2010). To gain a deeper understanding of the respondents' characteristics, the 313 valid questionnaires are tabulated by gender and major. The results are shown in Table 1.

TABLE 1. Distribution of participants

	Categories	Frequency	Percentage
Sex	Male	94	30.31%
	Female	219	69.69%
	General Family Medicine	10	3.19%
	Clinical Medicine	99	31.63%
	Medical Image Science	42	13.42%
	Nursing	63	20.13%
Major	Pharmaceutical Sciences	35	11.18%
	Oral Medicine	21	6.71%
	Preventive Medicine	14	4.47%
	Midwifery	17	5.43%
	Traditional Chinese Medicine	9	2.88%
	Medical Laboratory Technology	3	0.96%

The participants' English proficiency and learning status are listed in Table 2. Their average English score in the entrance examination was 101.9 (full mark is 150), indicating their fair foundation in English. Most of the students have yet to take the CET-4 exam. The average time they spend studying English outside of class is three hours per week.

TABLE 2.　Basic information on the participants' English

Items	N	Mean	SD
Approximate average weekly time spent on learning English outside of class	313	3.142	3.609
High school entrance exam English scores	310	101.900	17.715
CET-4 and CET-6 passing status	313	1.240	0.602

QUESTIONNAIRE

QUESTIONNAIRE SOURCE AND STRUCTURE

The current study adapts Luo Qian's (2015) questionnaire, which is divided into three parts. The first part is personal information, including gender, major, high school entrance exam English scores, approximate average weekly time spent on learning English outside of class, and CET-4 and CET-6 passing status. The second part is the present situation of English writing learning. The third part is a needs survey, including learning purpose and motivation, and language, logical, and writing resource needs. All survey questions utilize a 5-point Likert scale

(1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree).

<div align="center">RELIABILITY AND VALIDITY OF THE QUESTIONNAIRE</div>

Through the analysis of the questionnaire, the reliability and validity of the questionnaire are high. That is, this questionnaire can reflect the actual status of the participants. Therefore, the questionnaire was used to survey sophomore medical students. A total of 430 questionnaires were returned, 311 of which were valid, and its reliability and validity are shown in Table 3.

Reliability is calculated using Cronbach's alpha. We use KMO to determine whether this questionnaire is valid. The results are as follows.

TABLE 3. Reliability and Validity of the Questionnaire

Items	Cronbach's Alpha	KMO
Present situation (Q1–Q5, Q8–Q14)	0.73	0.78
Learning Purpose and Motivation (Q15–Q19)	0.84	0.85
Language Needs (Q20–27)	0.89	0.89
Logical Needs (Q28–Q34)	0.95	0.92
Resource Needs (Q35–Q40)	0.91	0.89

Table 3 shows that the reliability coefficient values for all sections of the questionnaire exceeded 0.7, showing the study data's high reliability. The KMO value of the present situation is 0.78, which is above 0.7 and near 0.8. This result reveals that the validity of this item is favorable and can be used for extracting information. The other items of the KMO values are over 0.8, suggesting they are suitable for extracting information and reflecting the validity of the questionnaire.

Therefore, the questionnaire's reliability and KMO value are above 0.7, indicating that the quality of the questionnaire is relatively good.

<div align="center">DATA COLLECTION AND DATA ANALYSIS</div>

Data for this study were collected using Questionnaire Star. Thereafter, data were analyzed using SPSS 23.0.

<div align="center">RESULT AND DISCUSSION</div>

<div align="center">DISCUSSION OF THE PRESENT SITUATION</div>

The present situation of English writing learning among college students includes students' perceptions of English writing, amount of instruction and time they spend on English writing each week, and learning situation of English writing. This section has 14 questions, and the descriptive analysis of these questions can lead to an understanding of the current status of medical students' English writing learning.

