



Developing a critical thinking skills-based program for enhancing writing competency  
in TEM Tests to ethnic minority students in Southwest China

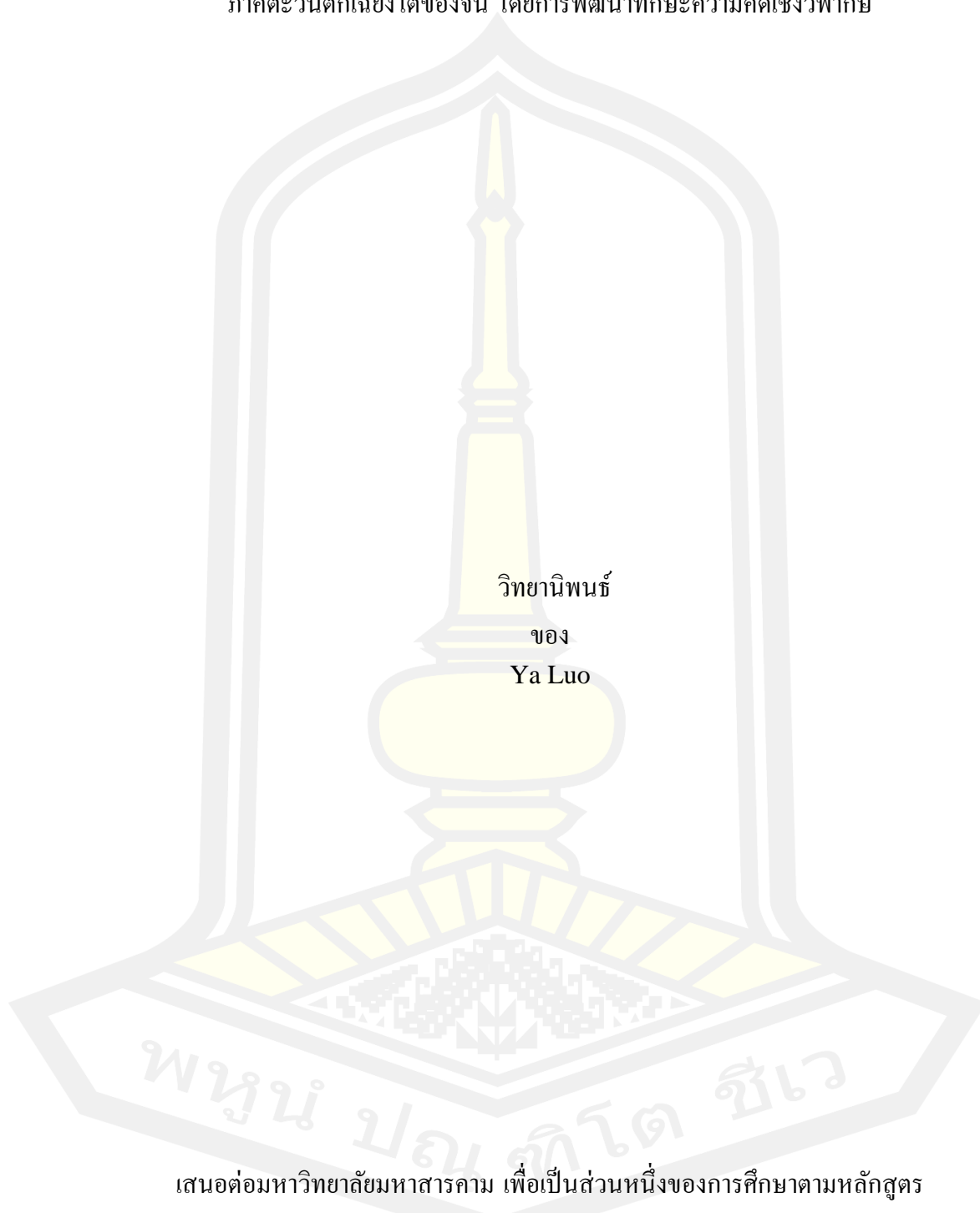
Ya Luo

A Thesis Submitted in Partial Fulfillment of Requirements for  
degree of Doctor of Philosophy in Curriculum and Instruction

January 2023

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หลักสูตรการเขียนเรียงความในการทดสอบ TEM ของนักศึกษาชนกลุ่มน้อย  
ภาคตะวันตกเฉียงใต้ของจีน โดยการพัฒนาทักษะความคิดเชิงวิพากษ์



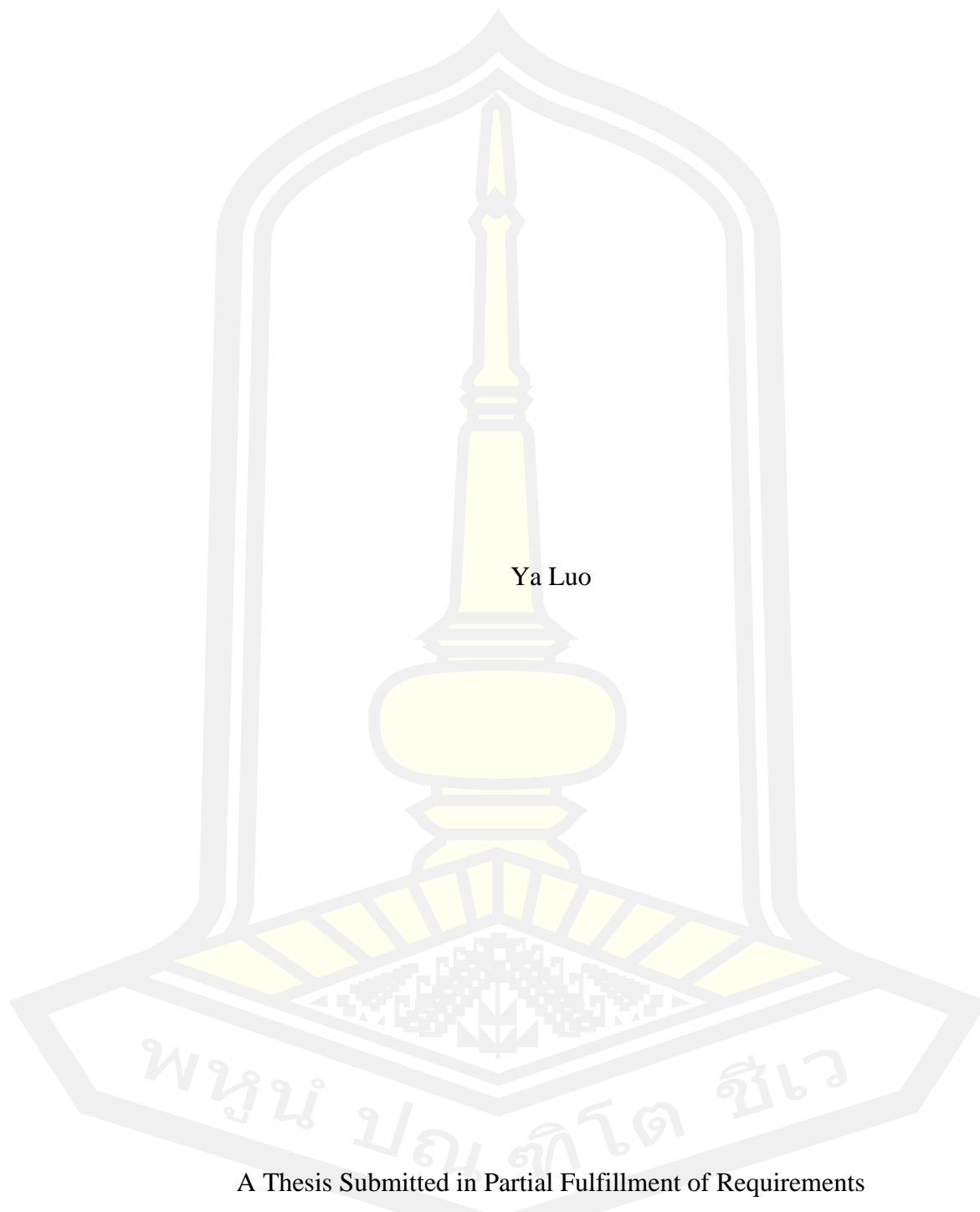
เสนอต่อมหาวิทยาลัยมหาสารคาม เพื่อเป็นส่วนหนึ่งของการศึกษาตามหลักสูตร

ปริญญาปรัชญาดุษฎีบัณฑิต สาขาวิชาหลักสูตรและการสอน

มกราคม 2566

ลิขสิทธิ์เป็นของมหาวิทยาลัยมหาสารคาม

Developing a critical thinking skills-based program for enhancing writing competency  
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Ya Luo

A Thesis Submitted in Partial Fulfillment of Requirements  
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January 2023

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The examining committee has unanimously approved this Thesis, submitted by Ms. Ya Luo , as a partial fulfillment of the requirements for the Doctor of Philosophy Curriculum and Instruction at Maharakham University

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<b>TITLE</b>	Developing a critical thinking skills-based program for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China		
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<b>UNIVERSITY</b>	Maharakham University	<b>YEAR</b>	2023

### ABSTRACT

Critical thinking skills is considered as practical thinking skills in learning and teaching modern language. English writing is the main part in English language teaching and leaning and it is the main skill in the English language skills in China. With the correlation between the critical thinking skills and English writing competency, the cultivation on the critical thinking skills is necessary for improving English writing competency.

The purpose of this research is 1) to investigate the effects of the designed teaching programme in the environment of teaching ethnic minority students majored in English in the Southwest China; 2) to evaluate the degrees on improving English writing competency in TEM test through the teaching of the designed programme; 3) to investigate the ways in the designed teaching programme for enhancing English writing competency. In this research, the CCTDI (Chinese version) and the designed questionnaire are sent to the participants to investigate the features on both critical thinking skills and English writing competency in the first phase. Through the teaching experiment and the sequence researching on the participants, the results of the research in as following.

Firstly, the changes on the English writing composition of the TEM writing topics of the participants has been dramatically placed with learning with the designed teaching programme.

Secondly, the classroom activities participation, feedback from teachers affirm its effectiveness towards the enhancement on the English writing competency in the TEM tests for the ethnic minority students in the English major.

Keyword : Critical thinking skills; English Writing Competency; Ethnic Minority Students; TEM

## ACKNOWLEDGEMENTS

Three years learning in the PhD program of Curriculum and Instruction, Mahasarakham University with a group of experienced and professional instructors, it seemed as a treasure in my life. For the first day in Thailand, a fantastic memory was impressed me hugely. I still remembered every moment that I spent with my instructors and classmates.

The process of pursuing my PhD degree was not only a memorable experience, but also a challenge progress. In the period of three years, we suffered with Covid-19, a tough period for everyone. We went through the time of wearing masks, the curfew, and the hard time for going back home. Although it was a tough time for everyone, I obtained supports from my parents, my twin sister, my supervisor Associate Professor Dr. Prasart Nuangchalerm, my instructor Assistant Professor Dr. Jiraporn Chano and my best friend Dr. Jin Zhao. Without their supports, I could not finish my thesis on time.

For pursuing my PhD, I would firstly express my appreciation to my parents and my twin sister. I really appreciate the supports that they offered me without asking for the return from them. And I do thank my parents for taking caring of me when I was writing my thesis. Secondly, I am thankful to my best friend and my mentor Dr. Jin Zhao. Without her company, I would not select Mahasarakham University for doing my PhD. Meanwhile, I really appreciate her unconditional supports no matter in my living or my research.

My supervisor Associate Professor Dr. Prasart Nuangchalerm was the first instructor who was interested in my research topic and he gave huge supports during these three years. Every word he told me, I put them in my deep memory. I am grateful and do appreciate for what my supervisor did to me. I still remembered the day I had my proposal defence, he said, "I stay beside you, don't worry about the time for implementation. You do it by your best." And I still remembered my supervisor sent me messages to say hi and how are you in the early morning in order to push me to finish my proposal. And lastly, without his unconditional help in publishing papers, I would not find the goal of being a PhD candidate.

Thirdly, I would express my gratitude to my instructor Associate Professor Dr. Jiraporn Chano. She was the first tutor that I met in the school. Sometimes, she did not

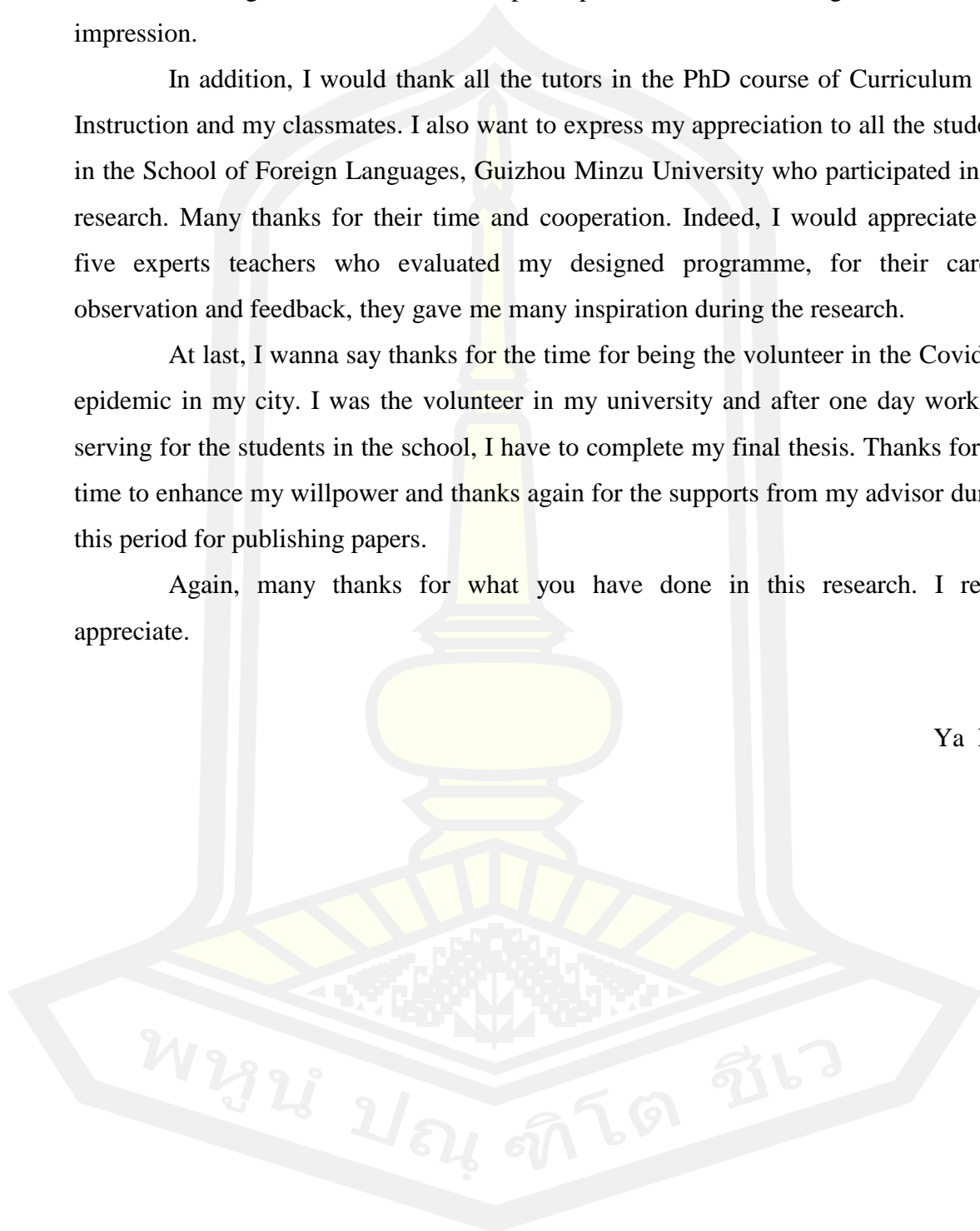
like our teacher, but a friend. Her patience, her motivation on learning curriculum and instruction, her guidance and her active participation on all activities gave me a deeply impression.

In addition, I would thank all the tutors in the PhD course of Curriculum and Instruction and my classmates. I also want to express my appreciation to all the students in the School of Foreign Languages, Guizhou Minzu University who participated in the research. Many thanks for their time and cooperation. Indeed, I would appreciate the five experts teachers who evaluated my designed programme, for their careful observation and feedback, they gave me many inspiration during the research.

At last, I wanna say thanks for the time for being the volunteer in the Covid-19 epidemic in my city. I was the volunteer in my university and after one day work for serving for the students in the school, I have to complete my final thesis. Thanks for the time to enhance my willpower and thanks again for the supports from my advisor during this period for publishing papers.

Again, many thanks for what you have done in this research. I really appreciate.

Ya Luo



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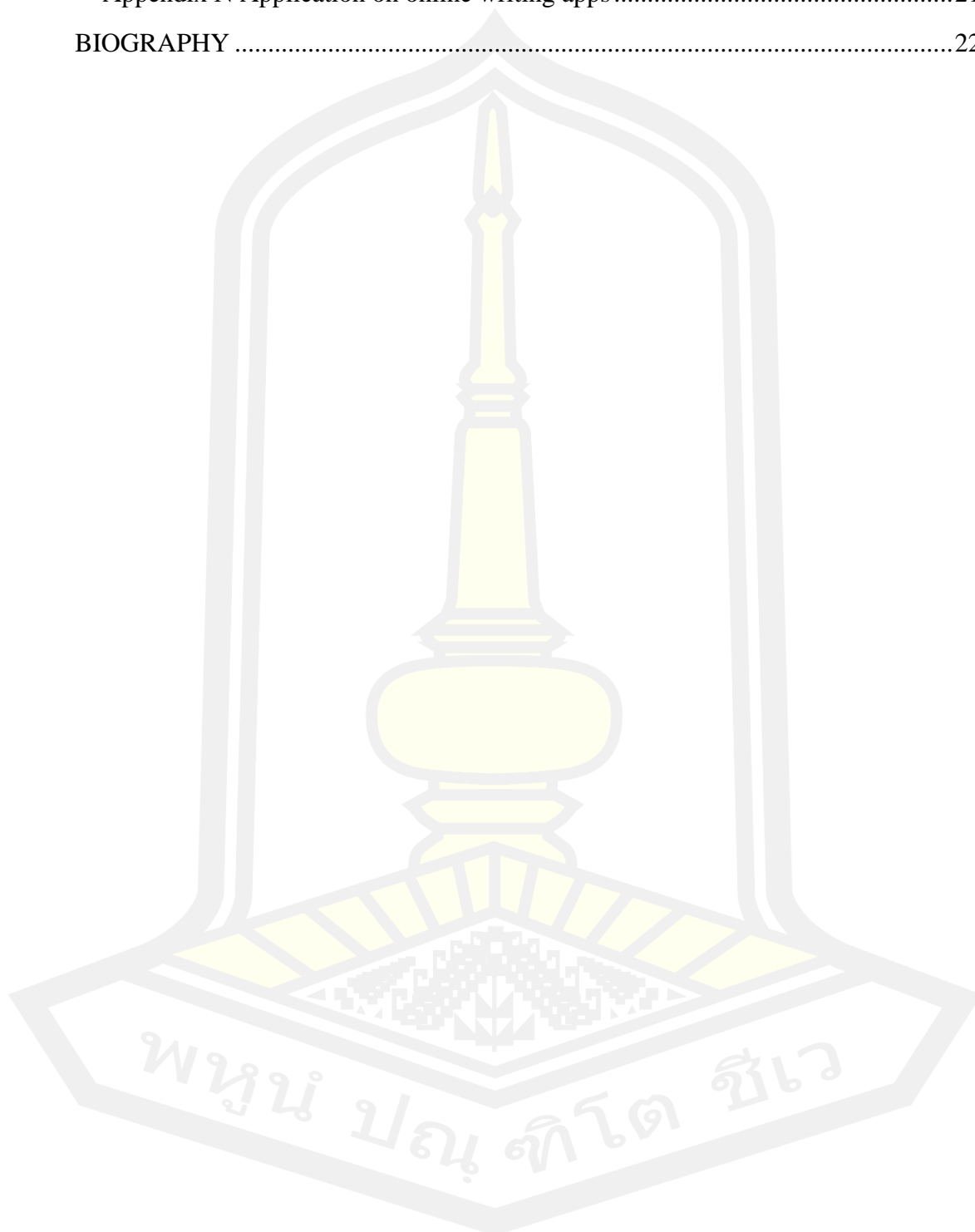
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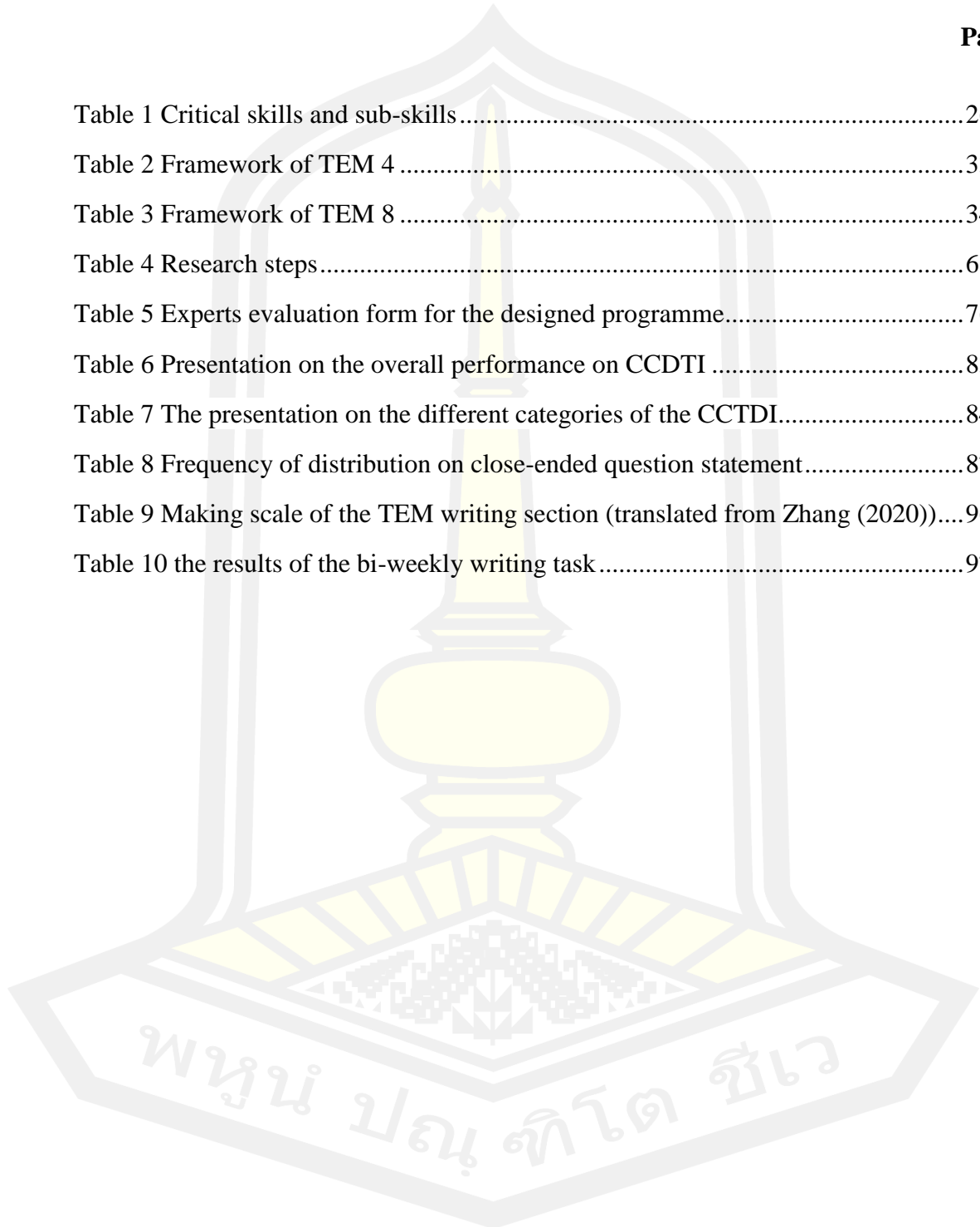
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# CHAPTER I

## INTRODUCTION

### **Background**

English is an international language that it has been learned all over the world. With the communication of globe and the increasing opportunities of exchanging information of the world, the need of English talents is gradually increased in China, the governments and the Ministry of Education PRC focus on fostering the talents in English language. For instance, both Outline of National Medium and Long-term Education Reform and Development programme (2010-2020) and National Standards of Teaching Quality for Undergraduate English Majors (2016) state the importance of English and the programme of fostering English talents. English major, therefore, it becomes an indispensable major in the tertiary level in China.

### **Critical thinking skills**

Critical thinking skills has been attracted more attention among scholars in the US and European countries for decades. For instance, the Delphi Report (1987) effects the process of researching on critical thinking skills. In the report, Facione (1990) presented the critical thinking skills included “cognitive ability and affective disposition”. Among them, the cognitive ability includes six skills, including interpretation, analysis, evaluation, inference, interpretation, and self-regulation. The affective disposition includes seven dimensions, including curiosity, openness, systematization, analysis, truth-seeking, confidence, and cognitive maturity. And in each categories of critical thinking skills, it included with sub-skills. With the vivid illustration on the critical thinking skills, both instructors and learners could find out the skills according to themselves and their teaching. In the meantime, Ennis (1987) gave a clear demonstration on the research of critical thinking skills within four categories of 1) metacognition, 2) logically evaluating information sources, 3) problem-solving, 4) selecting appropriate strategies and solution. With the contentious research on critical thinking skills, Paul and Elder (2006) illustrated the “Critical

Thinking Model” within three elements in order to help learners within improving their thinking skills. It can be seen that the researches on critical thinking skills in the western countries have been started early in their education.

Taking the consideration on the researches on critical thinking skills in the Chinese environment. Researches on Critical thinking skills have not been focused on in China until the past decades, compared with western countries, however it is an urgent task for Chinese scholars and teachers for developing critical thinking skills in class. With the revolution of higher education in China, the Ministry of Education PRC advocated and put forward a more strict requirements of implementing quality education (Outline of National Medium and Long-term Education Reform and Development programme 2010-2020), critical thinking skills became a heated topic in the area of Quality Education. In the meantime, Scholars in language teaching, for instance, Huang (2010), Li (2010), Sun (2010), Wen (2010) devote themselves to developing theoretical frameworks and instruments for evaluating the critical thinking skills of Chinese students. And they found Chinese students are lack of Critical thinking skills in result of insufficient capacity on language acquisition.

With the influence on the western scholars, the Chinese scholars Wen and her group (2009) found the theoretical framework of measuring critical thinking ability of English major students in China based on the model and framework of western scholars. It can be seen that the critical thinking skills attracted a great attention in education both in western countries and China, with the consideration on the foundation on these critical thinking models, it aims to provide both instructors and learners a measurement on evaluate the access to the higher order thinking abilities in the learning and teaching procedure.

### **TEM tests**

The TEM tests consists of the TEM4 and the TEM8 tests, they were firstly taken in 1990 and 1991 in China. It can be seen as a big improvement of testing for English major in Chinese universities as before 1990s, no national wide English language proficiency tests were used for English major students. In the course of development of TEM tests, a TEM Syllabuses for both TEM4 and TEM8 had been

published in 1994 to guide the teachers of English majors to develop appropriate teaching methods for language teaching.

TEM tests are considered as the most vital language proficiency tests for English major students in China (NACFLT, 2004a; NACFLT, 2004b) and are thought as the high recognized English language proficiency tests consists of testing listening, reading, translation, writing, grammar and vocabulary within a limited time. It is believed so much pressure has been putting in the tests in result of low performance, for instance, from the perspective on psychology, Wang (2016) explained the reasons why English majors have low performance on TEM tests in the following aspects based on her research. 1) 62.8% English major students recognize the importance of TEM tests, however 48.9% of them deem that they probably cannot pass the tests and 16% believe they will definitely fail the tests. 2) 43.1% English major students have intensive pressures on TEM tests in result in the influence on testing and daily life, and they think they cannot pass the tests because of the testing pressures. Li, Wei & Zhang (2009) also hold the same point that students have pressures on passing the tests so that they lose confident on learning English language with depressed emotion, low performance on TEM tests is presented by them.

Testing is a direct method and tool to evaluate the effectiveness of students in English language learning. The TEM tests have revised the testing formats under the Outline of National Medium and Long-term Education Reform and Development programme (2010-2020). By analysing the format of TEM Tests, it consists listening comprehension, language usage, reading comprehension, writing and translation. With the reformation on TEM tests on 2016, talk in listening comprehension and short-answers questions in reading comprehension are the new testing format with subjective questions after TEM reformation (the Instructions for Question Type Adjustment of TEM4 and Instructions for Question Type Adjustment of TEM8 in August 2015). Taking the correlation between critical thinking skills and TEM testing into consideration, the new questions format in TEM tests after reformation in 2016 are mostly testing skills on analyzing, synthesizing and understanding information in testing questions throughout reading comprehension in order to acquire useful information. It is considered as the process of achieving high order thinking skills. In addition, the writing section on new TEM testing format require students to interpret,



synthesize, analyze, evaluate and apply learning knowledge to create an argumentative essay with no less than 250 words in TEM4 and no less than 300 words in TEM8. The procedure of testing in TEM tests ask students to have critical thinking skills (Wen, 2017).

Li (2020) also claimed that learn how to analyze and synthesis the information in testing questions is the premise of applying the language, critical thinking skills and critical thinking model (Paul & Elder 2006) is significant to language testing. In addition, writing section is the vital section in TEM tests for testing language comprehensive ability of students, critical thinking skills reveal more important in this section. In addition, Zhang (2020) demonstrated critical thinking skills play an important role in the new format of TEM tests, the testing questions in writing section ask students for high level of critical thinking skills with interpreting, analyzing, evaluating and creating. It can be seen, therefore, critical thinking skills and TEM testing have an intimate relationship.

It can be seen that with the developing of English language teaching in China, the testing format and testing questions are changing with the developing of English language teaching and more thinking abilities are required in TEM tests to students in English language testing. With the absorbing of critical thinking skills into language tests, the English language talents could achieve better performance in tests with the enhancement of critical thinking skills.

Enhancing the writing ability of English major students is the main purpose in English language teaching in Chinese universities as writing is the most difficult section for Chinese students, no matter in language usage or passage composition, in the meantime, writing is considered as an important tool to evaluate the English proficiency and thinking ability of English major students. By developing and exploring critical thinking skills to English major students in China could help students enhance writing ability, especially in composing passages logically. For what has been mentioned, the relationship between the critical thinking skills and the writing competency of English major students became as an attracted topic.

### **Ethnic minority and Ethnic minority students**

In China, 56 nationalities are living together, besides 55 ethnic minority groups except Han group are living in different areas around China and most of the ethnic minority groups are living in the areas of underdeveloped. Moreover, almost all the ethnic minority groups are having their own languages, cultures and educational background. With the consideration of it, ethnic minority areas in China are relatively less developed, compared with the big cities and developed areas. It is considered that the economy in these areas is relatively backward, the educational equipment and facilities are not perfectly equipped, and the team of teachers are not well trained, especially in the rural areas of ethnic minority regions. For instance, Wang & Zou (2018) illustrated that “It has been found that the English teaching facilities in China are relatively poor. It was found there is a lack of local English teachers in China and foreign teachers have been found to be too costly for the country. Additionally, the teaching style of local English teachers is also creating issues.” However, these conditions are considered the objective reasons for English language teaching in the ethnic minority regions. With the analysis on the literature review of ethnic minority and the language teaching in ethnic minority areas in China, the current situation can be concluded in the following.

a) Compared with the big cities and developed areas in China, most schools in the ethnic minority areas, in particular remote areas, offer English courses lately in middle school and the schools in big cities and developed areas offer English courses in the elementary level.

b) The usage of English in the daily life is relatively less compared with the developed areas as there is no English language environment in the ethnic minority areas in result of attaching less importance on learning English.

c) The teaching facilities in the ethnic minority areas are considered as backward in receiving and transmit information to both students and teachers. The multimedia teaching facilities cannot be applied into English language teaching to students by using different teaching methods, such as audiolingual or situational teaching methods, in result of increasing the difficulties in teaching English language.

d) It is considered that most merit English major graduates are not willing to teaching English in the remote ethnic minority areas and the English teachers team

could not be well refreshed with merit graduates. In addition, the opportunities on teacher training are relatively less compared with other areas. The shortage on English language is one of current situation in English language teaching in ethnic minority areas.

In addition, with the understanding of Ethnic minority students, the main feature of the ethnic minority students is that they are a special group of students in China as most of them meet different culture, education background and languages especially in Southwest China where is a part consists most ethnic minority groups in China. More importantly, more language acquisition problems and language teaching difficulties would meet among these students as the language problem plays the dominate role in their language teaching. For instance, the conflict between the mother tongue and English and the conflict between native culture and foreign culture. These two conflicts may result in the language transfer in teaching and learning English among the ethnic minority students (Li, 2012) . The language transfer, no matter positive transfer or negative transfer may influence the language learning among the group of ethnic minority students.

With the consideration on the group of students, The group of ethnic minority students in the process of English language learning, is in the face of the "three languages" environment within using mother tongue, Mandarin (Chinese) and English, at the same time due to the regional differences, students and parents generally do not hold a strong conception on English learning, the teaching equipment in the schools, the learning time and the funding are relatively limited, in result in leading a poor performance among these students in the usual English learning.

Moreover, with the researches on the group of ethnic minority students in China, the features are clearly identified as the following. 1) lack of confidence of using English, due to the living background of the group of ethnic minority students, most of them are living in the rural areas. Compared with students in the big cities, they are lack of confidence of using English as the influence on the learning and living environment. 2) lack of English learning environment, it is considered that most parents of ethnic minority students cannot speak and use English. Apart from the classes, parents cannot encourage students to use English after school. 3) shortage in training English language teachers, most the English language teachers in the ethnic

minority areas are not perfectly trained to be English teachers before being a teacher. Most of them are using the traditional method-grammar translation method- in teaching English, with using the traditional teaching methods, motivation on learning English cannot be well cultivated. As a consequence, the interests in learning English cannot be achieved.

In addition, with the consideration on the critical thinking skills of the ethnic minority students, with the researches on the ethnic minority students, the features are as followed (Hong, 2019). The traditional teaching methods limit the development of critical thinking skills of ethnic minority students. The teacher-centered environment limits the learning motivation of students as teachers and students are lack of interaction. Consequently, the skills on analysis and self-regulation cannot be achieved. Test-oriented environment limits the development of critical thinking skills of students. More language knowledge and testing techniques are taught in the class, it is not conducive to the development of critical thinking skills of students. Emotional hinder, as mentioned before about the living and learning environment of the ethnic minority students, they do not possess interests in learning English because of the influence on previous English learning experiences.

With the presentation on the problems of ethnic minority students, it can be seen that the group of students possess the language learning problems subjectively and objectively.

### **English writing competency**

Wahyuni (2013) stated “Writing is a messaging activity in writing to the other party. In the course of writing involves four elements of language including the author as a messenger, message or content writing, writing medium, as well as the recipients of the message reader.” Writing is a process to express the ideas of authors and deliver the messages to the readers. English writing is as same as what is presented before, it is considered as the process of delivering the ideas of authors. As mentioned in the section TEM tests, the writing section plays a dominate role in TEM tests because of the proportion on scoring.

Swain (1985) illustrated the definition on the English writing competency with the hypothesis “comprehensible out-put” that the usage of language, including

writing competency, is conducive to examine the application on the grammatical structures and vocabulary. With the consideration on it, the learning on English language has been improving through practicing on English writing and is beneficial to the overall competency on English language. Within testing listening; reading; grammatical structures and vocabulary; translation and writing in TEM, the English writing competency is seemed as the most important competency in TEM testing and the type of writing in TEM tests is argumentative writing.

Ding et al. (1994) stated that argumentative writing is to present arguments in the writing and convince readers to accept the author's ideas and statement with research from reliable and credible sources. Except the message delivery to the readers, the writing organization is also the testing point in the TEM writing section as the composition organization is a scoring category in TEM writing scoring scale. It is considered that the TEM writing composition should consist the same structures with the argumentative writing within the structures of the introduction, the body and the conclusion/comments.

In addition, with the researching on the Chinese English learning students, the scholars in Chinese universities and the Foreign Language Teaching and Research press (2020) published the report on investigating the English writing competency among Chinese college students and the reports defined the English writing competency, the content and the organization are the fundamental parts of the English writing, they are considered as the essential sections in TEM writing section scoring. With the writing mechanics and strategies, the English writing competency can be improved and it can be reflected on the English language teaching, no matter in writing or grammatical structures and vocabulary. In the meantime, it is common believed that critical thinking skills could be the target to be introduced in the class in order to help both teachers and students enhance the thinking ability.

### **Relationship between critical thinking skills and TEM writing**

Firstly, taking the current English teaching and learning situation into consideration, more and more scholars in the field of English language teaching pay attention on how to teach critical thinking skills with another language skill in the context of language learning in China. Not only the scholars focus on the relationship

between critical thinking skills and another language skill, but also the governments pay attention on the changing in education. The Ministry of Education of People's Republic of China claimed that the aim of higher education is to develop and cultivate students' abilities in practical application and innovation spirit with professional talents in 1999. And "English Teaching Syllabus for English Majors" (2000) revealed that no matter teachers or researchers have to enhance students' CT ability and to train students' abilities in all aspects of CT skills, for example independent analysis and synthesis, multi-angle analysis and the innovative ability in order to teach students to discover the unknown knowledge and foster their problem-solving ability on the way of language acquisition. It can be seen that the thinking ability of students attracts the governments' attention.

Secondly, TEM tests are considered as the most important tests for English major students in China to evaluate themselves and test them with the requirements of the National College English Teaching Syllabus for English Majors. (NACFLT, 2004C) In addition, it is also a measurement of testing the proficiency of English language of Chinese English major undergraduate students. However, with the research on TEM tests in the universities in Southwest China, it is hard for English major students to pass TEM4 and TEM8 after 4 semesters and 8 semesters language learning. Most importantly, the sections of reading and writing are considered as the most difficult parts.

Thirdly, universities of nationalities are a crucial part of tertiary education in China as there are 55 ethnic minority groups in China. Comparing with other parts of China, more ethnic minority groups are in Southwest China, teaching to ethnic minority students in the tertiary level is crucial to higher education in China as this group of students may face more learning problems in English language as they have their own culture, language background and educational background.

Lastly, two abilities on writing in English are language expression ability with overall layout ability and cognitive ability with analyzing, observing and problem-solving abilities. However, by observing the performance on English major students, some problems on writing are evidently appeared during teaching writing in class. For instance, narrative thought on composition and lack of logical thinking on

expression. As mentioned, writing section is the most crucial part of TEM tests, how to help students with solving these problems is the prior in teaching writing.

He et al (1999) stated the curriculum design for English majors was concentrated on language skills training, including listening, reading, writing, speaking and translating in Chinese universities. Training on thinking abilities, in particular critical thinking skills has been ignored by curriculum designers and teachers for decades. Scholars in China, for instance, Wen, Liu (2006) and Sun (2011) called for the reformation on English language teaching to enhance critical thinking skills to English major students in Chinese universities. Moreover, The National English Curriculum Standard (2003) devotes to arouse one of the purposes to cultivate thinking abilities, including critical thinking skills, of students, that students should have critical thinking skills on analysing, interpreting, synthesizing and solving problems in English (PRC Education Ministry, 2010). The New National Syllabus for College English Majors (2000) which was issued by National Advisory Committee for Foreign Language Teaching (NACFLT) in 2000 put forward that teachers should pay attention to cultivate critical thinking skills to English major students. The New National Syllabus for College English Majors (2000) also advocated training on skills of analysing, interpreting, synthesizing and evaluating should be absorbed into English language teaching and curriculum designing. From what has been discussed, cultivating on critical thinking skills plays a significant role in English language teaching to English majors in Chinese universities.

Testing is an effective tool to evaluate the proficiency of students in Language teaching. TEM tests (short for Test for English majors band-4 and band-8) which were issued by National Advisory Committee for Foreign Language Teaching (NACFLT) were officially launched on 1992, and it gradually became the high recognized English language proficiency tests in China (Jin & Fan 2011; Pan & Zou 2020; Zhu 2013; Luo, 2021). In addition, Wang (2013) illustrated TEM tests, in particular TEM8 test, is the highest level of English proficiency test in China, and it is the test for only English major students to prove their language skills and abilities are better than non-English major students in Chinese universities. It follows that TEM tests are significant to English major students and scholars in China began to research on TEM tests.

Taking cultivation on critical thinking skills in The New National Syllabus for College English Majors (2000) and the high recognized position of TEM tests into consideration, training on language skills and cultivation on critical thinking skills become equally important in English language teaching in Chinese universities. Wen (2017) reported the new format of TEM tests require students for interpreting and analysing ability based on Bloom (1969) theoretical framework, and students should have critical thinking skills, for instance interpreting, analysing, synthesizing, classifying, to evaluate the useful information in the tests. Li (2011) analysed the characteristics of English language testing, and increased the teaching procedure on cultivation on critical thinking skills to English major students in particularly in writing section, in order to enhance writing competency in language testing. In addition, Han (2014) did a research on the effects of critical thinking skills in enhancing writing competency in TEM tests. It is found that TEM tests takers should possess abilities on analysing, inference and evaluating in order to achieve a convincing argumentative essay.

In the level of taking TEM tests (at least second year English major students), by taking the TEM tests, the experimental students had realized the importance of both logical thinking and critical thinking were of vital importance in taking writing section in TEM tests as they found they could easily notice the vocabulary in the writing test question, but they could not organize proper language to illustrate the theme of the writing test questions. We take one-year writing test questions in writing section of TEM test as an example,

*Read carefully the following excerpt and then write your response in NO LESS THAN 200 WORDS, in which you should:*

- 1) summarize the main message/the excerpt, and then*
- 2) comment on Brewer's view that parents should join in with their kids rather than limit their media consumption.*

*You can support yourself with information from the excerpt*

*Marks will be awarded for content relevance, content sufficiency, organization and language quality Failure to follow the above instructions may result in a loss of marks.*



*Write your response on ANSWER SHEET THREE.*

*How much screen time is too much for kids?*

*Parents have been advised to limit media consumption of their children, but research suggests it's the nature of it that matters.*

*- For many parents in the digital age, battles with their kids over screen time and devices have become a depressing part of family life. Many parents will now be relieved to hear that recent research suggests that it's not so much the length, but the nature of the screen time that matters.*

*Jocelyn Brewer, a psychologist who specializes in the concept of "digital nutrition", likens media diets to what's on our plates: rather than counting calories (or screen time), think about what you're eating.*

*"It's not just about whether you consume any potential digital junk foods, but also your relationship to technology and the role it plays in your family life," says Brewer.*

*For young children, the most important thing is whether parents and kids are playing, watching or browsing together.*

*CA study of 20,000 parents published late last year by the Oxford Internet Institute and Cardiff University determined that there was no correlation between limiting device use and children's well-being. The study's lead author Dr Andrew Przybylski said: "Our findings suggest the broader family context how parents set rules about digital screen time, and if they are actively engaged in -exploring the digital world together, are more important than the raw screen time.*

*The consensus is that screen time, in and of itself, is not harmful reasonable, restrictions are vary greatly, depending on a child's behavior and personality. There is little point in worrying about how many minutes a day your kids are spending with screens," says Brewer. "Instead, parents should be doing what they can to ensure that what they watching, playing and reading is high-quality, age-appropriate and safe-and joining in wherever possible.*

It can be seen from the writing test question of the writing section of TEM tests that it is a reading comprehension passage that needs students to analyse, synthesize and evaluate the passage and figure out the useful information in result of organizing the own language in writing composition. Unfortunately, with the responses of the experimental students, they cannot grasp the theme of the passage, as a consequence, it is extremely difficult for them to compose an essay with the accurate direction of the writing test question.

Furthermore, with the consideration of the lack of critical thinking skills, not only the theme of writing test question cannot comprehend, but also the strong statements cannot be demonstrated to express their own view of points when the experimental students were taking the TEM tests. It is said that they were deeply difficult for the experimental students to find the strong evidences to support their own ideas, in result of low scores in writing section in TEM tests.

From what has been discussed, it can be seen that TEM tests are an indispensable part in English language proficiency tests in China with high recognition. Critical thinking skills have been attracted attention on Chinese scholars, more researches on critical thinking skills in TEM tests have been conducted. Cultivating on critical thinking skills to English major students could help them to enhance competency in TEM testing, in order to assist students to pass tests and prove their English language proficiency. Recognizing the importance of teaching writing and critical thinking skills, this study is to develop a critical thinking skills-based programme for enhancing writing competency in TEM tests of ethnic minority students in Southwest China. As developing an appropriate programme based on critical thinking skills to enhance writing competency to ethnic minority students is necessary not only for writing section, but also for other sections of language acquisition, as it is a process on developing and exploring thinking abilities and it could help students to establish personal learning framework.

### **Research questions**

Based on the analysing to participants, it is thought that TEM tests are high recognized in the society, however with low passing with students in Southwest China, based on the statistics from the office of Foreign language teaching and

testing. In addition, according to the research findings by (Sun, 2010; Sun, 2011; Wen, 2003; Wen et al, 2009; Wen, 2010; Wen, 2012; Huang, 1998; Huang, 2010), Chinese English major students lack of critical thinking skills. With analysing the correlation between critical thinking skills and writing competency in TEM tests, the research in carried out to develop a critical thinking skills-based programme for enhancing writing competency to ethnic minority students in TEM Tests in Southwest China (Luo & Nuangchalerm, 2022). According to the problem statement and the preliminary research, the following questions will be answered in this research:

1. What are the effects of this critical thinking skills-based programme of enhancing writing competency in TEM Tests among ethnic minority students in Southwest China?
2. To what extent, ethnic minority students could improve their writing competency in TEM tests through this critical thinking skills-based programme?
3. How does critical thinking skills-based programme enhance writing competency in TEM Tests among ethnic minority students in Southwest China?

### **Objectives of study**

With the development of English language teaching, English becomes more and more important in the Chinese schools. As far as taking learning English into consideration, it is thought that testing seems to be an indispensable part of English language teaching in China. As English language teaching in China is clarified into the category of English as Foreign Language, therefore, the learning and teaching situations in China are lack the essential and necessary authentic environments for natural acquisition. From what has been discussed above, ethnic minority students have lower performance on both critical thinking skills and writing competency in TEM Tests. This study is designed to 1) develop a critical thinking skills-based programme for ethnic minority students in the Southwest China, 2) implement the programme into authentic teaching environment to help ethnic minority students to enhance their writing competency in TEM tests in result of achieve better performance in English language learning, 3) evaluate the effectiveness of the programme in the authentic teaching environment with a group of ethnic minority students in the tertiary level.

**Significance of the study**

This study is to develop a critical thinking skills-based programme to enhance writing competency in TEM tests of ethnic minority students in Southwest China. The significance of the study can be divided into two aspects. From the theoretical perspective, it is expected to contribute 1) to identify the features of ethnic minority students in both the performance on writing section in TEM tests and critical thinking skills, 2) to provide data support for other related research as this study is aims to develop and implement two semesters-long teaching experiment. From the practical perspective, this research is expected to 1) to give implications to English language teaching in instructing critical thinking skills and writing skill by implementing a developing programme for ethnic minority students, 2) to contribute to help other language teachers to develop appropriate teaching programmes or teaching models in the context of teaching ethnic minority students, 3) to provide evidences to enhance other language skills of ethnic minority students in the tertiary level. In addition, from the perspective of cultivating critical thinking skills, few scholars concentrate on the topic of researching on the relationship between writing competency in TEM tests and critical thinking skills by developing a teaching programme for ethnic minority students. As the group of ethnic minority students, especially majored in English language, has not been attracted more attention by scholars. By conducting the research, more details and data would be presented to help English language teachers in Southwest China, who teach ethnic minority students in English majors or non-English majors, and give some implications on English language teaching.

**Scope of the study**

The research is to develop a critical thinking skills-based programme for enhancing writing competency in TEM tests for ethnic minority students in Southwest China. For the purpose of the research of developing a teaching programme, cultivating of critical thinking skills and enhancing writing competency in TEM tests should be attracted the attention within conducting the research. By implementing the research, some aspects of the research should be presented.

a. Population and sampling: according to the definition of population in statistics and the purpose of the research, it is thought that the population of this research is with large group of ethnic minority English major students in the tertiary level in Southwest China. Considering the large numbers of students, purposive sampling method is applied in the research for choosing sample. Based on the teaching and researching experience of the author, the sample of the research come from a group of ethnic minority students who are majored in English major in a university in Southwest China. The sample size of the research is about 40 ethnic minority students.

b. Content: for the purpose of the research, the aim is to develop a critical thinking programme for enhancing writing competency in TEM tests for ethnic minority students, the teaching programme is considered as the most important part of the research. Therefore, the first step of conducting the research is to take a survey to develop and research the features of this group of students, and to find the problems on writing based on the perspective on critical thinking skills. And the CCTDI (California critical thinking disposition inventory) is also to apply in the research to investigate the critical thinking skills of participants, in order to help author to develop the critical thinking skills-based programme, in particular in the designing in classroom activities. In the next step, a teaching programme is to develop based on critical thinking skills and the educational theories, which is to conduct in the authentic teaching environment for two-semester long to a group of ethnic minority English major students. In the third step, experts of English language teaching in Southwest China, in particular the experts who have taught English language to ethnic minority students before to evaluate the feasibility of the teaching programme in result of conducting it in the next step. By completing the teaching programme to the selected sample, the teaching programme will be applied in the authentic language teaching environment in the fourth step and the research will be lasted for one semester-long. In the next step, after completing the teaching experiment, all the data of the research will be analyzed by the author and present in the thesis paper.

c. Variable to the study: for conducting the preliminary research, the topic of the research is developing a critical thinking skills-based programme for enhancing writing competency in TEM tests to ethnic minority students, the independent

variable is students' writing competency in TEM Tests, and the dependent variable is developing a critical thinking skills-based programme. By conducting the teaching programme in the research, the writing competency in TEM Tests is going to be enhanced in the teaching experiment.

d. Instrument and duration time. The research instruments that will be used in the research are 1) survey to students, 2) bi-weekly writing task, 3) teaching experiment, 4) interviews to both students and teachers, 5) the reflective journal of the students, 6) CCTDI (California critical thinking disposition inventory). Considering the teaching programme is new and unfamiliar to the selected students, the duration of the research will last for one semester-long within 16 weeks to evaluate the performance of students.