TABLE 4. Descriptive Statistics of Present Situation of Medical Students' English Writing

Items	N	Mean	SD
1. I think college students should pay attention to the cultivation of their English writing skills:	313	4.518	0.561
2. I am more satisfied with my college English writing study:	313	2.521	0.974
3. I think the current college English writing teaching is effective:	313	2.274	0.875

4. When I graduated from high school, I would live in English and do simple written communication and expressions in interpersonal communication:	313	2.732	1.061
5. Now I can use English to communicate and express in writing related to my major:	313	2.246	0.947
8. I will be more interested if English writing learning and practice are related to my major:	313	3.604	0.875
9. I will only write in English after the teacher assigns the composition:	313	3.920	0.682
10. I believe that I will use English to write in the future after graduation:	313	3.636	0.841
11. Every time I read carefully the corrections and comments of my essays given by the teacher:	313	4.026	0.738
12. The guidance and corrections of the English teacher are very helpful to improve the level of English writing:	313	4.214	0.632
13. Good writing scores in CET-4 and CET-6 indicate that a person has a high level of writing:	313	3.454	0.715
14. I will actively find ways to improve my English writing level:	313	3.668	0.771

Table 4 shows that most students think that college students should focus on the cultivation of their English writing skills, but the majority of them are not satisfied with their English writing learning. The mean value of item 3 is 2.274, indicating that they think that the current college English writing teaching is ineffective. The mean values of items 4 and 5 are 2.732 and 2.246, respectively. That is, students' English writing skills remain relatively poor, particularly for writing related to their majors. They only write in English after the teacher assigns the composition, which means their English writing learning is extremely passive. Items 11 and 12 show that teachers' guide and corrections help students' writing, and they read the teachers' corrections and comments carefully. The mean value of item 13 is 3.454, showing that they neither agree nor disagree that "Good writing scores in CET-4 and CET-6 indicate that a person has a high level of writing."

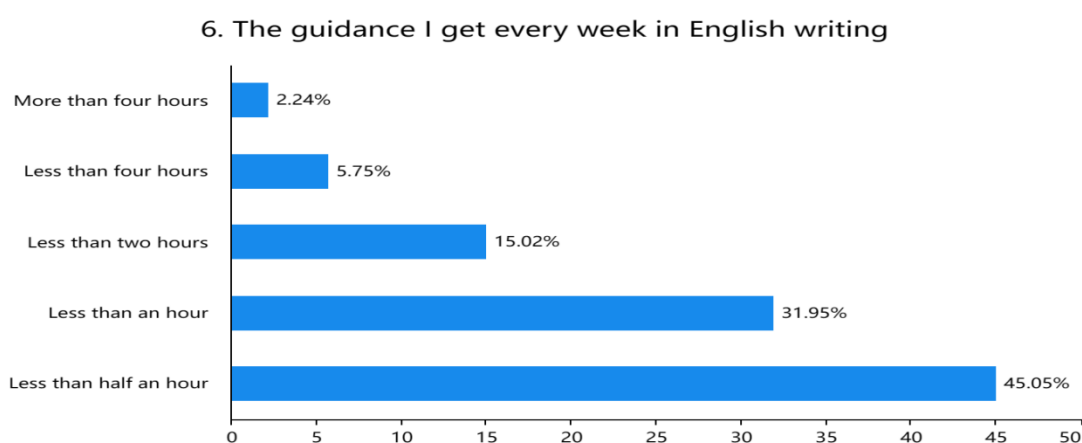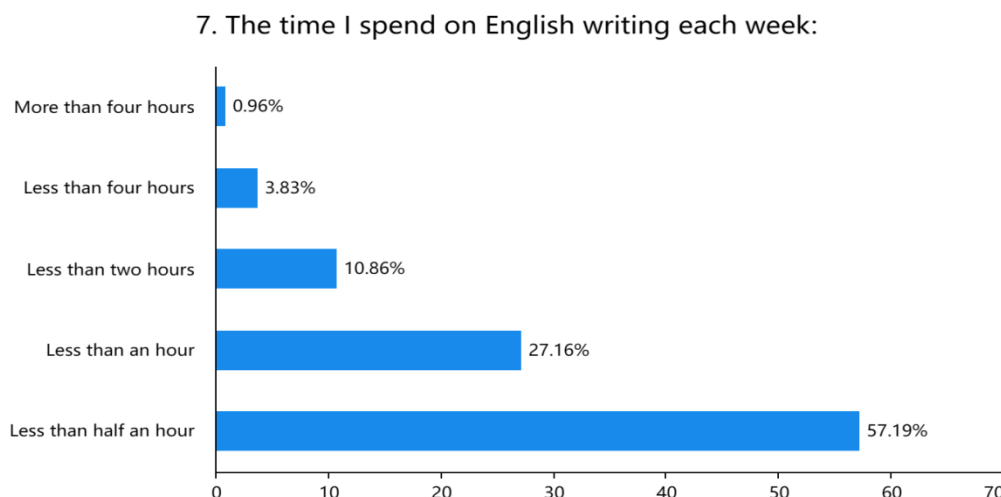FIGURE 1. The guidance I get every week in English writing