### **Terms in the research**

These terms in the research are considered as the main terms in illustrate the ideas of constructing the study, the following explanations and definitions are discussed both in this chapter and the following chapters.

a) Critical thinking skills: high order thinking skills include cognitive ability. With the consideration on the critical thinking skills, it is including interpretation, analysis, evaluation, inference, interpretation, and self-regulation.

In the language learning and teaching process, critical thinking skills is thought as the most essential thinking skills for students to improve their high order thinking capability in learning language skills, in particular the writing skill.

b) TEM tests: The TEM tests are thought as the high recognized English language proficiency tests consists of testing listening, reading, translation, writing, grammar and vocabulary within a limited time and are considered as the most vital language proficiency tests for English major students in China.

c) Ethnic minority: 55 ethnic minority groups except Han group are living in different areas around China and most of the ethnic minority groups are living in the areas of underdeveloped. Moreover, almost all the ethnic minority groups are having their own languages, cultures and educational background.

d) Ethnic minority students: The main feature of the ethnic minority students is that they are a special group of students in China as most of them meet

different culture, education background and languages. More language acquisition problems and language teaching difficulties would meet among these students.

e) Programme: a designed teaching programme with designed teaching procedure and designed classroom activities to enhance the English writing competency in TEM tests among ethnic minority students in English majors. The designed teaching programme was designed based on the Taba (1962) model and the objectives of the designed programme is to cultivate ethnic minority students critical thinking skills and enhance their writing competency in TEM Tests by developing well-organized classroom activities. Moreover, whether the English writing competency of the students could be improved or not is based on the performance on learning with the designed teaching programme.

f) English writing competency: English writing competency is about expressing your own thoughts through language usage and the language and the thoughts are the most important elements of English writing competency. In the language usage, the phrases the expressions, and the order of sentences and words are considered as the indispensable parts. In addition, with the consideration on the thoughts, critical thinking skills and personality.

### **The problem statement**

Ethnic minority groups are considered as the crucial part of population in China and diversity ethnic minority groups are lived in the Southwest China. From the aspect of education, Chinese government began to conduct expansion of college enrolment, more and more ethnic minority students had opportunities to study in college and they attracted more attention from educators and scholars as these group of students have their own language and culture. English language is considered as their third language, except Mandarin and English, to learn. It may result in the trouble of language transformation and thinking ability fostering.

In addition, two facts result in the writing problem of this group of students. Firstly, the negative influence on ethnic minority languages and mandarin (interlingual interference), from the perspective of ethnic minority languages, it is thought that the negative influence of ethnic minority languages is evidently in English language learning among ethnic minority students in the tertiary level. Firstly,

the grammatical structures are different with English language, students will meet learning problems on understanding the difference of two languages as they have to change their thoughts in constructing sentences or passages. Secondly, different culture background may influence the acquisition of English language as all the time since, language and culture are related to each other and language is the carrier of culture. However, the English culture is unfamiliar to ethnic minority students as they do not have chances to engage in English culture in result of misunderstanding of English language.

From the perspective of mandarin, with the teaching experience and preliminary research with ethnic minority students, mandarin (Chinese language) plays a role of interlanguage. As firstly, nearly all English textbooks are developed by using Chinese and English language, there is no appropriate ethnic minority language and English developed textbooks. Ethnic minority students have to learn English language with using Chinese. Secondly, the English teachers use Chinese to teach English language in the tertiary level cause another negative influence of English language learning among ethnic minority students as some of them also have language problems on Chinese language, it could lead to misunderstanding by using Chinese language to learn English language.

Secondly, TEM tests are considered as the most important assessment for English major students to evaluate themselves and test them with the requirements of the National College English Teaching Syllabus for English Majors (NACFLT, 2004a) . In addition, it is also a measurement of test the proficiency of English language of Chinese English major undergraduate students. The aim of TEM tests is to examine English major students' all-round ability on Chinese universities with two chances each. From mentioned above, ethnic minority students have more language learning problems that other groups of students, it causes the lower proficiency performance on testing. For instance, 1) lower performance on grammatical structures and vocabulary may result in lower scores in multiple choices of grammar and vocabulary and in particular the writing section, 2) lower performance on critical thinking skills may result in lower scores on writing as writing section needs abilities on analyzing, synthesizing, and evaluating. Most importantly, it is a fact that passing TEM tests is first step of finding a job after graduation from college. Enhancing



writing competency in TEM tests of ethnic minority students could help them achieve a good performance on TEM tests and have a better future.

From what has been discussed, it can be seen that the way of English language teaching for ethnic minority students is unique, and this group of students meet more problems on language learning comparing with other groups of students. From the aspect of teaching writing, negative influence on English language acquisition causes writing problems among this group of students as they experienced different language and culture. They may meet more problems in language acquisition and result in poor performance on writing.

Moreover, it is important to enhance both writing competency in TEM tests and critical thinking skills for ethnic minority students as it could help them no matter in find a job or achieve outstanding English proficiency in the future. It is, therefore, urgent to develop a teaching program for ethnic minority students to enhance writing competency in TEM tests and critical thinking skills.

Writing section is considered as the most difficult section in TEM tests as a no less than 250 words argumentative composition needs to be completed in limited time with 45 minutes. In addition, when talk about the marking criteria of writing in TEM Tests, content composition and writing structures are the two main parts in marking a writing piece. Thus, students need to have a clear understanding of the topic question and make sure what is going to compose in the passage. From the requirements of TEM tests in writing, and analyzing the background of writing competency in TEM Tests with critical thinking skills among ethnic minority students, the problems are presented as following,

Firstly, the problem on constructing a piece of writing by analyzing the topic can be seen as the first problem that students would meet when they are taking TEM tests. As mentioned before, the writing section needs to be completed in 45 minutes with a given topic, students could not expand their thoughts and vision in a stressed environment. As a result, it is considered that most students would memorize some model sentences and put them into their writing. For instance, ‘with the development of economy and technology of the world...’ in the beginning, ‘as far as i am concerned...’ for giving personal opinions and ‘ all in all...’ at the end of the writing. When we looking at these sentences, it is good for expressing personal opinions,

however when we look at the whole construction of a passage, it is believed that these model sentences are used by most students and it would be similar with all writing pieces. Moreover, these model sentences cannot be used in all situation in TEM tests. For example, 'in the students' Union of your university is planning to hold an arts festival next semester, and they are inviting students to contribute their ideas and suggestions as to how it should be organized or what should be included.

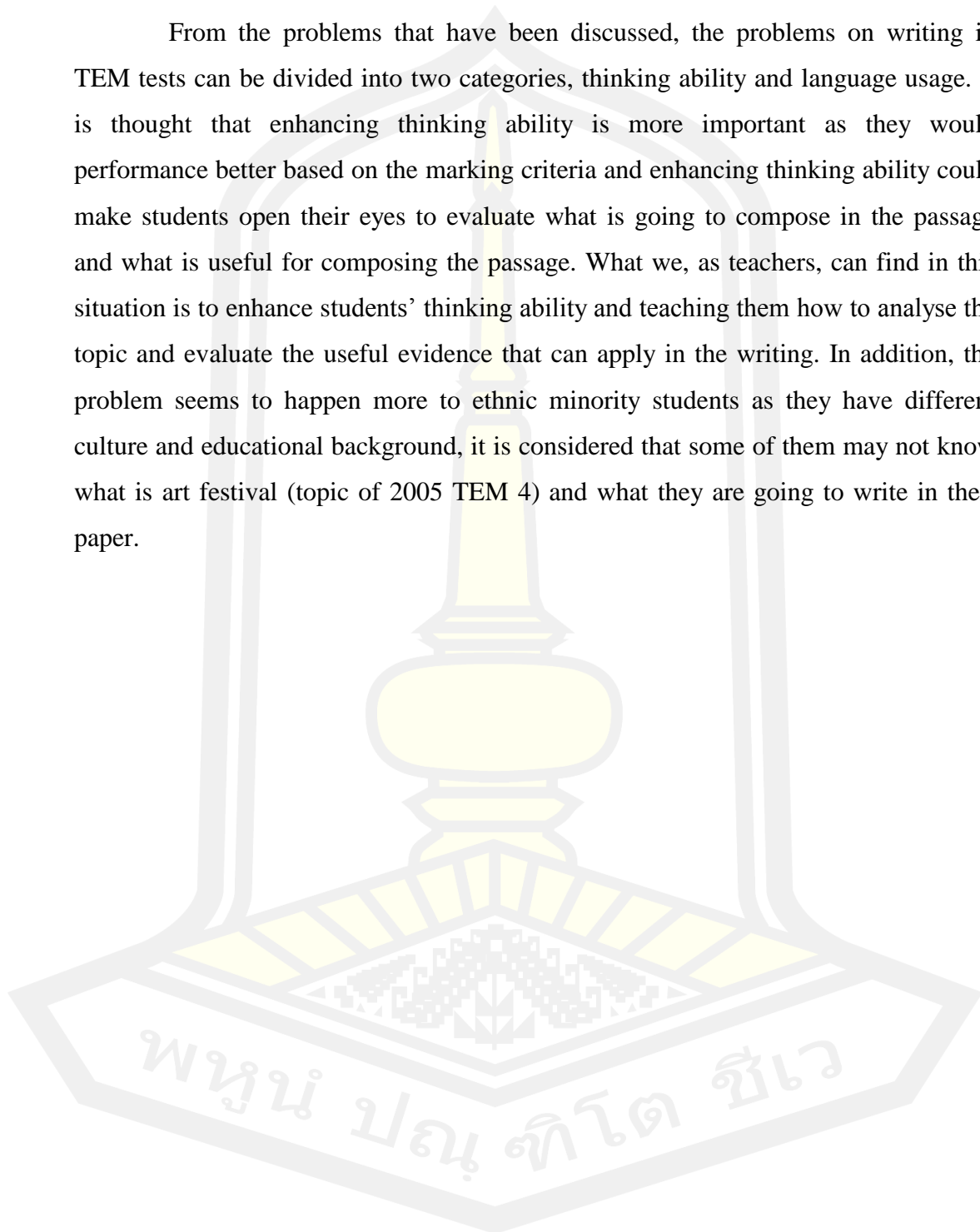
My students are required to write a exposition of their ideal art festival, nor required to compose a argumentative writing. It can be seen, therefore, that the model sentences cannot be applied in their writing. Secondly, narrative thought on composition and lack of logical thinking on expression are the second problem with ethnic minority students in their writing. It is thought that it is a universal problem with all students when they compose a passage in English, in particular the second paragraph of constructing the body of the paper. With the teaching experience, most students do not know how to expand their vision and thoughts within the topic sentence. What they do is to put all evidences that they know in the writing in order to achieve 250 words. However, with analyzing the papers of students, it is evidently that 250 words can be achieved, but the paper would be without logic as students only put opinions in without thinking its appropriateness.

Therefore, when looking as the whole structure of the writing, it is obviously that the passage is lack of meaningful evidences to support their points and would be contradicted with the previous points as they do not have abilities to analyze and evaluate the content that they want to compose in their writing. From what has been discussed, the content composition and writing structure are the main marking criteria in TEM Tests, with the problem of lacking of logical thinking on expression, no better performance would be achieved in writing section.

Lastly, the problem on inappropriate language expression frequently appear in students' writing as mentioned previously, ethnic minority students have their own language and culture, Chinese acts as an interlanguage and transfer into English. Moreover, another reason for this phenomenon is Chinglish for those ethnic minority students who are good at Chinese. The way of thinking limits their vision of composing a passage. For instance, there is no article words in Chinese, students are confused on using the definite article 'the', and there is no verb distortion in Chinese,

students would have questions on it. e.g. she like play basketball. (incorrect); She likes playing basketball. (correct).

From the problems that have been discussed, the problems on writing in TEM tests can be divided into two categories, thinking ability and language usage. It is thought that enhancing thinking ability is more important as they would performance better based on the marking criteria and enhancing thinking ability could make students open their eyes to evaluate what is going to compose in the passage and what is useful for composing the passage. What we, as teachers, can find in this situation is to enhance students' thinking ability and teaching them how to analyse the topic and evaluate the useful evidence that can apply in the writing. In addition, the problem seems to happen more to ethnic minority students as they have different culture and educational background, it is considered that some of them may not know what is art festival (topic of 2005 TEM 4) and what they are going to write in their paper.



## CHAPTER II

### LITERATURE REVIEWS

It is believed that literature review provides us a time-long research history to the related topics and meet the gaps and limitation of the present research as it plays as a crucial part of research to broaden our horizons in the target research field. In this part, it will define the concepts of critical thinking skills, TEM tests and writing in TEM, teaching programme developing and ethnic minority students and discuss the literature and researches which are related to this research in order to present a clear vision of critical thinking skills, writing in TEM tests and ethnic minority students in the tertiary level and their relationships and connections.

From what has been discussed in the first part, writing competency is the basic skill that should be enhanced for ethnic minority students as they have different culture, language and education background, more problems on writing would be met during their English language acquisition. In addition, the main problem on writing competency is lack of thinking abilities to construct a passage, a critical thinking skills-based program is developing to enhance the writing competency of this group of students.

The most crucial factor for students currently is facing the challenging competitions in the rapid developing modern society. In addition, the government in China focused on the changing in education for decades. For instance, the Ministry of Education of People's Republic of China claimed that the aim of higher education is to develop and cultivate students' abilities in practical application and innovation spirit with professional talents in 1999. Critical thinking skills is not only a way for success in education but also achieves creation that can result in the innovations in language learning. In addition, it is commonly believed that testing is an important part of English language teaching in the EFL environment and writing is considered as the most difficult part, most English major students in China face the problem of enhancing writing competency as writing is a significant tool to evaluate the language efficiency of students by asking both language ability and thinking abilities. By

developing a critical thinking skills-based program to enhance writing competency in TEM tests to ethnic minority students, these terminologies will be discussed in the following.

### **Critical thinking**

Critical thinking and the connotation of critical have been defined by many scholars. Dewey (1933) first defined the meaning of critical thinking by stating “active, persistent, and careful consideration of a belief or supposed form of knowledge lies in light of ground which support it and the further conclusions to which it tends.” In addition, Elder & Paul (1998) illustrated that the way which develops students to think critically has emphasized for a long time in academic domain in western countries, and critical thinking actually is a process of analyzing and evaluating a given framework. It can be seen that critical thinking is a thinking ability with different kinds of thinking skills.

Moreover, Ennis (1991) claimed that critical thinking is “reasonable, reflective thinking that is focused on deciding what to believe and to do.” Huitt (1988) had the same point with Ennis (1991), critical thinking is a disciplined mental task for analyzing and evaluating arguments and making personal judgments that can affect future beliefs and decisions. With the literature and definitions which defined by these experts, it can be easily found that critical thinking has been a heated topic that have researched for a long time, which focus on learners’ abilities on analyzing and evaluating.

With the reviewing of literature and researches of critical thinking, it can be found that critical thinking skills plays an alternative role of critical thinking. However, some scholars clarified their differences in its definition. Bloom (1956) firstly gave the steps for examining the learners’ abilities on critical thinking with his famous Bloom’s Taxonomy theory, which defined six learning objectives of learners as “remember, understand, apply, analyse, evaluate and create”. Facione (1992) argued critical thinking skills consist of six skills which are interpretation, evaluation, explanation, inference, self-regulation and analysis (Figure 1).

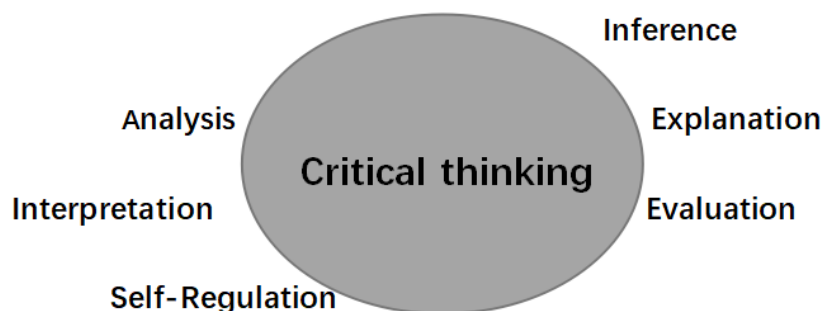


Figure 1 Core critical thinking skills by Facione (1990, 1992, 2011)

In addition, Ennis (1987) first defined critical thinking skills with 1) metacognition, 2) logically evaluating information sources, 3) problem-solving, 4) selecting appropriate strategies and solution. He also illustrated the five skills of critical thinking skills lately in 2011 within 1) basic clarification, 2) bases for a decision, 3) inference, 4) advanced clarification, and 5) supposition and integration. It can draw a conclusion that critical thinking skills consist of skills and sub-skills which the skills of analyzing, evaluating, interpretation, inference are the main parts.

With the analysis of the literature and with the perspective of critical thinking, it can be drawn a conclusion. Firstly, the core of critical thinking is to evaluate issue or phenomenon based on previous knowledge and skills in order to achieve personal ideas. Secondly, through analyzing, new questions can be provided by self-examining. Lastly, the fostering of critical thinking skills can be achieved in the teaching process. Details of critical skills and sub-skills by synthesizing the points of other experts as the Table 1.

Table 1 Critical skills and sub-skills

skill	Sub-skill
1. Interpretation	<ul style="list-style-type: none"> <li>● Categorization</li> <li>● Decoding Significance</li> <li>● Clarify Meaning</li> </ul>
2. Analysis	<ul style="list-style-type: none"> <li>● Examine Ideas</li> <li>● Identify arguments</li> <li>● Identify reasons and claims</li> </ul>
3. Evaluation	<ul style="list-style-type: none"> <li>● Assessing Claims</li> <li>● Assessing arguments</li> </ul>
4. Inference	<ul style="list-style-type: none"> <li>● Query Evidence</li> <li>● Conjecture Alternatives</li> <li>● Draw logically valid and Justified Conclusions</li> </ul>
5. Explanation	<ul style="list-style-type: none"> <li>● State Results</li> <li>● Justify Procedures</li> <li>● Present Arguments</li> </ul>
6. Self-regulation	<ul style="list-style-type: none"> <li>● Self-monitor</li> <li>● Self-correct</li> </ul>

Critical thinking skills has gained much attention in western countries, in particular America and Europe. Ennis (1989, 1991, 1996) firstly defined the critical thinking skills and claimed that critical thinking is “reasonable, reflective thinking that is focused on deciding what to believe and to do.” It is thought that he is the leading guider for the researches on critical thinking skills. Facione (1992) argued critical thinking skills consist of six skills which are interpretation, evaluation, explanation, inference, self-regulation and analysis. McPeck (1981, 1985, 1990) firstly claimed critical thinking is something special that should be taught as a subject and elaborate into curriculum design, in the meantime, immersion approach was introduced to teach students within critical thinking skills. In addition, Elder & Paul (1998) illustrated that the way which develops students to think critically has

emphasized for a long time in academic domain in western countries, and critical thinking actually is a process of analyzing and evaluating a given framework.

From what has been discussed in first chapter of this thesis and literature review, critical thinking skills and critical thinking have been studied by scholars in western countries from an earlier stage. Theoretical structures, models and theories of critical thinking skills have been discussed and presented to the academic circle. Taking the theoretical structures, models and theories of critical thinking skills into consideration, theoretical and authentic teaching implications and suggestions have been immersed into critical thinking skills teaching.

With the implications and suggestions, more and more researches and studies have been carried out in the different areas, in particular the area of language teaching. Numbers of scholars and teachers advocate themselves into researching on the relationship and combination of language teaching and critical thinking skills. More framework of combination of critical thinking skills and language teaching are presented to prove the significance of critical thinking skills and its effectiveness on improving language skills of language learners. Moreover, classification and measurement instruments of critical thinking skills are greatly discussed, for instance, Wen (2010) illustrated a new conceptual framework of assessing critical thinking skill of Chinese college students, which was designed and developed by Paul & Elder (2006) critical thinking skills model.

It can be seen that the studies on critical thinking skills in western countries can be divided into parts within the studies on the definition of critical thinking skills, the classification of critical thinking skills, measurement instruments for assessing critical thinking skills and the framework of teaching models or methods to improve critical thinking skills. For language teaching, enhancement of critical thinking skills of language learners have been discussed in all aspects of language skills.

### **Critical thinking skills in language teaching in China**

Taking the completed empirical and theoretical researches into consideration, Critical thinking skills started late compared with western countries in China on earlier 21<sup>st</sup> century. Some famous English language educators, for example, Sun (2010, 2011), Wen (2003, 2010, 2012), Huang (1998, 2010) and Ruan (2012, 2014) did both



empirical and theoretical researches on critical thinking skills and its application on English language learning and teaching. It can be clearly found that quite few studies researching on critical thinking skills before the year 2010, and the most significant research which was conducted by Wen et al. (2009), the theoretical framework of measuring critical thinking ability of English major students in China.

Critical thinking skills has been firstly studied from last century, Huang (1998) firstly conducted a research on English major students in China and found English major students lack of critical thinking skills and he called it “critical thinking absence disease”. After that, some English language teaching experts in China began to research on the influences on the critical thinking skills to English language teaching.

Huang (2010) defines the term “critical thinking absence disease” again, that the current English language teaching situation was nearly opposite with the cultivation on critical thinking skills, more training on language skills are taught in class and teachers focus on the memorizing of the grammatical structures and vocabulary. It is not good for the development of English language teaching in China. He claimed English language teaching to English major students should not be the form of “Language Centre”, curriculum reformation should be conducted in English majors in China. Except the courses on English language skills, courses on culture, literature, linguistics, philosophy, sociology and critical thinking skills should be increased in curriculum designing for English majors.

Sun (2011) claimed the importance of cultivating critical thinking skills to English major students according to the English language teaching reformation in China as the schools should put the fostering inter-disciplinary talents, not only focus on language skills. And he was the first scholar in China to suggest that teaching writing is the most effective and significant course to enhance and improve critical thinking skills of students in college. It is thought that English language teachers should enhance personal critical thinking skills in order to develop and revise curriculum purpose, teaching methods, assessment and teaching materials, which is appropriately for students to improve their English language proficiency based on the enhancement of critical thinking skills. Moreover, he firstly came out a principle on critical thinking skills called ‘TERRIFIC’ with target, inquire, routinize, integrate,

reflect, content, evaluate and fulfill. The principle emphasizes the function on critical thinking skills in teaching English language, and presents the ideal advanced language ability is advanced critical thinking ability.

Wen (2010, 2017) and her group firstly began to conduct empirical studies on English major students in China to explore the application and significance of developing critical thinking skills into oral English class and figured out English major students could not express themselves with appropriate and adequate evidences in oral speaking. And later on, research on the topic of cultivating critical thinking on English major students and non-English major students in college, and discovered the insufficient performance on critical thinking skills of English major students as they tend to be trained more on language skills rather than thinking abilities. As a consequence, English major students did not achieve improvement or enhancement on critical thinking skills from the perspective on cognitive domain. In addition, they also found that English major students possess higher critical thinking ability than other students majored in liberal arts, however the phenomenon has changed in the second year, English major students perform poorer than other students on critical thinking. The finding of this phenomenon is the emphasis on training on language skills in result of poor performance on critical thinking.

Therefore, Wen (2010) build a new critical thinking theoretical framework to measure critical thinking skills of Chinese students in tertiary level. Based on the findings of these experts, Chinese scholars start to conduct research on critical thinking. They have researched on the influences of critical thinking skills to improve language skills.

As far as into consideration, these three famous scholars open the research gate on critical thinking skills in English language teaching in China, in particular the researches to English majors in tertiary level. Implications and suggestions are given to English language teachers to improve themselves on critical thinking skills and its application onto English language teaching and to administrators in English department to rethink and revise the current curriculum and syllabus for both English majors and non-English majors. In addition, the contribution of Wen (2010, 2017) and her research group on building theoretical framework of measuring critical thinking

skills gave the researchers and teachers an accurate and appropriate scale rubric for measuring critical thinking skills of Chinese college students.

With the research on critical thinking and critical thinking skills by these famous scholars in China, more researches were carried out in the field of language teaching and acquisition in China. Analytical thinking as one of the skills of critical thinking plays an important role in teaching writing, without analytical thinking, students will passively receive the knowledge from teachers and put their focus on memorizing (Wang, 2016). Moreover, Xiu (2018) applied newspaper reading on teaching reading to English major students, the findings revealed that instead of using textbooks, newspaper attracts students' attention and they have interests on reading it. It can give us some suggestions on materials selection and designing.

Another point of cultivating critical thinking skills to English major students was reported by Huang (2017) that encouragement to conduct research projects by English major students can cultivate their critical thinking skills. By presenting the research problems, analyzing and synthesizing the information which are related to the topics, the main critical thinking skills can be cultivated in order to enhance the thinking abilities of students.

Li (2011) carried out an action research to explore how to increase both reader awareness and critical thinking on teaching writing and discovered that students were cultivated to be interested in participating on writing class, which is based on improvement of reader awareness and critical thinking. It suggested that the process of self-evaluation and peer-evaluation gave learners more opportunities to experience collaboration and team-work, it is beneficial for learners to enhance both language skills and critical thinking skills.

Song (2012) figured out the relationship between oral speaking and critical thinking skills, and deem that the enhancement of critical thinking skills could help language learners to improve their speaking ability as enhancement of critical thinking skills is a process on helping language learners to build a systematic thinking framework and give language learners more space to create and select adequate evidences to support their point of view.

Mu (2016) conducted a research to investigate the current situation on critical thinking skills and writing competency of 73 year-four English major students

in a university in China by giving them critical thinking dispositions test and writing task, and carried out the result on the reason why English major students lack of critical thinking skills. It is explained that English major students are short of learning habit of critical thinking, questionable spirit and analytical ability in result of lower performance on writing composition. Wang & Gao (2012) also expressed the same point that critical thinking skills and writing competency have indispensable relationship. Enhancement on critical thinking skills could help language learners to improve their writing competency.

By analyzing the published articles and books, it is thought not only the researches on language learners, but also on language teachers. Wang & Ran (2017) suggested that most teachers in the universities lack of critical thinking skills as the traditional educational background, universities teaching and learning environment and self-reasons influenced their critical thinking ability. The universities should enhance critical thinking skills of university teachers, increase numbers of the training programmes and assess evaluation on critical thinking skills. From what has been discussed, it can be seen that critical thinking and critical thinking skills are significant to English language teaching and learning in China, and scholars are attracted to research on critical thinking skills and its application on English language teaching and learning. By cultivating critical thinking skills to students, improvement of language skills can be realized. In addition, students are not only the research sample, but also English language teachers. It is considered that the more improvement on teachers, the more language skills and critical thinking skills would be transferred to learners.

### **TEM tests**

Testing possesses a vital position in language teaching no matter in curriculum design or choices on teaching methods as testing is a measurement of assessment and evaluation. It is thought that the usage of testing is for teaching and it aims to offer feedback from tests to assist teachers and administrators in teaching and curriculum designing. Besides, Test for English major as mentioned as TEM test is considered as a national wide test in China to measure and evaluate the English language proficiency and it is the only one English test to measure the English

proficiency of undergraduate students of English major, in order to evaluate whether the students meet the requirements of the National College English Teaching Syllabus for English Majors (NACFLT, 2004a). This part will discuss an overview of TEM tests, include TEM4 and TEM8.

A brief history and development of TEM tests can be explained that TEM 4 and TEM8, were firstly taken in 1990 and 1991 in China. It can be seen as a big improvement of testing for English major in Chinese universities as before 1990s, no national wide English language proficiency tests were used for English major students. In the course of development of TEM tests, a TEM Syllabuses for both TEM4 and TEM8 had been published in 1994 to guide the teachers of English majors to develop appropriate teaching methods for language teaching. However, the TEM Syllabuses had been experienced two revision in 1997 and 2004. By implementing the TEM tests in China, the TEM syllabuses aim to give suggestions to English language teaching for English majors in China. More importantly, the implementation of TEM tests could not only reflect the language proficiency of students, but also reflect the problems on teaching and learning English language of English major students.

After the revision of the TEM syllabuses in 2004, the tests contents have been revised to some extent as the development of language teaching in China and the high demand of English talents. For instance, 1) increasing difficulty of TEM tests especially in the section of writing and listening, 2) more subjective items appearing in the tests, 3) reducing testing time from 140 minutes to 130 minutes for TEM4 and from 215 minutes to 185minutes for TEM8. TEM tests have been revised again in 2016, the time duration for TEM8 reduce to 150 minutes.

From the timeline, the TEM Syllabuses had been revised for three times, and the format and testing items had been changed based on the revision of the TEM Syllabuses. With the revision of the TEM tests, it aims to develop students' abilities on language usage and thinking abilities.

### **Content and format of TEM tests**

The aim of TEM tests is to evaluate the English language proficiency of English major students in China, and it has been paying more attention on the scholars in the field of English language teaching. The content of format of TEM tests have been revised based on the guide of The TEM Syllabuses, and the present content

of TEM4 consists of listening comprehension, language usage (items of grammar and vocabulary), reading comprehension and writing. The content of TEM8 includes listening comprehension, reading comprehension, proofreading and error correction, translation and writing. It can be seen from the content and format that TEM tests are divided into two stages of testing with basic and advanced stage with different testing format. The frameworks of the TEM tests are as follow, which give a clear understanding of TEM tests (Table 2). The two tables of presenting the overall testing sections of TEM tests are presented to display the detailed information of the tests.

Table 2 Framework of TEM 4

Section	Questions		Format	Score	Time (min.)
I	Listening Comprehension	Dictation	Writing a passage (10 sentences)	10	10
		Conversation	Multiple choices	20	20
II	Language usage		Multiple choices	20	10
III	Cloze		Gap fillings	10	10
IV	Reading comprehension		Multiple choices	10	35
			Short answer questions	10	
V	Writing		Writing (no less than 250 words)	20	45
Total				100	130

Table 3 Framework of TEM 8

Section	Questions		Format	Score	Time (min.)
I	Listening comprehension	Mini-lecture	Gap fillings	10	25
		conversation	Multiple choices	5	
		news	Multiple choices	5	
II	Reading comprehension		Multiple choices	30	45
III	Proofreading and Error Correction		Gap fillings	15	15
IV	Translation		Paragraph translation	15	20
V	Writing		Writing (no less than 300 words)	20	45
Total				100	150

It can be concluded from the frameworks that the TEM tests is to test the comprehensive English language ability, which contend all language skills and require students with the thinking abilities on analyzing and evaluating the testing questions, for instance reading comprehension, proofreading and error correction and writing, based on their previous knowledge.

#### **The needs of TEM tests**

Recently, the employment of English major in China is not optimistic as students in English majors have been enrolled in many universities in result of suffering the surplus of English major graduates. However, TEM tests are the only one English test to measure the English proficiency of undergraduate students of English major, the recognition of the test is higher than the other tests in English in China. In addition, the certificates of TEM tests are considered as the stepping stone to find a job after graduation as the schools and companies need to select talents for divided students into two groups, with certificates and without certificates. Students who hold certificates of TEM, especially TEM8, could prove themselves with advanced English language ability. To conclude, the certificates of TEM are significant to English major students in China with higher social needs.

For all students in the universities, include English major students, aim to find a job after their graduation. The certificates of TEM are indispensably for finding a job as the high recognition of the society. The students' needs of TEM tests can be divided into several parts, firstly the recognition of themselves. Yang (2012) reported that TEM tests are selected by most of English major students to evaluate their English language proficiency as they recognize that TEM tests are with high recognition of the society and help them to find a job. In order to achieve a better score in TEM tests, they have to study hard and practice more in the study. Secondly, the practical ability on English language, from the last section on the content and format of TEM tests, it can be seen that all language skills are testing in the test. The practical ability on English language is significant to TEM tests as the students have to practice everyday with all language skills. After a long time of language practice, students could easily use the language properly, in particular the reading and writing abilities. To sum up, with the recognition of students themselves in TEM tests, it could help them to build confidence in language learning in order to improve their performance on testing.

#### **Writing in TEM tests**

Listening, reading, grammar & vocabulary, and writing are the parts that are testing in all English language tests in China. It is considered that listening and reading are the process of absorbing knowledge and writing is a process of presenting the knowledge, the process of writing needs more thinking abilities and knowledge accumulation. In addition, with the reformation of TEM tests, writing is going to be the most important section with 25% occupation on marking and with the highly decision of passing TEM Tests. And writing section is the part to test the comprehensive abilities in language learning within language skills on grammar and vocabulary, and the thinking abilities on interpreting, analyzing, synthesizing and evaluating. The performance of writing in TEM Tests seems to be the section that reflects the English language efficiency of English major students.

Zhan (2013) illustrated that writing section in TEM tests is to test practical writing proficiency of students and based on her research, more than half of students who took TEM tests cannot acquire a pass score on writing section in result of lower performance on total scores. Tang (2020) analyzed the reasons on the



ineffectiveness of writing section in TEM tests and students do not have a clear understanding on how to compose a piece of writing with appropriate words, except weakness on grammatical structures. Other scholars also possess same opinions that writing section is always the key and difficult point in TEM tests. It is important for teachers to explore an effective way to improve writing proficiency of students as it is a difficult progress no matter on time consuming or extent on effectiveness (Li, 2016; Mao, 2017; Zhu, 2007)

From the testing format of writing in TEM Tests is to compose an argumentative or exposition piece with more frequencies on argumentative with presenting personal opinions with evidences proved. Students feel stressful in writing as this section is with limited time of 45 minutes and words requirements of no less than 250 in TEM 4 and no less than 300 in TEM 8. In this kind of testing environment, students meet problems on composing their writing. Huang (1998) claimed that English major students could not express themselves clearly when they are giving their own ideas on writing. It is a phenomenon of lacking of critical thinking skills and language skills as students could not construct their language and analyze and synthesize the previous knowledge that they have learned before. Writing is the most vital section in TEM Tests, without good performance on writing, good results on TEM Tests cannot be achieved.

### **The correlation between critical thinking skills and TEM Tests**

Critical thinking skills have been studied and discussed for decades in western countries. However, it has been attracted by Chinese scholars for a short time. From the beginning of 21<sup>st</sup> century, scholars in China did researches on critical thinking skills and its application on English language teaching and learning. A famous English language teaching researcher, Huang (1998) firstly illustrated the term of “critical thinking absence disease” after doing a critical thinking skills-based research to English major students in a Chinese university. Hence, cultivation on critical thinking skills has been paid more attention in the field of English language teaching in China and scholars began to research on critical thinking skills and its effects on English language teaching in the environment of Chinese universities. For example, scholars and researchers in China did researches on English major students

in college and found that English major students lack of critical thinking skills, compared with non-English major students as the curriculum and the syllabus are concentrated on the language skills training, the thinking abilities, including critical thinking skills have been ignored for a long time (Wen, 2003; Wen et al, 2009; Wen, 2010; Wen, 2012; Sun, 2010; Sun, 2011).

In addition, as researching on critical thinking skills has become a heated topic in the English language teaching in China and it is also attracted by Chinese government (PRC Education Ministry). The National English Curriculum Standard (2003) devotes to lead to one of the goals to cultivate thinking abilities, consisting of critical thinking skills, of college students, that they should have critical thinking skills on analyzing, interpreting, synthesizing and solving problems in English (PRC Education Ministry, 2010). The New National Syllabus for College English Majors (2000) which was issued by National Advisory Committee for Foreign Language Teaching (NACFLT) in 2000 put forward that teachers should pay attention to cultivate critical thinking skills to English major students. And the New National Syllabus for College English Majors (2000) also advocates training on skills of analyzing, interpreting, synthesizing and evaluating should be absorbed into English language teaching and curriculum designing.

TEM tests are considered as the high recognized English language proficiency tests for English major students, which is authorized by National Advisory Committee for Foreign Language Teaching (NACFLT), in Chinese universities. Compared with non-English major students with taking CET tests, TEM tests consist of a small number of test-takers. It does not, therefore, receive too much attention by both scholars and teachers. With the research on the correlation between critical thinking skills and TEM Tests, it is found that few researches and studies are carried out. Wen (2017) analyzed the format of TEM4 test, and demonstrated changes on curriculum designing, teaching model designing, classroom activities arrangement and creation on evaluation process could achieve to enhance English language skills and critical thinking skills. Li (2014) explored the application of critical thinking skills in TEM Testing by analyzing the new format of TEM Tests.

In the meantime, other scholars (Han, 2014; Wang, 2018; Ren, Han and Cui, 2015) analyzed the problems in writing section in TEM4 Test and by doing researches

on English major students in Chinese universities, it is found that cultivation on critical thinking skills could help students to enhance their English language skills. Shi (2017) did a research by analyzing the elements of critical thinking skills in TEM4 reading section by comparing with IELTS test and it is concluded that questions format in TEM Tests could utilize the question format in IELTS to testing the logical ability in testing in order to cultivate critical thinking skills of students.

It can be seen that critical thinking skills have an inseparable relationship with testing ability of students in TEM tests. However, due to the small number of English major students in Chinese universities, compared with non-English major students, few researched are conducted among English major students in the TEM testing environment (Luo & Nuangchalerm, 2022). A research, which is carried out to explore the effects on a critical thinking skills-based program to English major students, is significant in the field of English language teaching in China.

### **The relationship between writing and critical thinking skills**

Looking back the history of critical thinking skills and the relationship between writing and critical thinking skills, studies focus can be divided into several areas, 1) the researches on the definition of critical thinking skills, 2) the researches on the classification of critical thinking skills, 3) the researches on the measurement scale of critical thinking skills and 4) the researches on application of critical thinking skills to language acquisition (including writing proficiency). As far as the consideration on the relationship between writing and critical thinking skills, the researches and studies in western countries and in China are generally summarized.

Writing is a process of constructing, critical thinking skills run through the process of writing within seven links - conception design, topic building, conception selection, evidences choosing, overall arrangement, expression and revision. Moreover, as mentioned in the first of this chapter, critical thinking skills consist of six skills which are interpretation, evaluation, explanation, inference, self-regulation and analysis (Facione, 1992). With the analysis of the definition of critical thinking skills, the first skill of interpretation is important for English major students to analysis and understand what is going to test in writing and what they are going to write based on the previous knowledge. It is thought that writing is the basic skill of

language skills and acts as a crucial professional skill. Compared with other language skills, more abilities on evaluating, reevaluating, analyzing, synthesizing and explanation are needed in writing section.

Brown and Sorrell (1993) explored the methods on cultivating critical thinking skills writing among clinical students and developing their interests on writing clinical journals. Mehta and Al-Mahrouqi (2014) discovered, “facilitate learners’ use of critical thinking skills so that they may successfully incorporate them into their writing, both in an academic context and as a life-long skill.” moreover, other scholars also discussed the relationship between critical thinking skills and writing. Alqiawi & Ezzeldin (2015) “the critical thinking based teaching model has reached an acceptable level of validity and reliability and can be used to train university “students to write academic essays.” Otherwise, Shaw (2000) demonstrated that critical thinking skills of learners can be developed through the training of their writing. Al Sharadgah (2014) did a research on 98 male students in the writing class and measured students by critical thinking score rubric which developed by Facione & Facione (1994). The experimental group have a greater improvement on writing via Internet-based writing programme than control group.

With the consideration, scholars in the western countries began to research on critical thinking skills and its application on enhancing writing competency which is earlier than Chinese scholars in the 1990s, in the meantime, these studies discussed the relationship between critical thinking skills and writing and discovered cultivating critical thinking skills of learners could help both teachers and learners to teach and enhance writing competency in the context of western countries.

With the introduce of critical thinking skills by scholars in western countries, Chinese scholars tended to be attracted in this research area, and they elaborated the ideas as the follow. The application of critical thinking in the domestic higher education system, there are still vacancies, few college teachers will be the centre of the classroom to the students, most of the teachers explain the combination of class after practice, the general academic English writing has a fixed template, the students in the classroom is a passive receiver. Teachers tend to ignore the subjective feelings of students, students are the bearer of the model of teacher lectures, most teachers use the blackboard mode, the examination also used paper examination, the right to the

same thinking mode, the students are mainly listening and practice, the critical thinking of students in general academic English writing is repression (Mao, 2017).

It is clearly that both students and teachers lack of critical thinking skills, they are adjusted in the language learning and teaching atmosphere. In addition, other scholars, for instance, Sun (2011) stated writing is the core course of English major and it is the most effective course to cultivate critical thinking skills of students. In the meantime, Wang (2013) reported the opinions and attitudes of students are presented literally in writing section, it is the directive way to reflect the critical thinking ability of student. Dong and Yue (2015) expressed their findings with researching on 30 writing sample of English language test as critical thinking skills greatly influence the students English writing proficiency and it is vital important for teachers to cultivate critical thinking skills of students to improve their writing competency.

In the second phase, the skills of evaluation and explanation can be used in the section of writing. From the content and format of TEM tests, it is stated the writing section is the most challenge part for students in TEM Tests, how to analyse and synthesis the useful information of the topic and compose a passage in a limited time, the skills of critical thinking can be applied to improve writing performance of students. For example, Wang and Ran (2017) did a research on cultivation critical thinking in TEM writing course, they found students have problems on language usage and logicity of passage construction. To be specially, same opinions the author hold from the previous research. Firstly, language usage, the expression by using Chinese-English appear frequently in the writing as students do not have the ability to analyse what is native expression of English language, finishing the writing task is the predominant aim. In addition, students lack of logicity on passage construction. Argumentative writing is the main writing type for testing writing in TEM test, it is considered to present arguments, evaluate arguments and express own opinions on target topic are the main parts of constructing a passage. During the process of constructing a passage, the skills of critical thinking can play an important role to help students compose a passage. For example, students memorize some mode sentences before taking TEM tests, teachers, however, finding most passages contend with same type of sentences without personal independent thinking process, it is a

procedure of memorizing and copying. Enhancing critical thinking skills could assist English major students to improve their performance on writing.

From what has been discussed, a critical thinking skills-based program is significant to English major students in Chinese universities. With the analyzing to previous studies on the relationship between critical thinking skills and writing, it is founded that the relationship between critical thinking and writing competency have studied by Chinese scholars for decades, however the impact on critical thinking skills and writing competency to ethnic minority students has not been mentioned in China and there is no program based in critical thinking skills to enhance writing competency of ethnic minority students. By conducting this research to ethnic minority students, it is considered that some findings could fill in the research gap in the field of English language teaching in China.

### **Ethnic minority students in English language learning**

It is widely known that China consist of large numbers of population, 55 groups of ethnic minority live in China. Southwest China is considered as an area lived with the most ethnic minority groups comparing with other parts of China. For instance, Guizhou province consists of 17 ethnic minority groups, which is the place of conducting the research. The diversity of ethnic minority groups achieves different ethnic minority language and culture.

As ethnic minority groups are the important part of China population, studies on English language teaching to ethnic minority students in the tertiary level present the current situation of this groups of students. The researches on ethnic minority students and teaching programs can be divided into two groups of teaching to English majors and non-English majors, it is thought that more studies are on non-English majors as it consists of most students. For non-English majors, Duo (2014) claimed that the development of an appropriate teaching program for non-English major ethnic minority students should take the psychological guidance of students into consideration. Comparing with other groups of students, ethnic minority students may feel self-abased as they start to learn English late in middle school and their mother tongue has negative transfer to English language learning.

It is stated that education of ethnic minority students has its characteristics as the distinctiveness of them, the teaching model for ethnic minority students should be paid more attention (Peng, 2004). In addition, Wang (2016) illustrated the significance of English language teaching to ethnic minority students in Southwest China, improving and developing appropriate teaching models and teaching methods for this group of students is urgent as this group of students meet more language learning problems based on the language learning experience, comparing with other groups of students. Li (2006) also hold the same opinion that development a typical English language teaching model or program is difficult as ethnic minority students have more language learning problems. How to solve these language learning problems with appropriate teaching model or teaching program is a long-time task for scholars. From the points, it can be seen that the English language teaching to ethnic minority students met many problems, however, as appropriate teaching model or teaching program is urgent for language teaching in the tertiary level considering the importance of ethnic minority education.

Furthermore, for the English major students, Su (2021) stated that independent study should take into consideration when develop a teaching program for ethnic minority students. The time in class is limited, with independent study after class, for instance listen to VOA or BBC program or use videos to learning English language can be seen as a functional method to improve English language proficiency. Based on the development of technology, Ma (2014) demonstrated the usage of new techniques, for instance multi-media, apps on mobile phone, new techniques could attract students' attention and foster them to have self-study. However, considering the ethnic minority English major students' population is smaller than other groups of students, the researches on them are barely conducted.

From what has been discussed, studies on the language teaching to ethnic minority students have been paid more attention, however, an appropriate teaching program or teaching model has not been developed. As mentioned above, critical thinking skills can reflect the performance on writing of students. Thus, the study on developing a critical thinking skills-based program for ethnic minority English major students should continue to be paid more attention on.

As mentioned previously, China consists 55 ethnic minority groups and most ethnic minority groups reside in Southwest China. In the field of English language learning and teaching, English language learning and teaching problems of ethnic minority students have been attracted by language teachers and researchers. In addition, 11 universities for nationalities in China consist large number of ethnic minority students, including English majors. And it is considered that TEM tests are the national tests for all English majors in Chinese universities. Take the problems on English language learning and TEM tests testing of ethnic minority students, the target group of ethnic minority students perform difference with majority group of students (Han people).

Feng (2019) conducted a research among ethnic minority students in English major on TEM4 Test, it is found that ethnic minority students have lower performance on TEM4 Test with 37% below on national passing rate on average in TEM4 tests. And it is concluded the reasons as 1) the ethnic minority students and their parents do not pay attend to English language learning in result on low motivation on English language learning, 2) teachers do not give appropriate guide to students in English language learning, and 3) obsolete teaching methods and teaching model are applied into class by English language teachers. Shen & Chen (2017) also reported ethnic minority students in English major have lower passing rate, comparing the TEM4 national passing rate on average. Moreover, Luo, Peng & Lu (2001) stated that the arrangement of courses and curriculum settings are inappropriately with more courses on General Foundation Requisite. For instance, computer, Marxism and etc.

Ethnic minority students are a special group of students in Chinese universities. Due to the difference on languages, culture and regions, they meet more problems on English language learning comparing with majority students. TEM Tests is the national tests for all English majors in China, passing TEM tests become another puzzle for ethnic minority students. However, comparing with number of the majority students in Chinese universities, ethnic minority students only occupy 5.7%-5.9% of all students in Chinese university (National Bureau of Statistics). It is thought that ethnic minority students in English majors consist a smaller number in result of less studies and researches on ethnic minority students in English majors, including studies on TEM tests. Researching on TEM testing ability of ethnic minority students



in Chinese universities could help them to pass the tests and acquire the motivation on English language learning.

### **The significance and complexity of writing section in TEM tests**

TEM tests (consist TEM 4 and TEM 8) is the test for English major students in Chinese university and it is considered as the most difficult tests of English language tests which is authorized by National Advisory Committee for Foreign Language Teaching (NACFLT), in the meantime, it is the highest recognized English language proficiency tests for English major students in China. Moreover, TEM tests is the vital important tests to evaluate the English language proficiency in China, from what has been discussed, TEM tests plays as indispensable role in English majors.

With the consideration, writing is hardest section for English major students in China as the teachers, curriculum and syllabus designers concentrate on language skills training rather than fostering thinking ability. Excellent vocabulary can be achieved by students in composing passage, but lower performance on constructing a passage logically. Furthermore, the significance of teaching writing to English major students has been underestimated, more grammatical structures and vocabulary teaching experiences are carried out in English language teaching. More focus on language skills rather than thinking ability as mentioned, Wang (2016) claimed the status quo of writing to English majors should be changed. At last, 25% scores in Writing section is the highest scores occupation section in TEM test, involving at least 250 words argumentative writing with 40minutes completed. It is believed that more scores are achieved in writing section, easier for students to pass the tests.

From what has been mentioned, writing section is important in TEM tests and is significance for English major students as it is the highest scores occupation section. Comparing with other English language proficiency tests, the complexity of writing section in TEM tests is highly recognized. Firstly, the scale of marks consists of detailed marks explanation as Figure 2.

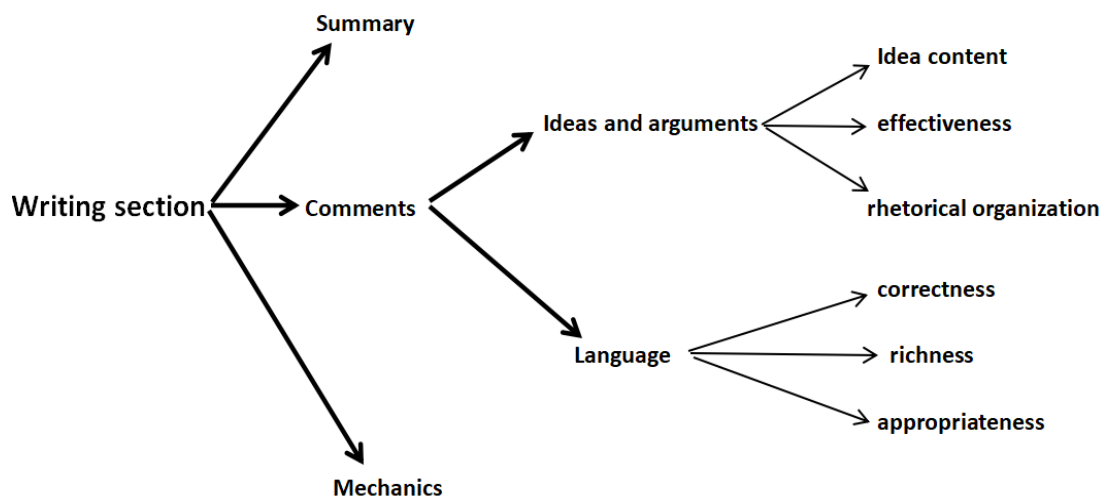


Figure 2 the complexity of writing section in TEM tests

Secondly, English major students have lower performance on writing as the teachers, curriculum and syllabus designers concentrate on training language skills rather than thinking ability, in result of learning habits on memorizing grammatical structures and vocabulary of English major students. How to construct a passage does not attract both teachers' and students' attention. Thus, more complex learning and teaching environment are exposed in writing class.

Lastly, it is thought that writing a product of language and thinking, and it needs a lot of time to accumulate and to practice. TEM 4 is on the 4th semester and TEM 8 is on the 8th semester, how to manage the leaning progress of writing is complex for both teachers and students as they have to spend more time on other subjects. It is considered that therefore a revised curriculum should be proposed at present to change the status quo.