FIGURE 2. The time I spend on English writing each week

7. The time I spend on English writing each week:

In items 6 and 7, medical students receive instruction in English writing and invest time in English writing between "less than half an hour" and "less than an hour." This result indicates that they do not value English writing and that teachers did not provide sufficient instruction.

As a result of the foregoing analysis, we may infer that teachers and students now disregard English writing instruction. Students learn English writing in a passive manner. Students claimed that English teachers' guidance and corrections are considerably helpful in improving English writing. However, teachers do not provide sufficient guidance, which is a major factor in students' poor English writing.

DISCUSSION OF THE LEARNING PURPOSE AND MOTIVATION OF ENGLISH WRITING

The necessity for future employment, seeking a graduate degree, opportunity to develop overseas, engaging in deeper communication with more people, and professional development are reasons to master English writing in college. The part contains five questions. Through the descriptive analysis of the five questions, the purpose and motivation of medical students to learn English writing can be derived.

TABLE 5. Descriptive Statistics of Learning Purpose and Motivation of English Writing

Items	N	Mean	SD
15. In addition to passing CET-4 and CET-6, I also need to improve my English writing skills to serve my future work	313	4.032	0.720
16. In addition to passing CET-4 and CET-6, I also need to improve my English writing skills to prepare for a graduate degree in the future:	313	4.077	0.785
17. In addition to passing CET-4 and CET-6, I also need to improve my English writing skills to get the opportunity to develop abroad:	313	3.562	0.995
18. Improving the level of English writing can help me communicate with more people on a deeper level:	313	4.179	0.650
19. Improving the level of English writing is very important for my future professional development:	313	4.160	0.679
Total		4.002	

For the overall mean, the mean value is 4.002, demonstrating that medical students have a high learning purpose and motivation for English writing, particularly in items 15, 16, 18, and 19, related to their major.

To investigate the differences in the learning purpose and motivation of students with different English proficiency levels in English writing, the author identifies the high and low groups by identifying the high and low scores of 27% of the 313 subjects. After analysis, students who score above 113 in English on the entrance exam comprise the high group, and those who score below 92 belong to the low group.

TABLE 6. Learning Purposes and Motivation of English Writing in High and Low Groups

Items	Category	N	Mean	SD	t	p
15. In addition to passing CET-4 and CET-6, I also need to improve my English writing skills to serve my future work	low group	83	3.80	0.84	−3.250	0.001**
	high group	86	4.16	0.61		
	total	169	3.98	0.75		
16. In addition to passing CET-4 and CET-6, I also need to improve my English writing skills to prepare for a graduate degree in the future:	low group	83	3.83	0.84	−2.943	0.004**
	high group	86	4.20	0.78		
	total	169	4.02	0.83		
17. In addition to passing CET-4 and CET-6, I also need to improve my English writing skills to get the opportunity to develop abroad:	low group	83	3.37	1.07	−1.132	0.259
	high group	86	3.55	0.92		
	total	169	3.46	0.99		
18. Improving the level of English writing can help me communicate with more people on a deeper level:	low group	83	4.06	0.61	−1.578	0.116
	high group	86	4.21	0.62		
	total	169	4.14	0.62		
19. Improving the level of English writing is very important for my future professional development:	low group	83	3.96	0.63	−3.634	0.000**
	high group	86	4.31	0.62		
	total	169	4.14	0.65		

$* p < 0.05 ** p < 0.01$

Table 6 indicates that the low groups show significantly lower means than the high groups in items 15, 16, and 19, indicating a significant difference. High groups tend to improve their English writing skills for future jobs, pursue graduate degrees, and agree that improving English writing skills is important for future professional development.