The importance of critical thinking skills on enhancing writing competency, writing plays important role in English language acquisition, better performance on writing could assist students to achieve better English language proficiency. Facione & Facione (1994) explained the definition of critical thinking skills with cognitive skills and affective domain. It is thought that writing is a process of exploring thinking ability and language usage, critical thinking skills could help students to achieve better performance on writing. Pei et al. (2017) claimed that EFL

argumentative writing is not only an organizational process of words, phrases and sentences but also a complex process that involves grasping the topic, developing the statement, organizing a coherent discourse and putting ideas into writing. In addition, Qian (2018) explored the relationship between 80 junior English majors' EFL argumentative writing and CTS tested with the Watson-Glaser Critical Thinking Appraisal (WGCTA) and found they have significant correlation. In the meantime, Sun (2011) stated writing class is the best classroom to train and foster critical thinking skills, and the relationship between training on language skills and critical thinking is not contradicted.

From what has been discussed, it can be seen that cultivating critical thinking skills to students could help enhance writing competency as it is not only a process on organizing words and sentences, but also a progress of building logicity. The significance of developing critical thinking skills based programme in Southwest China. English language teaching is an important part of Chinese education system, it has fostered a large group of English talents and be functioned in different parts of the society. Students, from elementary schools to universities, have to study English in result of more 10 years English language learning experience. In addition, with the development of the globe economy and information exchange, the needs of English talents have been increased rapidly, in particular the English major teaching and learning in the tertiary level.

However, the shortage of English talents in China is evidently, especially in Southwest China, no matter in communicating or teaching. As this area consist of the largest ethnic minority groups in China, and they have their own language and culture. It is believed that these reasons may restrict their vision of learning English language. More importantly, enhancing writing competency of English major students is the prior task in teaching English language in China as writing is the most vital section in TEM tests and more problems on writing would be met by students as they lack of critical thinking skills within the abilities on analyzing, problem-solving and evaluating. Moreover, ethnic minority students meet more problems on writing in English as they have different language and culture comparing with other Chinese students. Therefore, it is urgently and significant to develop an appropriate teaching

program for ethnic minority students in order to enhance their writing competency based on critical thinking skills.

The critical thinking skills-based program is based on the framework of Facione's critical thinking model (Facione, 1992) as he argued critical thinking skills consist of six skills which are interpretation, evaluation, explanation, inference, self-regulation and analysis. By analyzing the background information of participants in the research, six skills of critical thinking which were claimed by (Facione, 1992) are applied into program designing for classroom activities in order to potentially cultivate critical thinking skills of participants. The classroom activities designing is in the following of program developing. However, this designed program is to enhance writing competency in TEM Tests to ethnic minority students, cultivating on critical thinking skills will be potentially conducted by classroom activities. The program is not to directly foster the critical thinking skills to participants. Moreover, participants will have CCTDI (California critical thinking disposition inventory) Chinese version before teaching experiment to see their critical thinking skills. Ultimately, the TEM Tests writing competency is enhanced under the potentially cultivation of critical thinking skills.

The characteristics of ethnic minority students in Southwest China, with the progress of revolution of higher Education in China, more and more students have chances to enter universities to accept high education, in result of more ethnic minority students acquire the opportunities to enter universities. Southwest China consists a large number of ethnic minority groups. students in southwest China, especially ethnic minority students, in general, have lower performance on English language as the educational environment from elementary to senior schools is lagged behind compared with developed areas in China. In addition, most ethnic students in Southwest China have their own language and start to learn English language at a late stage compare with other students in China. As a consequence, ethnic minority students would suffer more language learning problems than Han group students (majority group) as they have weak basis on English language, no matter on writing or listening.

In addition, due to the educational environment in Southwest China, most students in the ethnic minority areas begin to learn English from senior high school,

and the English language proficiency of English language teachers also meet problems. Consequently, students cannot apply or use the language appropriately, Chinglish can be easily found in the writing composition. Moreover, ethnic minority students have their own language, it is thought that negative transfer on mother tongue exist in language acquisition among these groups of students. With the consideration of culture and thinking difference, ethnic minority students have habitual thinking on their own culture. Cross-cultural communication, therefore, becomes as the weakest part for ethnic minority students to enhance their writing ability as they do not understand the difference between English language and their mother tongue. For writing section of Ethnic minority students, scholars discovered and summarized the characteristics as following: a. weak basis on English language, b. the interference on ethnic minority language, culture and thinking difference (Niu, 2012; Chen, 2003).

This chapter presents the critical thinking skills-based programme on writing for ethnic minority students which is used and applied as the main research instrument in the authentic teaching experiment. The background information, objective, Educational theories and structures of the programme, teaching components of the programme are displayed in the following part with the evaluation of experienced teachers and its evaluation result is showed based on the feedback of experienced teachers. The critical thinking skills-based programme on writing for ethnic minority students is designed to enhance writing competency in TEM Tests to ethnic minority students and training them with excellent writing skill and cultivating them with ability of independent study in order to foster high-quality language talents.

With presenting the main objectives of the programme, more sub-objectives are as following :

- a. Stimulate students' interests in discovering and solving problems.
- b. More detailed abilities of students are analyzing questions, discussing personal opinions in group, evaluating relevant evidences, searching for solution and forming convincing ideas.
- c. Language skills: students master writing skills with critical thinking skills.

d. Critical thinking skills: through student-centred activities, cultivating students' ability on critical thinking skills in order to enhancing writing competency of ethnic minority students.

By designing the programme, several dimensions have to be taken into consideration: the background information, the educational theories, the structure of the programme and the evaluation of the programme, which make the designed programme more effective. The designing procedure is presenting in the following part.

The study on critical thinking skills in western countries has been researched for many years and it already formed a good foundation on critical thinking skills in education system. However, critical thinking skills have been attracted Chinese scholars for several decades. Compared with western countries, the relevant study on critical thinking skills have been started late and most scholars studied on its surface. Moreover, Ethnic minority student is a group of students with different language and culture background, they may not only have problems on critical thinking skills, but also the problems on language usage. It is difficult to help them improve their writing competency compared with other group of students.

Wen (2010), Huang (1998) and Sun (2011) did empirical study on critical thinking skills to English major students, and defined current situation on critical thinking skills of Chinese college students. By analyzing these empirical studies, it can be seen that traditional teaching methods play the dominant role in English language teaching in China and it limits the cultivation of critical thinking skills of Chinese students and teachers.

In addition, with the thinking of the basic information of critical thinking skills and writing proficiency among English major students in Southwest China, National Curriculum should be the fundamental of the new designed curriculum. The followings are the primary information. Based on the core curriculum of English majors in China, the objective of the core curriculum is to have solid foundation of English language and could apply their language knowledge in the field of translation, education, management and research in order to be inter-disciplinary talent. It is believed that the type of national curriculum is subject-centred and teacher-centred approaches.

a. Writing is an important course for English majors, and the critical thinking skills-based program on writing is intended to cultivate and improve ethnic minority students critical thinking skills and writing competency in TEM Tests.

b. More importantly, the students that in this program are in the second year and third year of college. It is believed that critical thinking skills needs to enhance within this group of students, thus, the type of this program is student-centred curriculum.

c. Under considering the type of this program, the resources which consist in this program are using online and textbook resources.

d. As this program focuses on critical thinking skills and writing competency in TEM Tests, students-centred activities will be carried out to cultivate thinking abilities to solve questions in learning English.

e. Role of teachers: in this program, it aims to require teachers with a good understanding on critical thinking skills as teachers are going to design classroom activities for sample students. with considering the objectives of this program, teachers need to achieve their ability on developing well-designing writing activities and discover students' interests on writing in order to achieve abilities on discover problems in writing activities and solve problems with group discussion or peer debate.

### **Theoretical framework**

Theoretical Framework is considered as the most significant part of curriculum design with the application on educational theories and linguist theories based on the experimental analysis of target group of students. Furthermore, when developing the critical thinking skills-based program, the educational theories that applied into the program are about the critical thinking skills, students abilities on learning language and program development.

Hilda Taba model (Taba, 1966) presented the steps of developing the curriculum, and this model is applied in the Critical thinking skills-based programme on writing for ethnic minority students as the fundamental basis on programme design. The programme aims cultivating critical thinking skills of ethnic minority students in order to enhance writing competency in TEM tests (Figure 3).

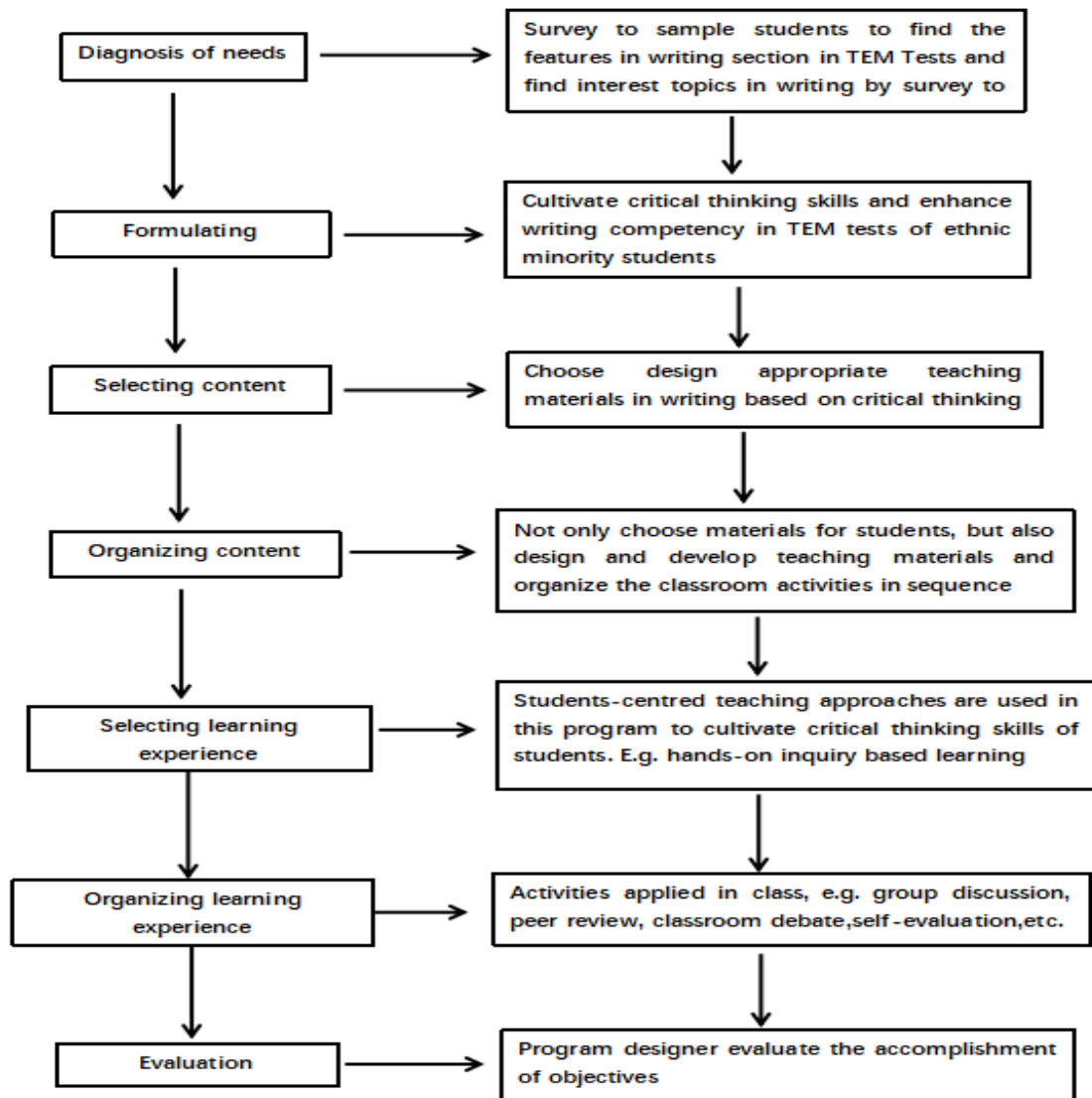


Figure 3 Basic structure of the program based on Taba model (1966)

By developing the programme, discovery learning theory, self-determination theory, information process learning theory and theory of inquiry will be applied in the activities designing and students' development. The following is the theoretical framework of implementation of the programme as shown in Figure 4.



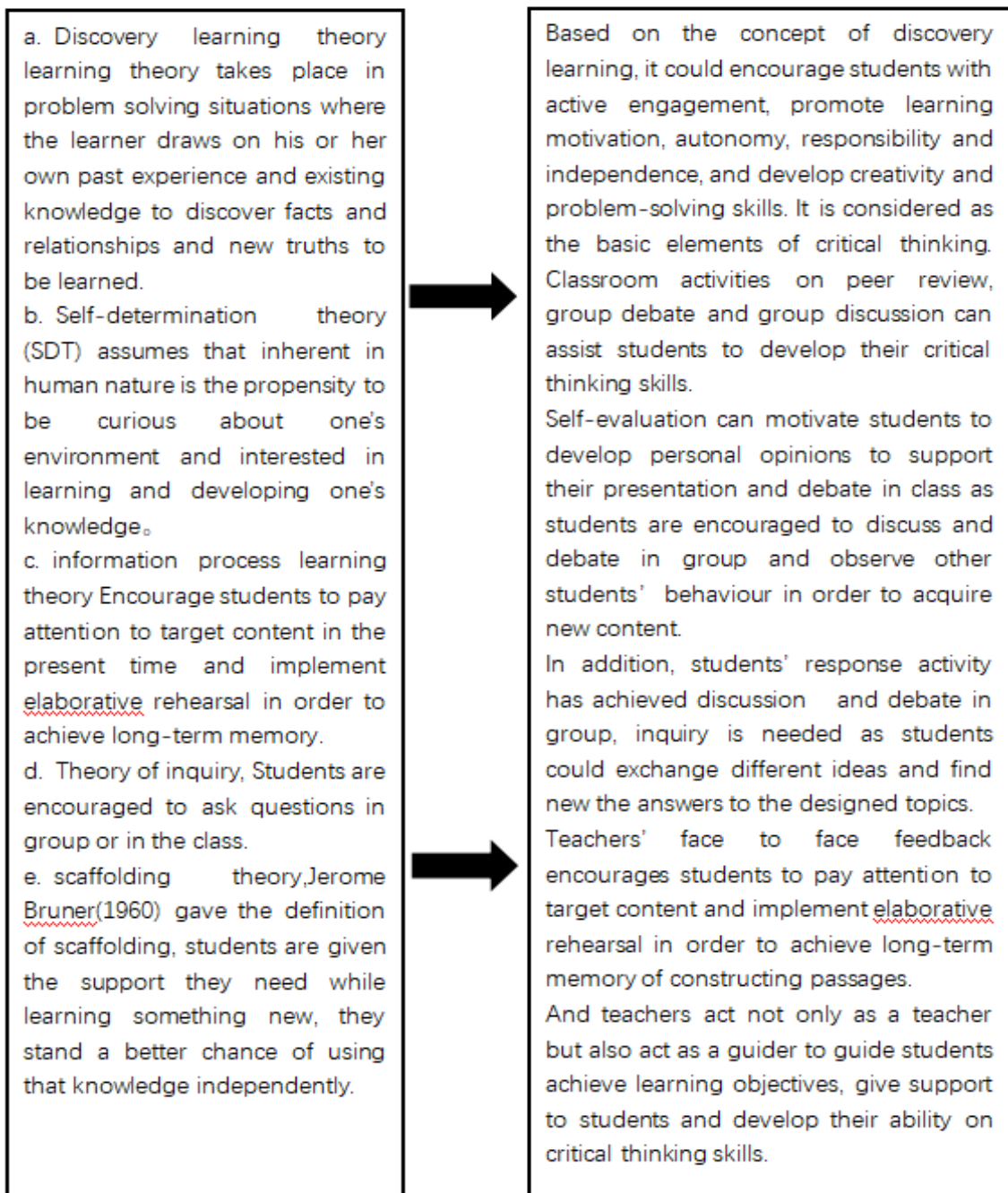


Figure 4 The classroom activities and educational theories input

### **Discovery learning theory**

The Discovery learning theory (Bruner, 1961) is an inquiry-based, constructivist learning theory that takes place in problem solving situations where the learner draws on his or her own past experience and existing knowledge to discover

facts and relationships and new truths to be learned. In addition, he eventually stated that consequently, students may be more likely to remember concepts and knowledge discovered on their own (in contrast to a transmissionist model). Based on the concept of discovery learning, it could encourage students with active engagement, promote learning motivation, autonomy, responsibility and independence, and develop creativity and problem-solving skills. It is considered as the basic elements of critical thinking skills. Classroom activities on peer review, group debate and group discussion can assist students to develop their critical thinking skills.

Taking the peer review as an example, a Chinese mobile phone App (Yum Ban ke) is used as the peer review instrument to evaluate the sentences constructing in the English writing class for English major students in a university. The following is the example in Figure 5.



Figure 5 The presentation of peer review by a Chinese App

The Chinese which is circled by red is the presentation of peer review among English major students in the experimental group. It is imperative to find out that peer review is considered as a effective way for students to evaluate both their classmates and himself in order to achieve the ability by discovering knowledge by the themselves. As a consequence, students can easily figure out the problems or the mistakes that they made in their assignment. In addition, self-evaluation can motivate students to develop personal opinions to support their presentation and debate in class as students are encouraged to discuss and debate in group and observe other students' behavior in order to acquire new content.

Moreover, teachers can be the examiner to identify the problems or the mistakes that are made by students with the teacher-evaluation after peer review to examine what extent the students acquire the learned knowledge.

### **Information process learning theory and theory of inquiry**

Atkinson and Shrifin (1968) presented the stage of information processing with the model by explaining how it receives input, processes, and delivers output. Information gathered from the senses (input), is stored and processed by the brain, and finally brings about a behavioral response (output).

With the usage of information process learning theory, it is considered as the most important educational theory to encourage students to pay attention to target content in the present time and implement elaborative rehearsal in order to achieve long-term memory.

Based on the learning pattern designed by Gagne (1985), the detailed lesson plan for the writing class is presented in the following with the full implementation steps included motivation, the understand stage, won the stage, keep the stage, recall stage, summary, operation stage and the feedback stage (Figure 6 and 7).

1.presentation part	20mins	<u>ss-centered</u> : communicative language teaching; <u>ss</u> are required to share the current news which may involve science technology sports and so on, to share the key words and some basic news structures within class, the content must be neutral.
2.part I: cohesive words teaching part	45mins	There are two parts to this part. Teacher may ask <u>ss</u> to work in pairs for the first part and fill in the function column of the table. Then teacher can ask <u>ss</u> to look at the sentences beneath individually, locate the conjunctions, and add it to the table, <u>ss</u> should check their answers with their partners.
3. part II: cohesive words in -class activity	15min	Make <u>ss</u> to work in pairs to check their in -class activity which is based on the topic: cohesive words; teacher will apply some of the exercise to enhance their ability of applying those conjunctions words
4.part III: brief introduction of Unit2 process of writing	10mins	Teacher will introduce to <u>ss</u> the process approach to writing, and teacher will help <u>ss</u> analyze the sample writing in the page 18, ask <u>ss</u> to finish the task in class and check the answers together.

Figure 6 A lesson plan example for one hour class

<p><b>Assignment:</b></p> <ol style="list-style-type: none"> <li>1、 review key words and phrases in this class,</li> <li>2、 finish and perfect the task in page 20</li> <li>3、 finish the exercise on cohesive words</li> <li>4、 preview the rest part of unit 2</li> </ol>
---

Figure 7 Assignments for the example lesson

In addition, with the application on the Theory of inquiry, students are spontaneously motivated to participated in the classroom activities by asking questions in pairs or groups, even with the teacher, in order to discover the knowledge points by themselves. The teacher is acted as a guide or an evaluator examine the learning process of students rather than giving answers or knowledge points to the experimental students directly. The presentation of the classroom activities is shown in the Figure 8.



Figure 8 Group discussion

From what has been discussed above, students' response activity has achieved discussion and debate in group, inquiry is needed as students could exchange different ideas and find new the answers to the designed topics. Teachers' face to face feedback encourages students to pay attention to target content and implement elaborative rehearsal in order to achieve long-term memory of constructing passages. (Kulachit & Nuangchalem, 2021a; Kulachit & Nuangchalem, 2021b)

It can be seen that the process of learning achieves experimental students to have a motivation on learning, through the designed activities in class, long-term memory is achieved in the process of learning.

### The elements of the critical thinking skills-based programme on writing for ethnic minority students

Taking the core curriculum of English majors in the experimental university into consideration, 64 hours teaching with the designed programme is going to conduct with a group of 40 English major students in the teaching experiment within 16 weeks. Based on the teaching aims of the designed programme, students are required to participate in every class and designed activities, in particular the pair work, group discussion, peer review and so on, for the purposes to cultivate critical thinking skills of students.

Moreover, students in the teaching experiment are also required to accomplish writing tasks and the reflective journal bi-weekly in order to examine the improvement of writing proficiency under the application on the designed programme.

During the 16 weeks teaching, the textbook *College English Creative Writing for Academic Purposes* is used as the teaching material in this designed programme for giving students a clear understanding of academic writing composition, the contents of the textbook is as in Figure 9.

Table of Contents				UNIT	LOOKING AT TEXTS	LANGUAGE SKILLS	CREATIVITY
1	Principles of Academic Writing Pages 9-17	Structure of academic writing Language of academic writing Cohesion in academic writing	Expressing cohesion in academic writing	9	Writing Abstracts Pages 72-77	Importance of abstracts Information in an abstract Language of abstracts	Writing an abstract
2	The Process of Writing Pages 18-24	Analyzing the topic question Planning your writing	Creating a plan	10	Reporting and Discussing Data Pages 78-84	Language of proportion and approximation Quantifiers Word collocations	Explaining data
3	Locating Information Pages 25-31	Preview Overview Study Review	Evaluating information	11	Academic Vocabulary Pages 85-91	Using key words Words surrounding key words	Vocabulary in use
4	Using Information in Academic Writing Pages 32-39	Summarizing Paraphrasing Quoting Writing references Compiling a references section	Summarizing	12	Writing Reports Pages 92-100	The findings or results section of a report Describing and interpreting data	Describing and interpreting data
5	Writing Comparison and Contrast Texts Pages 40-46	Patterns of comparison and contrast texts Contrast clauses Conjunctions	Writing using comparison and contrast patterns	13	Writing Speeches Pages 101-108	Language of speeches Using metaphors Using prepositions	Writing a speech
6	Writing Problem-Solution Texts Pages 47-55	Organizing a problem-solution text Sequencing ideas Identifying cause-and-effect sequences Cause-and-effect sentences	Providing solutions	14	Writing Research Proposals Pages 109-115	Understanding the parts of a research proposal Vocabulary	Writing a research proposal
7	Writing Argumentative Texts Pages 56-64	Writing balanced arguments Synthesizing information Expressing advantages and disadvantages	Writing a balanced argument	15	Writing Emails Pages 116-122	Informal emails Formal emails Relative clauses	Writing a formal email
8	Writing Analytical Texts Pages 65-71	Understanding plagiarism Identifying sources Vocabulary	Writing an essay about plagiarism	16	Designing Questionnaires Pages 123-131	Question types Writing questions Other ways of gathering information	Creating a questionnaire

Figure 9 Contents of the selected textbook

Unit one, Unit two, Unit Five, Unit Six, Unit Seven and Unit Eleven are selected to be the taught units in the 16 weeks teaching. Except using the selected textbook, other technological facilities will also be used in the teaching process, for instance, the multimedia equipment and online APP.

In addition, by giving lessons to the experimental students, activities and assignments are the significant way to evaluate the improvement of writing proficiency and critical thinking skills. Bi-weekly writing task will be presented in hand writing form or online writing form by giving TEM Test writing topics, peer review is acted as the most crucial means to evaluate both English writing proficiency and critical thinking skill, the teacher is treated as the guider or process examiner to give feedback after peer review for providing suggestions on both evaluators and writers.

#### **Teaching methods used in the critical thinking skills-based programme on writing for ethnic minority students**

Based on the analysis of the experimental students and the objectives of the designed programme, it is considered TBLT (task-based language teaching), CLT (communicative language teaching) and inquiry-based method are applied in this designed programme to cultivate critical thinking skills of experimental students in result of improving English writing ability for participating in TEM test. In addition, all the classroom activities are based on the application on the three teaching methods.

Taking one English writing lesson as an example to identify the feature in teaching English writing to the experimental students, the sequence is as in Figure 10.

1. presentation part	20mins	<u>ss-centered</u> ; CLT, TBLT; <u>ss</u> are required to share the current news which may involve science technology sports and so on, to share the key words and some basic news structures within class, the content must be neutral.
2. part I: improving your understanding	35mins	Write the title and first sentence of each text on the board and ask <u>ss</u> to say what points they expect to see from the different types of <u>argumentations</u> about the topic, ask them to summarize the main types, and give definition on their own. And ask them try to imitate and give their own examples in class.
3. part II: developing your skills: writing balanced arguments and in-class activity	45mins	[Teacher will do a quick revision with <u>ss</u> on the structure of a paragraph –topic sentence followed by an elaborated of main idea and then an example. Then get <u>ss</u> to attempt the task in pairs, to produce the third paragraph, ask <u>ss</u> to check the pros and cons.