Motivation is a person's tendency to do something. The seven main types of English learning motivations for undergraduates in Chinese universities are as follows: intrinsic interest, achievement, context, going abroad, social responsibility, personal development, and information media (Gao, Zhao, Cheng & Zhou, 2003 (01):28-38). In the current study, all medical students demonstrate a strong need for personal development, particularly students in the high group.

DISCUSSION OF LANGUAGE NEEDS

Language needs of college English writing include vocabulary, syntax, collocation rules, writing summaries, making introductions and comments, writing emails, and sentence length. The portion consists of eight questions, and the descriptive analysis leads to students' language needs in English writing.

TABLE 7. Descriptive Statistics of Language Needs of English Writing

Items	N	Mean	SD

Items	N	Mean	SD
20. My professional vocabulary still needs to be improved in English writing:	313	4.572	0.574
21. I need more knowledge of medical English construction:	313	4.450	0.619
22. I need more knowledge of medical English collocation rules:	313	4.447	0.619
23. I need to learn to write a summary in English:	313	4.367	0.704
24. I need to learn to make a brief introduction and comment in English on a topic or thing related to my major after certain research.	313	4.230	0.754
25. I need to learn to write daily emails in English:	313	3.920	0.925
26. I need to solve the problem of writing mostly short sentences in English composition:	313	4.198	0.759
27. I hope that the length of the English composition I write is more standard:	313	4.383	0.635
Total		4.318	

For the overall mean, the mean value of language needs is 4.318. This result indicates that medical students have a strong need for language, particularly for items 20, 21, 22, and 24 related to their major.

English proficiency is the primary condition for developing and improving writers' English writing skills. Bai (2021) finds that the main factor of English writing anxiety is language proficiency, which plays a prominent part in predicting one's English writing proficiency. Hence, medical students have a strong need for language.

DISCUSSION OF LOGICAL NEEDS

Logical needs of college English writing include knowledge of genre and writing skills, the objectivity of expression, staying on topic, sufficient opinions and ideas, combining scattered thoughts into a coherent English paragraph, overall articulation of essays, and improving the writing process and steps. The section has seven questions, and a descriptive analysis of these seven questions can be used to determine what students need in terms of English writing logic.

TABLE 8.   Descriptive Statistics of Logical Needs of English Writing

Items	N	Mean	SD
28. I need more guidance on English writing genre knowledge and writing skills:	313	4.399	0.586
29. I want to know how to make my English articles more objective:	313	4.393	0.601
30. I want to know how to make English writing close to the subject:	313	4.419	0.572
31. I hope I can have enough opinions and ideas in English writing:	313	4.412	0.599
32. I need to learn how to combine scattered ideas into a coherent English paragraph:	313	4.406	0.603
33. I hope I know how to do a good overall connection of English articles:	313	4.387	0.641
34. I need to improve my writing process and steps:	313	4.399	0.591
Total		4.402	

Table 8 shows that in terms of the overall mean value, the mean value reaches 4.402, indicating that all medical students have a strong need for logic. Moreover, the mean value of item 28 is 4.399, showing that medical students have a strong need for knowledge of the genre, which is related to their major.

As the primary principle of English sentence writing, logical coherence is essential for expressing ideas accurately and clearly. Bai (2019) explains that the most prominent problem of English learners' writing texts in China is the lack of logic and coherence. After the study, she finds that the ability of writing logical and coherent English sentences is significantly correlated with the level of English writing, but the degree of correlation differed from one another. Therefore, medical students have an extremely high need for logic.

<div align="center">DISCUSSION OF WRITING RESOURCE NEEDS</div>

Writing resource needs of college English writing include a special college English writing course, a medical writing guidance center, ways of looking up documents, online writing, designing more suitable writing courses, and optional medical English writing courses. The portion includes six questions, and a descriptive analysis of these six questions can conclude students' needs in the area of English writing resources.