Figure 10 Sequence of the example lesson

In the first part of the class, students are required to share a current news about the target topic which is related to the teaching materials. It is considered as an opportunity for students to analyze the key information about the target topic and synthesize the useful message for books or internet. And finally express themselves with appropriate language. In this phase, CLT and TBLT are used to give the experimental students more room to conduct independent study with cultivation on critical thinking skills.

In the second part of the class, the inquiry-based method is applied to investigate the understanding of different types of argumentation. Within designing group discussion on the questions, the experimental students are asked to discuss the main types of argumentation in group and give their understanding in class. In group discussion, students have more chances to express their ideas with defending with each other, critical thinking skills are considered to be cultivated in the second phase.



In the last part of the class, pair work is the main teaching strategy which is conducted to improve the collaborative ability within the experimental students. By discovering and producing their own thoughts, English writing skill is improved to some extent with the cultivation on critical thinking skills. Moreover, in the last phase of teaching how to write an argumentation to the experimental students, feedback from the teacher is as well important to other designed activities in class. With the feedback from the teacher, students would have a quick revision on their writing and revise it with the consideration on the fulfillment of classroom activities (Figure 11).



Figure 11 Sequence of the example lesson

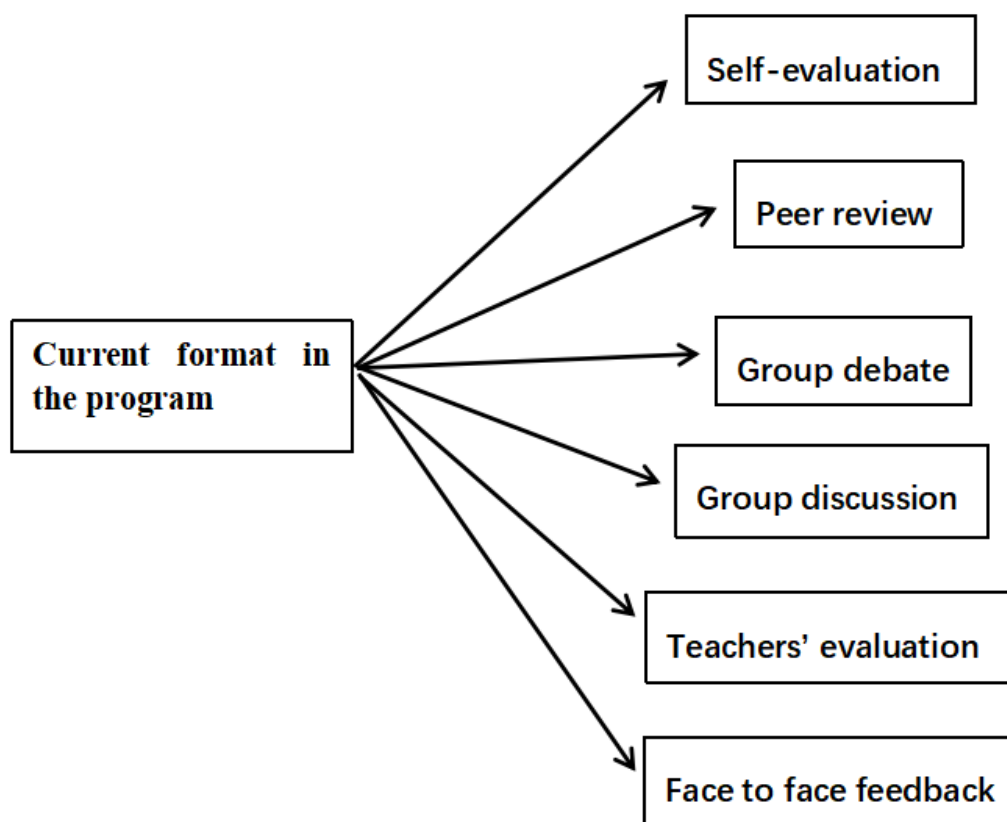


Figure 12 Designed activities of the example lesson

From the figure of the arrangement of the example lesson, it is believed that both critical thinking skills and English writing skill are cultivated. In addition, the combination of independent learning and cooperative learning is conducive to stimulating students' speculative potential from multiple angles all directions. By conducting the designed activities in the English writing class, the experimental students have more time and opportunities for independent thinking, independent judgment, self-assessment, self-regulation, and self-correction.

#### **Evaluation of the TSRS CALL programme**

Taking the core curriculum of the experimental university into account, the teaching experiment of the critical thinking skills-based programme on writing for ethnic minority students is conducted in 16 weeks with two hours per week. 32hours English writing teaching is embodied in the designed programme to improve English

writing skill of ethnic minority students based on the cultivation of critical thinking skills.

The Critical thinking skills-based programme on writing for ethnic minority students is designed to improve ethnic minority students who are majored in English based on the cultivation of critical thinking skills.

The programme is designed under the thinking of the reformation of the traditional English writing course to ethnic minority students majored in English. With the construction of the programme, Outline of National Medium and Long-term Education Reform and Development programme (2010-2020), National Standards of Teaching Quality for Undergraduate English Majors (2016) and the core curriculum of the experimental university are the main consideration of programme when was designing the programme. both Outline of National Medium and Long-term Education Reform and Development programme (2010-2020) and National Standards of Teaching Quality for Undergraduate English Majors (2016) state the importance of English and the cultivation on critical thinking skills.

By considering the main thoughts of constructing the designed programme, experts in the experimental university were invited to evaluate the programme by conducting experts evaluation form (see appendix). The experienced teachers who has taught English courses, including English writing, English academic writing and other English major courses gave feedback on the programme on both the programme construction and the authentic teaching experiment, they were invited to participate in the phase of curriculum implementation for at least 6 hours. In addition, 21 closed-ended evaluation statements rating scale of 1 to 5 points (1 is the lowest and 5 is the highest point) were consisted in the experts evaluation form. The experts evaluated the programme both in the designed phase and the authentic teaching experiment phase with giving expertise suggestions based on the observation on the designed programme. Moreover, the evaluation form was categorized into four categories within(1)the programme object (2) the teaching contents; (3) the teaching organization; (4)the teaching pedagogy and methods ; (5) the overall effects of the designed programme; (6) the meaning of curriculum development. Each categories were contained with sub statements to investigate the thoughts of experts in considering the effectiveness of this Critical thinking skills-based programme on

writing for ethnic minority students. Besides, in order to have an effective and sufficient overall evaluation of the designed programme, one open-ended question was designed to give experts more room to express more free suggestions and comments on the designed programme.



## CHAPTER III

### RESEARCH METHODOLOGY

It is considered that large numbers of scholars and teachers are exploring the appropriate programmes of English language teaching for the enhancement of the English proficiency of Chinese students in the tertiary level. Evidences from the literature suggests that critical thinking skills plays as a dominate role in the field of education and affects the language teaching. TEM tests is the high recognized test for English majors in China and writing section is the most difficult part in TEM Tests. Through conducting a research on developing a critical thinking skills-based programme for enhancing writing competency in TEM tests to ethnic minority students in Southwest China and it is aimed to develop an appropriate teaching programme for ethnic minority students in Southwest China. The research procedure is as the Figure 13.

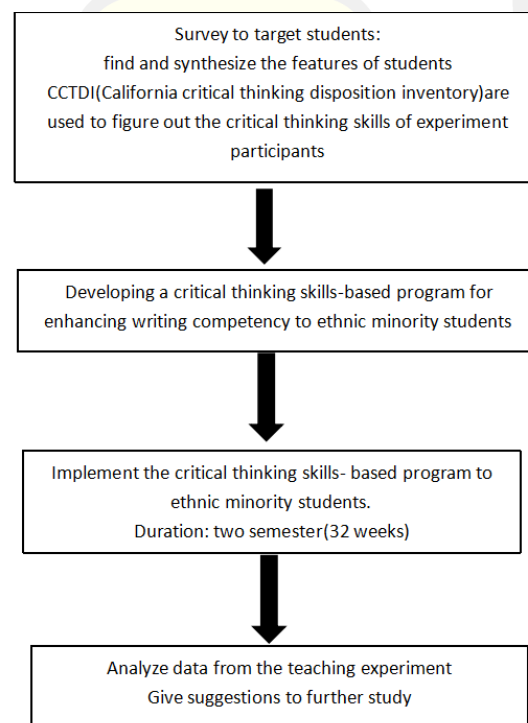


Figure 13 The research procedure

In the first step, the research instruments of the research have been presented as a survey, interviews, a teaching experiment, pretests and posttests and CCTDI (California critical thinking disposition inventory) and students reflection. With the research instruments, a mixed-method research will be conducted. Dörnyei (2007) stated that, 'mixed methods research has a unique potential to produce evidence for the validity of research outcomes through the convergence and corroboration of the findings.' Taking the suggestions from the literature into consideration, a mixed-research method is employed in this research with several research instruments.

In addition, Dörnyei (2007) stated, 'mixed methods research involves different combinations of qualitative and quantitative research either as the data collection or as the analysis levels.' This research is considered as a mixed methods research as it collected both quantitative and qualitative data.

### **Research design**

A mixed-method research is carried out for exploring and seeing whether the critical thinking skills-based programme is significant to enhance writing competency in TEM tests to ethnic minority students in Southwest China. In research design, a survey to ethnic minority students will be carried out to find and synthesis the features, including the baseline of their critical thinking ability and problems on writing competency in TEM tests. CCTDI (California critical thinking disposition inventory) Chinese version is used for finding the baseline of critical thinking skills to participates in order to help the author design the critical thinking skills-based programme, in particular the classroom activities designing. Moreover, a teaching experiment which is lasted for 32 weeks, is conducted in this research but following the designed critical thinking skills based programme and a group of ethnic minority students in fourth year, who will take part in TEM 4 test, participate in this research. The research is concentrated on the teaching experiment, it is thought that a mixed-method research is conducted in the research to investigate and evaluate the effectiveness of this critical thinking skills based-programme for enhancing writing competency in TEM Tests to ethnic minority students.

The course "English writing" is the compulsory and fundamental literacy course to English majors in Chinese universities (National Standards of Teaching

Quality for Undergraduate English Majors 2016). The participants who enroll in the English writing course in the research will be selected. And the experiment group will be selected from English majors in a university in southwest China and the target group of ethnic minority students in fourth year of English majors will be selected as participants as they are preparing to have TEM8 test in the following semester.

In addition, purposive sampling method is used to select the participants from the group of ethnic minority students in English majors, with ethnic minority as the selection criteria. By conducting the research, participants in the teaching experiment are asked to complete the CCTDI (California critical thinking disposition inventory) Chinese version to evaluate the level of critical thinking skills. In the meanwhile, the participants are required to complete TEM8 writing topics-based augmentative essay of no less than 300 bi-weekly and they also required to write personal reflective journal weekly to present the learning process, feedback and comments on their writing in order to investigate the views and points from the participants.

The designed Questionnaires are used to investigate the feature of the participants on the thoughts on the critical thinking skills and the English writing competency in TEM tests in the first phase and in order to evaluate the level of critical thinking skills and the English writing competency of the participants, CCTDI (Chinese Version) are adapted to conduct in the meantime. The final Tests in the course are carried out in the writing section in TEM4 test in the following semester and it is considered as the final test to evaluate both the participants' performance on writing section and the effects of this critical thinking skills based programme. In addition, formative tests for English writing course will be conducted and carried out four weeks respectively to evaluate the periodical effects of the critical thinking skills-based programme and the performance of participants on English writing on selected TEM4 topics. Both summative and formative assessments are concentrated on the effects of the critical thinking skills-based programme and the performance of participants on English writing course (Figure 14).

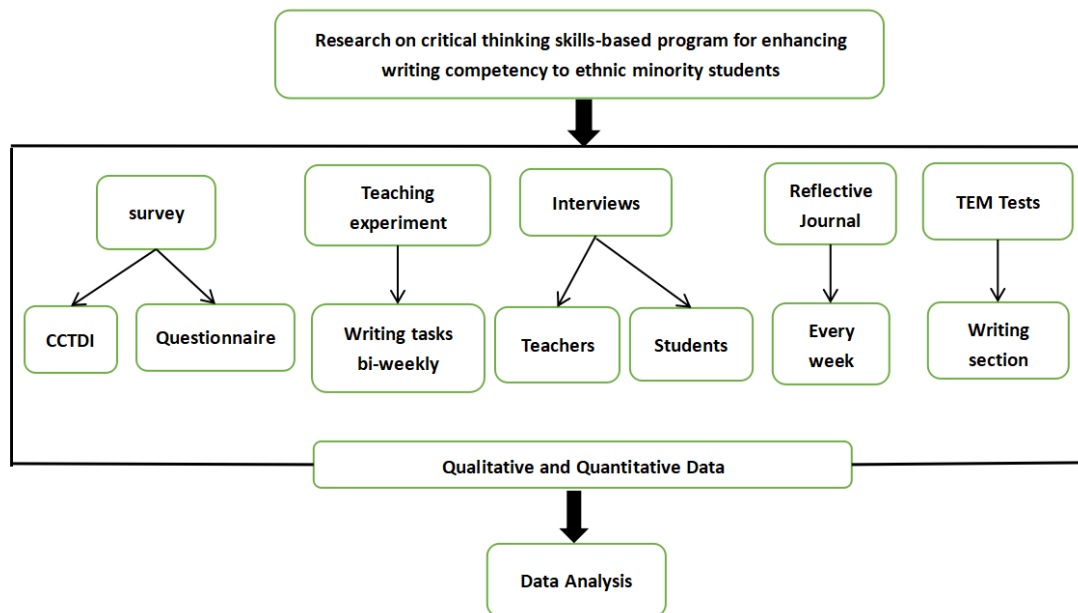


Figure 14 Steps of research design

By investigating on the perceptions of participants in the teaching experiment and experienced teachers who are invited to evaluate the critical thinking skills-based programme, interviews are carried out in the research. For the purpose, 10 participants in the experimental group are randomly selected on the students list and 5 experienced teachers are invited to evaluate the course and participant in the teachers' interview. Interviews of both the participants and the experienced teachers in the following to give further data collection to measure the effects of this critical thinking skills-based programme (Table 4).





Table 4 Research steps

Step	Research Point	Research Method	Instrument	Sample	Analyzing Method
1	Find and synthesis the features of participants	Quantitative	Survey-Questionnaire	40 ethnic minority English major students	SPSS
2	To investigate the level of critical thinking skills on participants and to assist researcher to explore and evaluate the baseline of participants on critical thinking skills	Quantitative	Disposition Inventory	40 ethnic minority English major students	Disposition Inventory
3	Teaching experiment	Qualitative	Writing tasks	40 ethnic minority English major students	Text analysis
4	Investigate teachers' and participants' attitudes, possible preferences, their expectations and suggestions of the classroom teaching and the critical thinking skills-based program.	Qualitative	interviews	5 experienced teachers 10 randomly selected participants	Transcript analysis
5	Realizing the real thoughts of participants and situation in the teaching experiment	Qualitative	Reflective Journal	40 ethnic minority English major students	Text analysis
6	The scores of the Test will be the measurement to measure the improvement and enhancement of the experiment group of participants	Qualitative	Test(TEM8)	40 ethnic minority English major students	Score analysis

### Participants

According to the definition of population in statistics and the purpose of the research, it is thought that the population of this research is with large group of ethnic minority students in Southwest China. Considering the large numbers of students, purposive sampling method is conducted in the research for choosing sample. Based on the teaching and researching experience of the author, the sample of the research come from a group of ethnic minority students who are majored in English major in a university in Southwest China. The sample size of the research is about 40 students. In addition, five English teachers who have been teaching in English language in the department also be the participants for interview.

### Research instruments

Throughout the research, the researcher uses five research instruments to collect data in order to answer the questions.

1) Survey, survey in this research will be conducted twice with the research instruments of the CCTDI and the designed questionnaire. Both the CCTDI and the designed questionnaire will be conducted before the teaching experiment to the experimental group of participants to find the features of them, especially the

learning problems on writing in TEM Tests, their expectation on TEM tests and the critical thinking skills of the participants.

In addition, the CDTTI (Chinese version) is used to investigate the level of critical thinking skills on participants and to assist the researcher to explore and evaluate the baseline of the participants on critical thinking skills. With the results of CCTDI, the level of critical thinking skills of the participants could be easily found out based on the performance on the CCTDI.

The CCTDI (California Critical Thinking Disposition Inventory) was originally developed by Facione (1992). With the understanding and researching on it, Peng (2004) of Hong Kong Polytechnic University localized the interpretation and translated the CCTDI into Chinese and developed a revised measurement- CTDI-CV (Chinese version), which is widely used in China now.

In the field of researching on the critical thinking skills, the CCTDI is one of the measurement to investigate the critical thinking skills of the research subjects, other measurement, for instance the WGCTI. The reason for selecting the CCTDI is that its reliability and validity is with good status and the CCTDI was translated into Chinese with a great usage among Chinese scholars. More importantly, the CTDI-CV was conducted in the research with a reason is the CTDI-CV added Contextualization description in 16 items or using more Chinese context to explain it could also truly reflect the critical thinking skills of Chinese students.

The CCTDI is designed to measure the emotional tendencies of the study subjects as a format of a questionnaire from seven sub-scales. The measurement on the emotional tendencies of the study subjects includes 1) Truth Seeking (with daring to ask questions or having a desire to explore the truth), 2) Open-mindedness (with the tolerance, the understanding, and the respect for the different views from other people), 3) Analyticity (with the ability to cleverly find solutions to whatever the problem and having foreseen thoughts or behavior potential problems to obtain possible results and consequences), 4) Systematicity (with the ability on organizing, the concentrating on and seriously seeking relevant information to solve the problem), 5) Self-confidence (having self-solving confidence and believing other people having confidence in believing oneself), 6) Inquisitiveness (having a wide range of curiosity), 7) Maturity (with fair, accurate, and serious decision, evaluation or reasoning ability).

A total of 70 items were conducted in the CCTDI to investigate the critical thinking skill of the students. The results are divided into six levels within “Strongly Agree, Quite Agree, Agree, Moderate, Quite disagree and Strongly Disagree with 1 to 6 points. According to the original score conversion, 60 points for each aspect within total scores of 420 points, it is commonly believed that a higher score within 350 or higher than 350 points indicates a stronger critical thinking tendency, scores lowered than 210 showed the weakness in critical thinking disposition and scores between 210 to 280 means an ambivalent scope in critical thinking skills. Within every sub-scale of the CCTDI, the questions were divided into 7 categories with 70 questions. Questions 1-10 is related to the Truth Seeking, 11-20 is to Open-Mindedness and with the sequence to the 70 items. In the scoring of each categories, acquiring between 10 to 30 points indicates a poor tendency with critical thinking skills, those participants scoring between 30 to 40 points reveals an ambivalent tendency and scoring 40 to 60 points means a strong tendency with critical thinking skills.

In the second research step, a questionnaire is designed for participants to investigate their features on the English writing performance on TEM writing topics and their difficulties in the writing section of TEM tests. In the following phase, the interviews to both the experienced teachers and the randomly selected participants will be conducted after the teaching experiment by exploring the opinions and views of participants and discuss the improvement that they have achieved during the experimental period. The interviews are carried out in this step to explore the opinions and evaluation from both participants and experienced teachers on the critical thinking skills-based programme and investigate how the effects of this programme for improving writing competency of participants. The data of the survey could give a clear information of the improvement of students and meet the aim of the research to enhance TEM tests competency. Moreover, the evaluation from the experienced teachers could give more details and suggestions on programme developing and the instructor’s performance in the teaching experiment.

2) Test, TEM tests are considered as the most vital language proficiency tests for English major students in China (NACFLT, 2004a, 2004b) and are thought as the high recognized English language proficiency tests consists of testing listening, reading, translation, writing, grammar and vocabulary within a limited time as TEM

tests is considered as one of the variables in the research, the scores of the Test will be the measurement to measure the improvement and enhancement of the experiment group of participants. Considering the distinctiveness of TEM4 with two chances only in the fourth year, and the research will last one semester-long to evaluate the performance of the target participants. First test is with second year students for TEM4 and it will be carried out in the next semester of the research.

3) Teaching experiment, this research is to explore the effects of a critical thinking skills-based programme on enhancing writing competency in TEM tests. The teaching experiment, therefore, as a kind of practical experiment, may be more suitable to collect the quantitative data in this content of study. This research will be conducted one semester-long with the target group of students, the teaching programme will be used in the process of teaching. In the teaching experiment, a bi-weekly writing task is going to evaluate both English writing competency and critical thinking skills of the participants.

The authentic teaching experiment lasted for 16 weeks and the participants were required to complete 6 pieces of work during the research. Based on the data of this part, they would be analyzed qualitatively by examining the writing process of the accuracy usage of grammatical structures, the vocabulary and the composition organization. The data would be presented qualitatively by these three categories by looking at the writing pieces of the participants literally with their sentences and words. In addition, the cultivation on the critical thinking skills was also the key point of the designed teaching programme, through analyzing the writing tasks of the participants, whether an improvement of the participants would be achieved or not, another CCTDI were carried out to investigate it.

4) Interviews, Dörnyei (2007) stated, 'interviewing is a known communication routine that the method works so well as a versatile research instrument.' The research instrument interview was a effective means to investigate the thoughts, comments and suggestions on the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China. With the consideration on the progress of the designed teaching programme, five teachers were invited to participant in the observation of the designed teaching programme and the interviews. The data of the interview of the

experienced teachers were analyzed and presented qualitatively. In addition, taking the interview environment into consideration, a quiet room in the selected university was chosen to be the interview room as it could provide a silent space for both interviewees and the interviewer to ask and answer the designed interview questions and it was conducive to record the interviews.

The interviews of teachers were carried out one week after the authentic teaching experiment. Five teachers who observed the 16 weeks teaching experiment were invited to have the interview to share their thoughts, suggestions and comments on the designed teaching programme. All the interview questions were designed based on the observation of the designed teaching programme and the focus of the interview question were concentrated on the effectiveness of the progress on the teaching and curriculum design. These questions were classified into following categories, 1) observation on the classroom teaching, 2) the objective of the design teaching programme, 3) the content of the design teaching programme, 4) the organization of the design teaching programme and 5) free comments on the design teaching programme.

More importantly, these five experienced teachers have been teaching general English writing, English academic writing and creative English writing for more 10 years, and all of them were from Guizhou Minzu University who held abundant English writing teaching experiences to the ethnic minority students, consequently a deep understanding on the group of students were achieved in this kind of circumstance. This was the reason why five experienced teachers in Guizhou Minzu University were invited to give their thoughts, suggestions and comments in the phase of interviews. Secondly, a one to one interview with a group of students which is to explore the students' attitudes and expectations of classroom teaching will be carried out in the following. Within the participants' interview, 10 participants will be randomly select from the students list in the experimental group. The questions of the interview are based on their learning experience of the teaching experiment in this research. This part is considered as the most significant part of this research as the qualitative data will be collected in the section.

5) Reflective journal, Schön (1983) firstly introduced the term "reflection" into classroom teaching, and treated it as a tool to investigate the effectiveness of it in

improving writing ability of student. In addition, the Chinese scholars, for instance, Yang (2012) had studies on researching the effectiveness of using the reflective journal in teaching English writing and the results were positive with applying the reflective journal in the English writing class. The students could achieve a better understanding on what have been learned and how they felt in the class. With teachers' instant feedback, they performed better in writing in English. The reflective journal, therefore, was acted as the most effective method to investigate the thoughts of students in the course of English writing and all aspects of the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China because the participants gave their own feeling about the course directly with the respond qualitatively. The reflective journal was responded based on the 32 hours teaching and learning within the teaching plan in the designed teaching programme.

In designing the task of conducting the reflective journal to the participants, not only the qualitative data can be collected and analyzed, but also can improve the critical thinking skills of the participants, as it provided the participants time and space to express themselves freely and they should reflect all the knowledge that has been learned in class, in result of achieving the improvement of critical thinking skills, as the skill of analysis, synthesis, evaluation and interference could be cultivated in the process of writing the reflective journal. More importantly, by analyzing the data from the reflective journal, it could be an effective method to assist the researcher to figure out the achievements and drawbacks of the designed teaching programme, in particular the teaching process, in result of achieving an improvement of the designed teaching programme.

Considering the interview of students only select 10 participants, the reflective journal is considered as an important research tool on realizing the real thoughts and situation in the research. Participants are free to write about their perceptions about the course and the feeling in the reflective journal. In addition, except the weekly reflective journal, it is thought that two students' face to face reflections in the class are required in the mid-term and in the final. All the information from the reflections will be analyzed and give the details about the process of teaching in class.

6) Questionnaire, the questionnaire is designed to explore the cultivation of critical thinking skills in the teaching programme with self-evaluation on students. It consists questions based on the Ennis (1987) and Paul and Elder (2010) defined on critical thinking skills to evaluate whether students meet the standard of the classification by experts definition or not, in the meantime students also evaluate whether the teacher fulfills the critical thinking skills-based classroom activities or not. By giving questionnaires to students, it aims to discover the accomplishment of cultivating critical thinking skills in class. In this phase, ten close-ended questions and two open-ended questions were designed to investigate their perspectives on both the evaluation on the participants' English writing competence in daily English language learning and on the consideration of writing section in TEM 4 tests. With the consideration of TEM 4 test, the TEM 4 test were introduced to all participants in the experimental group before the designed teaching programme and all participants had vivid understanding of what contents are going to examine in TEM test. Responses of the experimental students were classified based on the frequencies of difficulties in English writing.

7) The bi-weekly writing tasks, the authentic teaching experiment lasted for 16 weeks and the participants were required to complete 6 pieces of work during the research as in the eighth week and the sixteenth week, the participants were taken over the mid-term and the final tests for the research semester.

With the regards to the bi-weekly writing tasks and the aims of the critical thinking skills-based programme for enhancing writing competency in TEM tests for ethnic minority students, all the writing topics and the writing materials were selected from the TEM 4 test and it could have a better understanding on the changes of their writing composition and the participants could be familiar with the writing topics in the TEM 4 test. This research instrument is seen as the most important research tool to gather and evaluate the data from the participants to see the improvement on the English writing competency.

### **Data collection and analysis**

The research consists three phases of conducting a survey before teaching, teaching experiment and post data analysis after teaching. In the first phase, a survey

to explore the features of target group of students will be taken place before the teaching experiment and a TEM test will be participated with the group of students to evaluate their English language proficiency and help the author to find the improvement after posttest. As survey will be presented as the format of structured questionnaires, the data will be collected by the online apps to present in the later research paper. In the second phase, the semester-long teaching experiment will be carried out by using the selected teaching programme which will be designed by the author, in this phase students are required to have reflection every week to report their experience of to be taught of the teaching programme. In the last phase, interviews to both students and teachers and posttests will be accomplished to collect the qualitative data. All the research techniques will be finished in English and the transcripts of interviews and reflection will be presented in English.

Evaluation results from the experts evaluation form, the experts evaluation form was sent to a group of experienced teachers who has been taught English major for more than ten years, which was consisting of both professors and associate professors. All of them has taught English writing to English major students in different period in result that it is believed that a rational feedback from them could be achieved based on the analysis of their evaluation feedback.

With the consideration on the validity of the experts evaluation, the settings of evaluation criteria are based on the new school-based curriculum evaluation criteria in the research university. The evaluation items includes 1) the programme object, 2) the teaching contents, 3) the teaching organization, 4) the teaching pedagogy and methods, 5) the overall effects of the designed programme. In addition, with the marking scale of the evaluation form, five levels of marking are set within 1 to 5 points, 1 is the lowest and 5 is the highest points to state the high level recognition of the designed teaching programme. The 3 experts will present their evaluation based on the marking scale and the understanding of the designed teaching programme based on their evaluation.

The data of the experts evaluation form was analyzed for the arithmetic means and the standard deviation and it was interpreted by the statements given in the experts evaluation form, which is presented in the following.



With the analyzing for the arithmetic means and the standard deviation of the experts evaluation form, the data in the figure 3.3 illustrated the feedback of the evaluation of the experts of the critical thinking skills-based programme on writing for ethnic minority students. The  $\bar{X}$  of the analyzed data showed the result with  $\bar{X} = 4.2$  as it was considered as the result of well performance of the designed programme. More importantly, with the result of  $\bar{X} = 4.2$  in total, it is proved that the critical thinking skills-based programme for enhancing writing competency to ethnic minority students is significant in the teaching environment in the research university.

Table 5 Experts evaluation form for the designed programme

	Statement	Mean	S.D.
the programme object	1. Clear teaching goal	4.6	0.73
	2. Complete goal on knowledge and emotion	4.2	0.78
	3. Clear analysis on considering the factors of students' natural ability	4.5	0.75
the teaching contents	4. Teaching content selection is appropriate in line with the actual needs of students, and consists with the teaching objectives	4.3	0.78
	5. Textbook content is scientific, enlightening and highlighting the cultivation of practical ability	4.1	0.77
	6. Textbook framework and the content organization are clear	4.1	0.82
the teaching organization	7. The integrity of the instructional structure design	4.3	0.82
	8. The focus, practicality and guidance of the content	4.5	0.72
	9. The flexible use of a variety of teaching methods	4.7	0.81
	10. The accuracy of the important and difficult point setting	4.2	0.73
	11. Rationality of the unit time setting	4.2	0.76
	12. Application of modern educational technology	4.2	0.75
	13. Rationality of the classroom setting	3.8	0.64

Table 5 (Continued)

	Statement	Mean	S.D.
the teaching pedagogy and methods	14. The matching degree between teaching methods and contents	3.9	0.63
	15. The harmonization of the teaching methods	4.2	0.71
the overall effects of the designed programme	16. Stimulate students interests in the course	3.6	0.68
	17. Collect the students' learning materials timely	4.2	0.71
	18. Carry out classroom activities to improve students' writing ability	4.4	0.79
	19. The cultivation of students' independent learning ability	4.5	0.81
the meaning of curriculum development	20. Curriculum is closely related to the national curriculum and the local curriculum	4.2	0.72
	21. The curriculum promotes the development of students 'personality and improves students' quality in all aspects	4.2	0.77
Total		4.2	0.78

In addition, the experts evaluation form also consisted with open-end statement to investigate the free advises and suggestions from experts. More importantly, all the experts who participated in the phase of the designed curriculum were required to take part in the observation of the authentic classroom teaching with at least 6 hours, in order to have a more significant feedback of this designed programme. Based on the analysis of their observation and comments, the qualitative data is presented to help the author to improve the critical thinking skills-based programme on writing for ethnic minority students from several aspects.

A) Designing more diverse classroom activities for students to motivate them on developing independent study skill. Based on the comments and suggestions from the experts, it was advised that debate was the most frequent classroom activity which enabled students to have brainstorm in class to share their own opinions. As a consequence, students would lost interests in sharing their ideas as the repetition on the classroom activities. Instead, the group discussion, pair work, group presentation, and individual lecture could be used more frequent in motivating students to have

critical thinking in the given topic in teaching English writing. As all the writing task topics in TEM were considered as the social events, the more ideas they shared in the writing class, the more arguments they could apply into their English writing, in result to achieve a reasonable statement in commenting on the heated topics in our society, moreover, it could be an effecting way to improve the critical thinking skills.

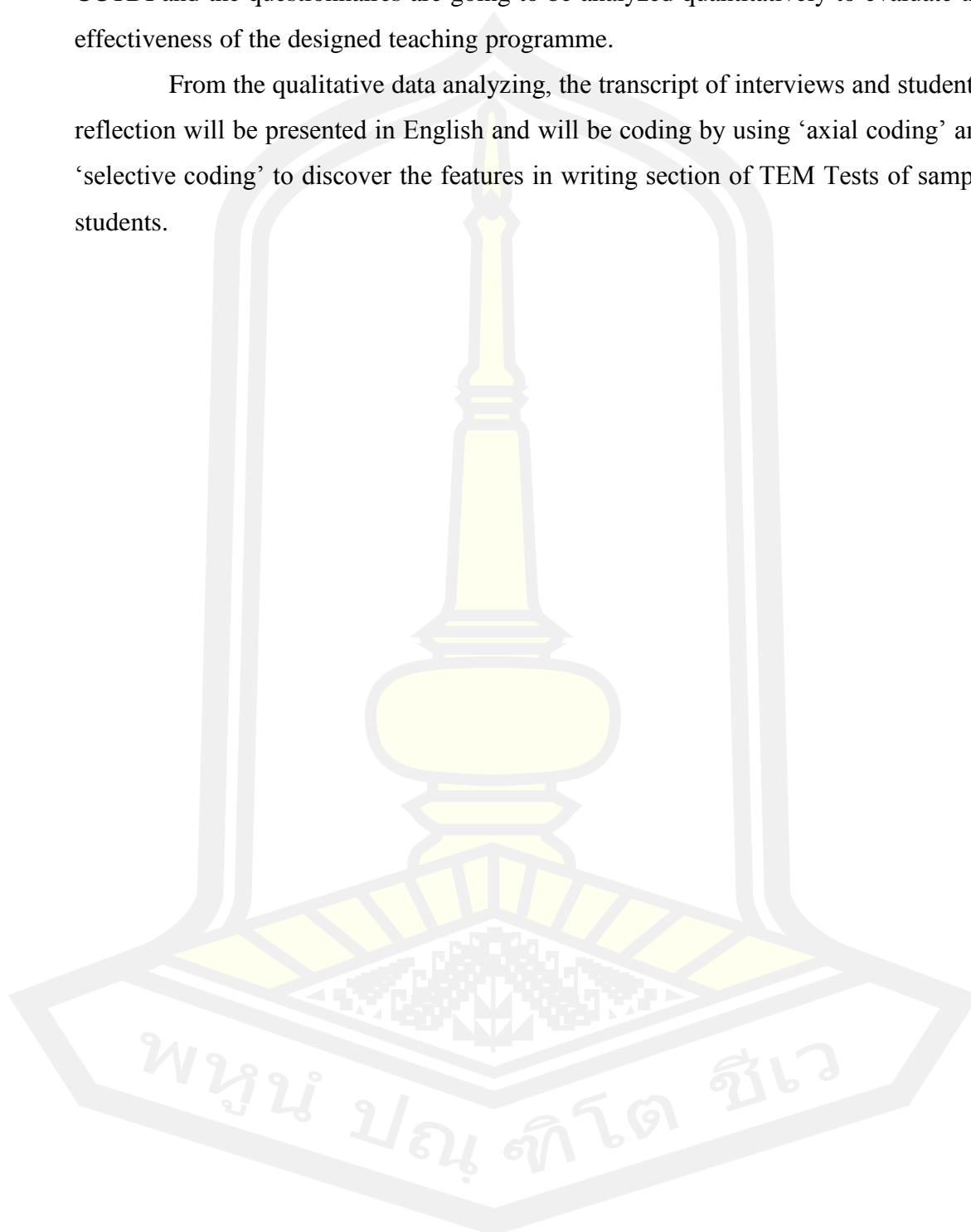
B) Concerning more about the educational background of the group of ethnic minority students. In ethnic minority areas, the English foundation of ethnic minority students was relatively weak compared with students in metropolitan cities, especially in English writing as it was extremely common that students were lack of logical arguments and critical thinking skills when they composed their English writing. From the issue, more concerns should be encouraged in the class activities designing, no matter on learning emotions of students, learning materials, language focusing and ways of motivation.

C) A access to extra curricular resources. Based on the analysis on the comments and suggestions on the designed programme from the experts. Considering the fact of the group ethnic minority students that they might have no ideas to figure out methods to find the useful applications or internet resources. Consequently, it is important to help ethnic minority students learn how to obtain information resources, where to obtain them from, and how to effectively use these resources to complete the active exploration of knowledge. In the class, the teacher could introduce some learning applications or online leaning resources to them and guide them to find out the usage of resources which could help them defend their arguments in the English writing class.

D) The after class-evaluation from both teachers and pairs. For the phase of the evaluation on English writing, suggestions that the teachers could give more after-class reflection an peer review activities should be taken into consideration, according to the experts' commenting. It is believed that the after-class reflection could enable the students to develop the learning habit of self-reflection, self-evaluation and self-regulation, in order to improve the critical thinking skills of students. In addition, peer review could stimulate students' enthusiasm in the next module, therefore, teachers should timely give feedback on the problems found in the homework to the students.

All quantitative data will be analyzing by SPSS and the Excel. The data from CCTDI and the questionnaires are going to be analyzed quantitatively to evaluate the effectiveness of the designed teaching programme.

From the qualitative data analyzing, the transcript of interviews and students' reflection will be presented in English and will be coding by using 'axial coding' and 'selective coding' to discover the features in writing section of TEM Tests of sample students.



## CHAPTER IV

### FINDINGS

This chapter attempts to analyze, discuss and present the findings from both quantitative and qualitative analysis of the data gathered from the authentic teaching experiment, interviews for both teachers and students, the reflective journals written by students, the CCTDI, bi-weekly writing tasks on TEM writing topics and the designed questionnaire on a group of English major students who are ethnic minority at Guizhou Minzu University, China. The findings and discussion of the research readily assisted the author excessively to verify the validity and the effectiveness of the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China by answering the research questions.

1. What are the effects of this critical thinking skills-based programme of enhancing writing competency in TEM Tests among ethnic minority students in Southwest China?
2. To what extent, ethnic minority students could improve their writing competency in TEM tests through this critical thinking skills-based programme?
3. How does critical thinking skills-based programme enhance writing competency in TEM Tests among ethnic minority students in Southwest China?

In the first phase of the designed teaching programme, the CCTDI and the questionnaire were carried out to the experimental participants to investigate both critical thinking skills and English writing competence of them. The CCTDI consists 70 items and most of the questions are little difficult to understand in English for the group of participants, therefore, the CCTDI was applied into Chinese in order to achieve the experimental participants to realize the special thinking skills were investigated in this research. It is considered that as mentioned in the Chapter Two, English major students in Chinese universities are thought lack of critical thinking skills, they might not be familiar with the questions under the designing of asking the critical thinking skills, Chinese language, fortunately, achieved more

understanding in this phase. In addition, a designed questionnaire which was evaluated by 3 experts who taught English language in the experimental university was sent to the group of participants to investigate the both critical thinking skills and English writing competency with 14 close-end questions and two open-end questions. The questionnaire was revised under the evaluation of the 3 experts in order to ensure the reliability and the validity of the questions. This phase was perceived as the pre-investigation part to have a dramatically vivid overview of the experimental students.

In this phase, 40 students in the experiment were also required to participate in both the investigation on the CCTDI and the designed questionnaire in the pre-teaching phase of the designed teaching programme, at the end of this phase, all of 40 students returned the CCTDI and the designed questionnaire with 100% returning rate which was to provide valid data in this part. In the following part, a t-test sample is conducted for the close-ended questions to verify current status of both the critical thinking skills and the English writing competency. Three steps of data analysis of the CCTDI, the close-end questions and the open-end questions were analyzed for both qualitatively and quantitatively.

In the second phase of the designed teaching programme, a teaching experiment was carried out to cultivate critical thinking skills and to improve English writing skill of the participants. Different kinds of classroom activities were conducted to motivate the participants to take part in expressing, evaluating, synthesizing and analyzing the TEM writing topics and materials, including the model example contexts analyzing. The phase lasted for one semester within 16 weeks with the observation of 5 experienced teachers who would participate in the interviews for teachers after the teaching experiment. And in the process of the teaching experiment, the bi-weekly writing tasks were acted as an important way to evaluate the changes in their English writing competency under the input with the designed teaching programme.

In the last phase, the reflective journals, interviews to both experienced teachers and participants were conducted to investigate their thoughts, ideas, suggestions and comments on the designed teaching programme. The data from the reflective journals and the interviews would provide further ideas to revise and

develop the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China.

### **Pre-research phase**

In this phase of the research, two surveys were sent to the experimental students to investigate the features of both their critical thinking skills and the personal evaluation on their English writing competency. In addition, with the consideration on the TEM tests, the open-ended question in the designed questionnaire was also designed to obtain the responses of the thoughts on the TEM writing section by the participants. In the following are the parts to present the results of the research in the pre-research phase.

### **The analysis on the CCTDI**

In this phase of conducting the CCTDI to the group of participants, it was sent to the participants by using a Chinese website which is called WJX. It is a website for designing, sending and analyzing the questions to the research subjects, including the questionnaire, the investigation. For the better usage, the website would analyze the data from the designed questions by presenting the choices of the research subjects.

By investigating the level on the critical thinking skills of the group of the participants, the CCTDI was sent to 40 participants before the teaching experiment and all the participants returned the question forms online within 100% returning rate. As mentioned before, 7 categories with different description on measurement, the data of the group of participants would be presented in the analysis of total scores and the evaluation of different categories to see the level of critical thinking skills of the participants. And in the meantime, the data of 7 categories presented to reveal the performance on different perspectives on critical thinking skills in order to figure out which emotional tendency was developed better or worse among the participants. According to the description on the CCTDI, the overall scores of the group of participants were presented to show the level of critical thinking skills before the teaching experiment (Table 6). And the CCTDI of the participants would be presented in the appendix.

Table 6 Presentation on the overall performance on CCTDI

	N	Mean	S.D.	Status
Female	33	215.75	1.914	an ambivalent scope in critical thinking skills
Male	6	218.50	1.974	an ambivalent scope in critical thinking skills
Total	40	217.12	1.944	an ambivalent scope in critical thinking skills

It can be seen that the group of participants performed in the category of an ambivalent scope in critical thinking skills and the Means was 215.75 and 218.50 for female and male participants respectively. From the data analysis, the difference between female and male was not obvious with 3 point different. It means the level of critical thinking skills for both female and male participants were in the same status. Based on the marking scale of the CCTDI, scores between 210 to 280 means an ambivalent scope in critical thinking skills, the scores of the participants were higher than 210 and lower than 280, thus it was in the category of an ambivalent scope in critical thinking skills. More importantly, the Means scores of the participants was 217.12. Even the score was higher than 210, however, the scores were extremely closer with the category of the weakness in critical thinking deposition within scores lower than 210.

From what has been discussed, the group of participants did not achieve a good performance on the CCTDI, and it meant that the group of participants did not possess a good critical thinking skills before the teaching experiment.

According to the overall scores analyzing of the CCTDI, the 7 categories of the measurement on the emotional tendencies of the study subjects would be analyzed in the part to demonstrate the performance on different perspectives. And the data could figure out the merit and demerit parts in the performance on the CCTDI of the participants and it was beneficial to develop the designed teaching programme. The data would be presented one by one in the following parts.



With the analysis on the 7 categories, the Means of the scores from the participants were 28, 25, 28, 31, 30, 33, 30 respectively. It can be seen that the performance on the critical thinking skills of the selected sample participants were similarity the same in most categories, except the second category of open-minded with means of the scores of 25.

Table 7 The presentation on the different categories of the CCTDI

Categories	$\bar{X}$	Making scale
Truth seeking	28	1. 10 to 30 points indicates a poor tendency with critical thinking skills 2. 30 to 40 points reveals an ambivalent tendency 3. 40 to 60 points means a strong tendency with critical thinking skills.
Open-minded	25	
Analyticity	28	
Systematicity	31	
Self-confidence	30	
Inquisitiveness	33	
Maturity	30	

As mentioned above, the CCTDI was the first phase of the research to investigate the performance on the critical thinking skills of the group of participants. Based on the data collection and analysis, this phase on the investigating the critical thinking skills could help the researcher achieve a better understanding on the participants and more importantly, evaluate the improvement on the critical thinking skills in the end of the research.

The CCTDI (California Critical Thinking Disposition Inventory) was originally developed by Facione (1992). With the understanding and researching on it, Peng (2004) of Hong Kong Polytechnic University localized the interpretation and translated the CCTDI into Chinese and developed a revived measurement-CCTDI-CV (Chinese version), which is widely used in China now.

In the field of researching on the critical thinking skills, the CCTDI is one of the measurement to investigate the critical thinking skills of the research subjects, other measurement, for instance the WGCTI. The reason for selecting the CCTDI is that its reliability and validity is with good status and the CCTDI was translated into

Chinese with a great usage among Chinese scholars. More importantly, the CTDI-CV was conducted in the research with reason is the CTDI-CV added Contextualization description in 16 items or using more Chinese context to explain it could also truly reflect the critical thinking skills of Chinese students.

The CCTDI is designed to measure the emotional tendencies of the study subjects as a format of a questionnaire from seven sub-scales. The measurement on the emotional tendencies of the study subjects includes 1) Truth seeking (with daring to ask questions or having a desire to explore the truth), 2) Open-minded (with the tolerance, the understanding, and the respect for the different views from other people), 3) Analyticity (with the ability to cleverly find solutions to whatever the problem and having foreseen thoughts or behavior potential problems to obtain possible results and consequences), 4) Systematicity (with the ability on organizing, the concentrating on and seriously seeking relevant information to solve the problem), 5) Self-confidence (having self-solving confidence and believing other people having confidence in believing oneself), 6) Inquisitiveness (having a wide range of curiosity), 7) Maturity (with fair, accurate, and serious decision, evaluation or reasoning ability). A total of 70 items were conducted in the CCTDI to investigate the critical thinking skill of the students. According to the original score conversion, 60 points for each aspect within a total scores of 420 points, it is commonly believed that a higher score within 350 or higher than 350 points indicates a stronger critical thinking tendency, scores lower than 210 showed the weakness in critical thinking disposition and scores between 210 to 280 means an ambivalent scope in critical thinking skills. Within every sub-scale of the CCTDI, the questions were divided into 7 categories with 70 questions. Questions 1-10 is related to the Truth Seeking, 11-20 is to Open-Mindedness and with the sequence to the 70 items. In the scoring of each categories, acquiring between 10 to 30 points indicates a poor tendency with critical thinking skills, those participants scoring between 30 to 40 points reveals an ambivalent tendency and scoring 40 to 60 points means a strong tendency with critical thinking skills.

It is considered that the CCTDI is a measurement to investigate the critical thinking skills based on the seven sub-scales, it can provide a clear understanding to the researcher not only on the skills of general description on critical thinking skills,

for instance, the skill of analysis, the skill of synthesis, but also giving a vivid perspectives on the overall development on critical thinking skills within outside and inside thoughts of the research objects.

### **The analysis on the questionnaire**

By conducting the questionnaire (Questionnaire on English Writing in TEM for ethnic minority students-designed for investigating the features of students in English Writing) to the experimental students before the teaching experiment of the designed teaching programme. This phase in the research is considered as the pre-research phase to acquire the authentic responses of the participants on both the evaluation on their writing competence and critical thinking skills in their previous English writing class as the questionnaire was designed without asking real name of the participants. The data will be presented qualitatively and quantitatively in this part to demonstrate the thoughts on the TEM writing section when the participants were practicing the TEM tests.

### **The Analysis of close-end questions of the questionnaire**

14 close-ended questions which were classified into two categories were designed to investigate the features of both critical thinking skills and TEM writing competency of the participants. In the first category on investigating general information on critical thinking skills and writing section in TEM with answering into five degrees. And in the second category, it was designed to evaluate the degree of difficulty in TEM writing of the participants. The questions were answered with five degree of “strongly agree; agree; neutral; disagree and strongly disagree” in the first category, and with the answering degree of “very easy; easy; Neither easy or difficult; difficult, strongly difficult”.

By analyzing the data of the closed-ended question, correlation analysis of the SPSS was applied to analyze the data and the results of the close-ended questions are presented in the follow.

Table 8 Frequency of distribution on close-ended question statement

Frequency of distribution on close-ended question statement						
No. statement	Proportion					$\bar{X}$
	1	2	3	4	5	
Your ethnic minority languages influence your English writing.	15%	35%	20%	30%	0%	3.35
Writing skill is significant to TEM tests.	22.5%	42.5%	20%	15%	0%	3.725
You often write in English for the purpose of preparing TEM testing.	30%	42.5%	30%	7.5%	0%	4.025
You are satisfied with the arrangement of current writing course	0%	10%	37.5%	37.5%	15%	2.45
You often hear the term Critical thinking skills.	0%	17.5%	20%	40%	22.5%	2.425
The term critical thinking is often mentioned in other courses.	2.5%	10%	12.5%	55%	17.55%	2.3
Critical thinking could be helpful to improve your writing skill in TEM?	30%	47.5%	22.5%	0%	0%	4.075
Identifying the theme of writing section in TEM tests	7.5%	15%	30%	42.5%	15%	2.475
Clarifying the key concepts of writing section	0%	22.5%	30%	47.5%	2.5%	2.725
Making an outline of the composition	0%	12.5%	25%	52.5%	12.5%	2.35
Selecting proper vocabulary and grammatical structures	2.5%	17.5%	20%	40%	22.5%	2.425
Logically organizing the composition	2.5%	15%	22.5%	40%	22.5%	2.325
Tracing your viewpoints that fit your composition	2.5%	10%	12.5%	50%	22.5%	2.35

As it was shown in the table 4.3, the choices on the statements of the participants revealed the frequency distribution on the close-ended questions through the pre-investigation on both the thoughts on the critical thinking skills and the writing section in the TEM tests. The results revealed in the first section on the investigation on the general information on the on critical thinking skills and writing section in TEM that the writing skill was significant for the participants in the environment of taking TEM tests and the critical thinking skills were not frequently mentioned in the leaning process of the participants in all the courses. Participants in

the study thought critical thinking skills were significantly important to improve their English writing competency.

In addition, in the second section of evaluating the degree of difficulty in TEM writing, the results showed that nearly all the students had difficulties on composing English writing pieces under the requirements of TEM tests from the first step of identifying the theme of the writing topics with the proportion of 7.5% on the “very easy” and most participants selected “difficult” with 42.75%. In the following designed statements, the participants performed similarly with more proportion the selection of “difficult” or “very difficult.”

#### **The analysis on the open-ended question of the questionnaire**

In this phase, two open-ended questions were designed to investigate their perspectives on both the evaluation on the participants’ English writing competence in daily English language learning and on the consideration of writing section in TEM 4 tests. With the consideration of TEM 4 test, the TEM 4 test were introduced to all participants in the experimental group before the designed teaching programme and all participants had vivid understanding of what contents are going to examine in TEM test. Responses of the experimental students were classified based on the frequencies of difficulties in English writing.

#### **English writing section**

One open-ended question was designed to explore the thoughts of experimental students on the self-evaluation on English writing competence.

The designed question is “Based on your self-evaluation, please give the details on the evaluation of your writing competence? Details can be described as your thoughts on vocabulary, grammatical structures....”

In the responses of experimental students, the answers of the designed open-ended question on investigating on the self-evaluation on English writing competence were classified into five categories based on their statements on the English writing competence. The answers of the experimental students were presented as followed. From the findings in the designed questionnaire, lack of logical thinking, academic vocabulary, critical thinking skills, grammatical structures and passage organization were the main problems on the participants.