TABLE 9. Descriptive Statistics of the Writing Resources Needs of English Writing

Items	N	Mean	SD
35. I hope that there will be a special college English writing course to provide systematic college English writing guidance:	313	4.243	0.702
36. I hope that in addition to studying college English writing systematically, the school has a medical writing guidance center for me to consult writing questions at any time:	313	4.173	0.700
37. I want to learn how to look up documents and use the documents that I read in my English writing:	313	4.160	0.738
38. I want to know more about online writing:	313	4.195	0.701
39. I hope to participate in the design of English writing courses and work with teachers to design more suitable writing courses for me:	313	4.032	0.796
40. I hope that the school can further provide medical English writing courses for me to choose:	313	4.086	0.769
Total		**4.148**	

Table 9 shows that the overall mean value is 4.148, indicating that medical students have a strong need for writing resources. The mean values of items 36, 39, and 40 are 4.173, 4.032, and 4.086, respectively, which are connected with their own major. Chen and Wang (2016) mention that diversified, open-ended, miniaturized, and digital learning resources positively and significantly impact students' English writing skills. Section 4.1 mentions that most students are not satisfied with their English writing, and extensive writing resources could broaden their horizons and help them accumulate writing materials. Hence, medical students have a strong need for writing resources.

<div align="center">CONCLUSION</div>

<div align="center">MAJOR FINDINGS</div>

This paper uses Hutchinson and Water's needs theory as the basis in investigating the English writing needs of sophomore medical students from one Chinese medical university. A questionnaire is used to address the following questions: What is the current status of medical students' English writing? What are the current needs of English writing for medical students?

In response to the two questions, this paper draws the following conclusions after investigation and analysis.

1. Current English writing courses for medical students are inadequate. Although most students agree that English writing is important, they are not satisfied with their English

writing. They devote minimal time each week studying English, and they still have difficulty doing simple written communication and expressions in English, let alone writing related to their major. Teachers' guidance is helpful. However, teachers do not give appropriate attention and guidance. In summary, English writing learning is neglected by teachers and students.

2. All medical students have a strong intrinsic motivation to write in English, particularly those with high English proficiency. Medical students have a considerable need for language, logic, and writing resources. They have the greatest need for English writing logic, followed by language, and finally writing resources. They all look forward to a medical English writing course.

IMPLICATIONS

By studying the current situation of medical students' English writing learning and their needs for English writing, the two do not exactly coincide. Therefore, there are several implications for teaching English writing.

1. *Establish a separate writing course.* A separate English writing course should be established for medical students based on their needs for English writing, mainly teaching basic English writing skills, supplemented by academic English writing. Schools should establish a separate English writing course for medical students because of their poor writing abilities. This writing course must focus on teaching students basic writing abilities and satisfying their needs for language, logic, and writing resources. After students have reached a specific level of study, teachers should teach some academic English writing knowledge and skills to prepare them for their future development.

2. *Give full play to teachers' initiative.* Teachers play a leading role in teaching. An effective writing course requires the active cooperation of teachers. Teachers should give sufficient attention and guidance and improve students' interest and motivation in English writing. Moreover, teachers should teach students as many writing skills as possible; meet their needs for English writing language, logic, and resources; and guide students to better input and output.

3. *Stimulate students' interest and motivation in writing.* We can start from two aspects to stimulate students' interest and motivation in English writing. First, teachers should assign students some short essays related to their major. In the questionnaire, a few medical students believe that they will be more interested if English writing learning and practice are related to their major. Second, teachers can improve teaching methods and formats to make students enjoy writing classes and love writing.

4. *Provide an online writing platform.* The school should provide an online writing platform for students to write and learn about writing knowledge. The platform will help students correct their essays and give them practical suggestions, thereby solving the problem of teachers' lack of energy. This undertaking will also provide extensive learning resources for students to learn.

LIMITATIONS AND FUTURE RESEARCH RECOMMENDATIONS

This study has three main limitations. First, the number of respondents in this thesis is limited and single, only investigating 313 medical students from one medical university. No survey involving teachers and employers, among others, were conducted. Second, this study only investigates the learning needs of medical students and lacks target needs. Lastly, this study only used quantitative research without qualitative research, and additional details could not be provided.

Given the limitations of this study, there are some suggestions for future research. Survey respondents should be more diverse in future studies, including teachers and employers. The survey scope should be broader and not only limited to medical students of a medical school. Moreover, learning and target needs should be used in future research. Lastly, research is expected to be carried out qualitatively and quantitatively.

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