### Frequencies of responses of the experimental students

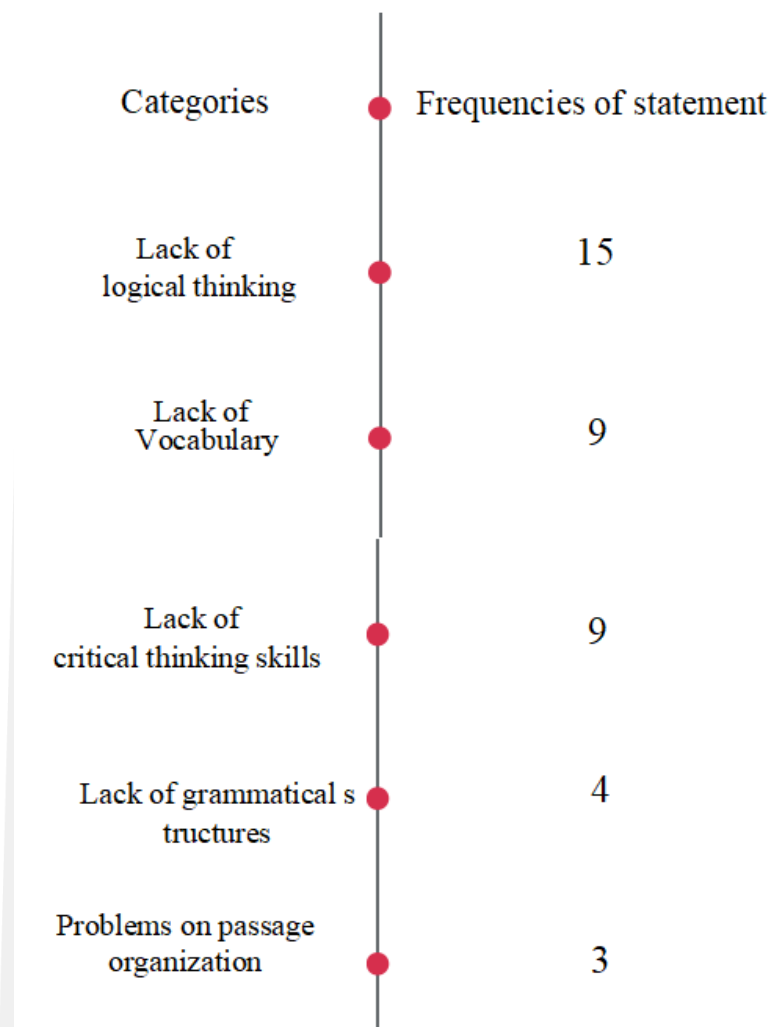


Figure 15 In the responses of students in investigating features in English writing

By analyzing the answers displayed in the designed questionnaire, five categories were classified to demonstrate the features of the experimental students on their evaluation on the English writing competence. Lack of logical thinking, based on the analysis of the designed open-ended question, was the most frequent category which have been characterized with 15 students. Taking two students as an example, the answer was commented in the following,

*Student 1: In writing class, I think my logical thinking is poor. Firstly, I don't have a crazy mind map, so I can't write out many words. Secondly, when I write something, I have nothing to express.*

*Student 2: Logical thinking is very difficult for me. When I write, I could not link sentences and statement properly. I also write simple sentences and I always translate Chinese into English to write the essays.*

By evaluate the responses of the experimental students, lack of logical thinking had great impact on their English writing, in particular the links between sentences and paragraphs in result of the disorder of the writing composition. Meanwhile, a misunderstanding of the expressing statements in the writing might be achieved by Chinglish of the translation from Chinese to English.

Lack of vocabulary, based on the given frequency in Figure 5.1, was the second most frequent category which have been encountered with 9 students. The answers were commented in the following,

*Student 2: My writing competence is bad, i cannot insist to remember vocabulary everyday, so i do not have enough innovative vocabulary to write in my essay.*

Meanwhile, another two comments on the designed question were written into different means within the expressing:

*Student 3: I cannot use many different conjunction. I don't know how to write a wonderful section at the beginning. I cannot use the same meaning but different words.*

*Student 4: I'm better at organizing grammatical structures than applying difficult vocabulary because of lack of words or phrases to replace. They become obstacle in my writing.*

From what has been mentioned on the comments from the experimental students, it can be easily found that lack of vocabulary, in particular academic vocabulary including conjunction, was the dominate issue for the experimental students in English writing. The responses not only were given to identify the problems on English writing, but also comment on the specific aspect of language acquisition-the conjunction.

In addition, the comments on critical thinking skills were featured by 7 students by expressing their insufficiency on critical thinking skills. It could be figured out that the experimental students could realize the importance of critical thinking skills, they, however, did not have a clear understanding on what is critical thinking skills and what skills they should be trained by the teachers or learned by themselves. From their responses, lack of critical thinking skills was a major issue of the experimental students. Their responses were demonstrated:

*Student 5: My writing competence is just so. The most trouble of my writing is the ability of critical thinking. When I write is often don't know how to organize language and what is should write.*

*Student6 : I think all of this for me is difficult. I can't find the key of the writing easily and is write article without critical thinking and i am short of the critical thinking and vocabulary.*

Based on the core curriculum of the university of the experimental students, cultivation on critical thinking was not emphasized, in particular in English writing class. Critical thinking skills, according to the understanding of students, was a vital skill which aroused attention of students, and in another aspect of analyzing the comment, the experimental students had a distinctive view on their own problems on English writing, it is imperative of the designed teaching programme to enhance both critical thinking skills and English writing skill for the experimental students.

At the forth place, the response on lack of grammatical structures was ranked at the forth based on the data analysis on the frequencies of responses of the



experimental students, account for 10 students. It is commonly believed that grammatical structures play the crucial role in organizing the sentences in order to achieve paragraphs and the passage. The comments of the experimental students on the lack of grammatical structures are illustrated,

*Student 7: I write a sentence practically by using the positive voice and present tense. I can't use some formal words. My grammar is poor. Selecting proper grammatical structures is difficult for me.*

*Student 8: I think the grammatical structures are difficult for me, because my grammatical structures is my weakness.*

Their comments on the designed question can be evaluated as the insufficiency on the grammatical structures. As an important statement in Chinese English writing tests, the accurate usage of grammatical structures is the key content for testing which is occupied one third scores of overall scores in evaluating the writing pieces. Without using proper grammatical structures, students could not achieve a good result in English language testing.

#### **Analysis on TEM section**

By analyzing the second open-ended question: “in writing section of TEM tests, which part(s) do you think is/are most challenging? Why?”. The responses of students can be classified into five categories based on their understanding of TEM tests. In their responses, critical thinking skills, logical thinking and the how to catch the main points of the writing tasks were the dominate challenges in their leaning .By vividly illustrating the responses of the experimental students, a Figure 4.5 is used to show the key points of the statement.

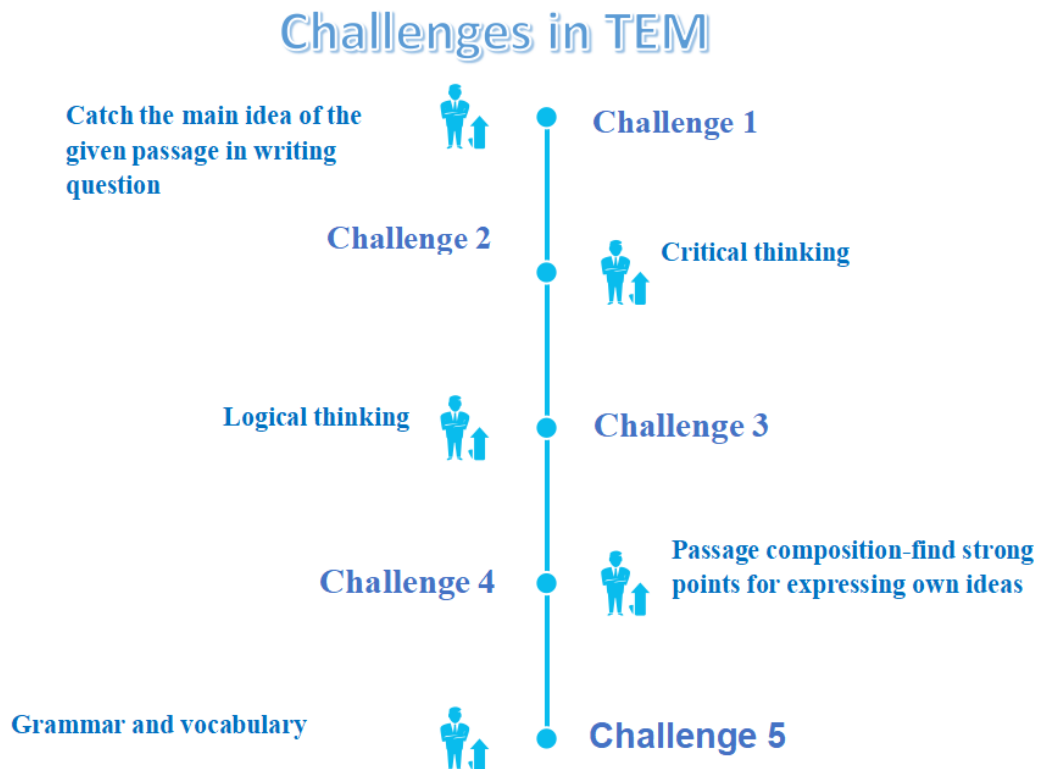


Figure 16 In the responses of students in investigating challenges in TEM writing

According to the analysis of the statement of the experimental students, five challenges were identified to demonstrate the problems on writing section of TEM by the students. From the Figure 15, it can be revealed that problems on critical thinking skills and logical thinking were prevailing among the five challenges, including Challenge 1. As it was also shown the problems of evaluating the given writing test question in the TEM test, which can be summarized as the problem on lack of critical thinking skills. Comparing with issues happened in general English writing class, lack of critical thinking skills and logical thinking skills played a distinct role in the writing section of TEM tests. By analyzing the statement of the experimental students, their responses are in the following.

*Student 1: first, the subject to grasp in a composition is very challenging. Second, the logical thinking to complete a test is challenging. Third, the words to apply in a test is challenging.*

*Student 2: Logically thinking is the most challenging, because a Innovative idea and clearly writing structures are rarely. Meanwhile, This part is also difficult.*

*Student 3 : tracing viewpoint which are suitable for the TEM tests, and finding better words to describe my writing are the most challenging. I thinking it's vital to find proper theme for the tests.*

From the responses of these three students, logical thinking was the most challenging part in TEM for students. By analyzing the responses of all experimental students, 12 of them found lack of logical thinking challenged themselves in composing the English writing in TEM test as they had no idea to grasp the key information in the given writing test question in the test, as a consequence, a good score in writing section cannot be achieved. In the second phase, as students lacked logical thinking skill, it was extremely difficult for them to catch the theme of the composition in result of unreasonable or weak examples or statement were illustrated in their writing. Instead, they, the group of experimental students, could not obtain a good result in writing section of TEM tests.

Moreover, the responses categorized by the critical thinking ranked at the second, occupying 10 experimental students, which were depicted in the following,

*Student 4: critical thinking is the most challenging in writing section in TEM. Because, sometimes my thoughts are single, I don't see the things from different side and then my knowledge is not enough, leading i can't find evidence to support my idea.*

*Student 4: the critical thinking is essentially difficult for me. When I get a theme, I don't know how to think more novel.*

From what has been argued above, both the logical thinking skills and the critical thinking skills are high order thinking skills, which is considered as the shortages of the experimental students. Consequently, low achievement on writing section in TEM tests were appeared as the less high order thinking skills. Lack of both critical thinking skills and logical thinking skills was considered as the most challenging problem for the experimental students, they have no skills to analyze, synthesize and evaluate the passage in result of low achievement. As a consequence, the result from the designed questionnaire revealed that the experimental students were lack of both critical thinking skills and logical thinking ability in result of the most responses were reported the low achievement on the English writing competency.

#### **The effects of the critical thinking skills based-programme**

The participants in the teaching experiment were required to finish a bi-weekly writing task and a reflective journal in the final of the research to evaluate the improvement on their English writing competency through learning with the designed teaching programme both in the personal perspectives with the reflective journal and in the teacher's perspectives with the bi-weekly writing task. The scores of bi-weekly writing were getting higher from the first writing composition to the last composition. In addition, positive attitudes towards the designed teaching programme and improvement on the TEM writing composition were illustrated in both the bi-weekly tasks and the reflective journal. The results are presented in the following.

#### **Bi-weekly writing tasks**

With the analysis on the scores of the bi-weekly writing tasks, it can be seen that the English writing competency of all the students has been improved as the almost all the students have improved their TEM writing topics based writing composition with 4-7 points from the first piece of writing to the sixth one(illustrated in the following figures). With the interpreting on the marking scale

of the TEM writing section (see the following part), 4-7 points improvement on the English writing composition on TEM writing topics were the improvement of the participants. The following part will summarize and analysis the detailed information on the bi-weekly writing tasks to the participants and give a more distinct presentation on the changes of the participants on English writing competency.

By classifying the categories of the marking scale, the TEM4 writing marking scale was applied in evaluating the writing tasks of the participants. Based on the demonstration of Zhang (2020), the marking scale was classified into three categories within a) summary of the given writing test question passage: 5 points, b) comment on the given writing test question passage: 5 points, c) the accuracy of language usage: 7 points, and d) composition organization: 3 points, in total with 20 points. The detailed marking scale is presented in the following part with translation of the table from Zhang (2020).

Table 9 Making scale of the TEM writing section (translated from Zhang (2020))

Grade Range	Grade section	Content Expression: 10 points Summary: 5 points Comment: 5 points	The accuracy of language usage (7 points)	Composition organization (3 points)
5	18-20	8.5-10	6.5-7	2.5-3
4	15-17	7.5-8	5.5-6	2-2.5
3	12-14	6-7	4.5-5	1.5-2
2	8-11	5-5.5	3.5-4	1-1.5
1	1-7	1-5	1-3	0.5-1
0	0	0	0	0

According to the marking scale of writing section in TEM 4, the writing pieces of the participants would be analyzed based on the detailed marking scale in three categories literally.

It is vividly reported that the content expression includes two parts of summary and comment. In this phase of the research, all of the participants with 40 students were required to take part in the bi-weekly writing tasks and all the writing

tasks were based on the testing topics of TEM 4 and the results of the bi-weekly writing tasks were scored with the marking scale of TEM 4 which is presented above. With analysis on their English composition, the results of their writing composition were presented in the following to illustrate the changes on their scores. In this period of research, 6 pieces of writing composition were carried out and changes on the scores were improved step by step.

Table 10 the results of the bi-weekly writing task

Participant No.	Task One	Task Two	Task Three	Task Four	Task Five	Task Six
1	5	5	6	8	8	11
2	6	7	6	8	7	10
3	5	7	7	8	12	11
4	8	9	8	10	11	11
5	10	10	10	13	13	15
6	9	11	12	11	11	13
7	11	13	13	12	13	15
8	6	7	8	8	11	11
9	6	6	7	7	10	10
10	7	9	9	11	11	13
11	8	10	10	12	12	13
12	9	11	12	13	15	15
13	10	11	11	11	13	13
14	8	10	11	10	13	14
15	6	9	10	10	12	11
16	11	12	12	13	14	14
17	10	11	10	12	13	15
18	7	7	8	10	11	13
19	8	9	10	11	13	13

Table 10 (Continued)

Participant No.	Task One	Task Two	Task Three	Task Four	Task Five	Task Six
20	10	12	12	13	13	15
21	6	8	8	9	11	12
22	10	11	11	12	13	13
23	10	13	12	14	14	15
24	9	11	12	12	14	15
25	8	8	10	11	13	13
26	11	12	12	14	15	16
27	10	11	11	11	12	14
28	6	7	6	9	11	11
29	6	9	9	10	11	11
30	10	11	12	12	14	14
31	9	11	11	13	13	13
32	8	8	11	10	12	14
33	8	9	11	13	13	14
34	9	9	11	12	13	14
35	10	10	12	13	13	16
36	11	11	12	14	15	16
37	9	10	12	15	14	15
38	10	10	11	12	13	15
39	9	10	10	9	12	14
40	9	9	10	10	11	12

In addition in order to have a vivid demonstration on the results of the participants, the writing pieces of them were randomly selected as the sample to be analyzed, which consisted 18 pieces of writing works of three participants, all the writing works were within TEM4 writing test questions. The scores of their 6 writing pieces of these three participants are presented one by one. (Their writing were marked by two teachers in order to achieve the validity of the meantime, the

score of each writing task was marked with the average scores of the two teachers (Figure 17-19).

### Student 1

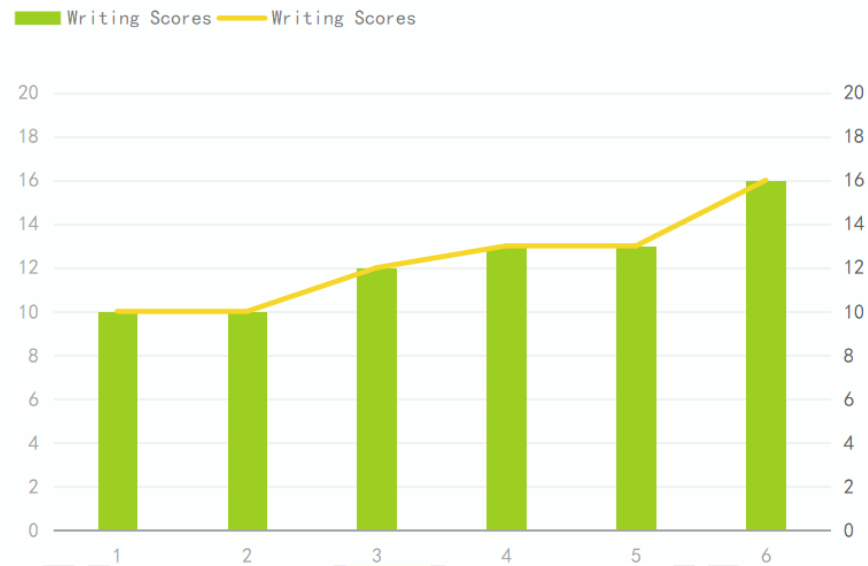


Figure 17 Scores of writing of sample student 1

### Student 2

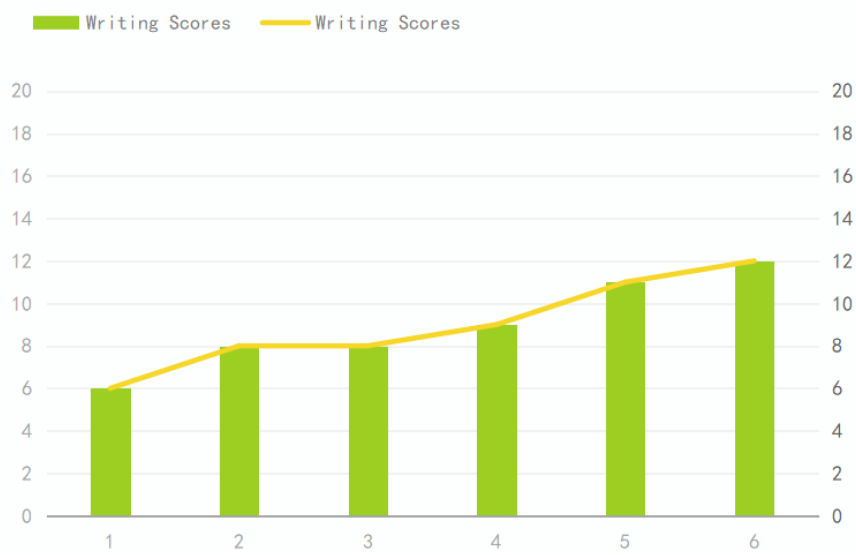


Figure 18 Scores of writing of sample student 2



### Student 3

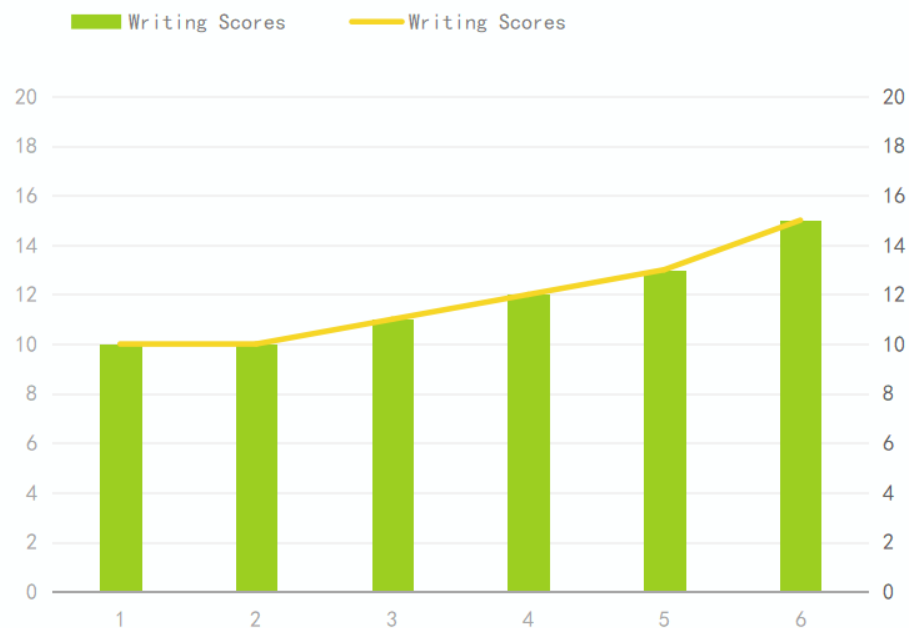


Figure 19 Scores of writing of sample student 3

The authentic teaching experiment lasted for 16 weeks and the participants were required to complete 6 pieces of work during the research. Based on the data of this part, they would be analyzed qualitatively by examining the writing process of the accuracy usage of grammatical structures, the vocabulary and the composition organization. The data would be presented qualitatively by these three categories by looking at the writing pieces of the participants literally with their sentences and words. In addition, the cultivation on the critical thinking skills was also the key point of the designed teaching programme, through analyzing the writing tasks of the participants, whether an improvement of the participants would be achieved or not, another CCTDI were carried out to investigate it (see Data analysis of CCTDI). In the following, the data of the writing tasks would be illustrated literally.

Based on the presented marking scores of the participants in performing the writing task of TEM4 writing test questions, it is clearly demonstrated the changes on the marking scores from the first writing task to the last one. It can be vividly

seen that it was a process of the score increasing during the period of writing the TEM4 writing test questions writing. The last time (sixth writing pieces) scored with the highest among these three sample participants within 16 points, 12 points, and 15 points respectively. For the first sample participants, the score of the sixth writing piece was 6 points higher than the first writing piece. In addition, the score of the sixth writing piece of the second sample participants was 6 points higher than the first writing piece too. Lastly, the bar chart presents 5 points more was achieved compared with the first time writing and sixth writing. According to the marking scale of writing section in TEM4 test within 20 points in total, achieving 5 more and 6 more points in the writing section in TEM4 test was considered as the a big improvement. In the following parts, the comparison between different writing pieces with different TEM4 writing test questions would be analyzed and presented to illustrate the performance of the sample participants in composing English writing works. The data would be analyzed into three categories.

#### **The content expression**

As mentioned above, the content expression consisted two parts within summary and comment on the given writing test questions, the comparison of the writing pieces of the sample participants would be presented and evaluated. The scores of their writing was changing during the teaching of the designed teaching programme, the changes of their writing will be literally analyzed and evaluated in the following.

Student 1: It can be seen from the Figure 5.4 scores of writing of sample student 1, the scores of the first writing was 10 points and 16 points at the sixth writing, a 6 points improvement was achieved on the process of having English writing class. According to their writing , the qualitative data was presented and showed the changes from first writing piece to the last one.

a) *We live in a time of peace and a time of charity. But with the establishment of the charity, a lot of controversies have risen.*

*Most of people think that charities, in the name of charity, should help those in need.....*

*Others believe that the charity organizations would better concentrate on helping people who.....*

*As far as I can see, the first view is more correct. The reason why.....*

From the perspective of summarizing the writing test question, the introduction of this writing did not depict, the scores of the category of summary lowered due to the missing of the summary. The comments on the writing test question, however, did prove the personal opinions on the given materials and also presented the reasons for continuously evaluating the points of view of the sample participant. The scores for commenting was acquired.

*b) With the development of epoch, teaching children increasingly plays a crucial role in our daily life. However, how to teach children become the focus for parents and educators. Some people think..... others argue children should be give special treatment, and I agree with the latter.*

.....

*Generally speaking, teaching children is a vital matter in the modern times..... As far as I am concerned, I suggest that children should be given a special treatment.....*

Taking the consideration on the last piece of writing, the introduction summarized the writing test question and the give material with the topic sentence “*How to teach children become the focus for parents and educators.*” and the sentence of “*some people think..... others agree*” also presented to summarize the key information of the given material.

In addition, as the end of the writing, a comment on the writing test question was written by expressing “*Generally speaking and As far as I am concerned*”. It can been that the this kind of writing not only achieved the summary but also the comment on the writing test question and the given material. This is the reason why the scores of the latter piece of writing were higher than the first piece of writing.

Student 2: From the Figure 5.5 scores of writing of sample student 2, the scores of the first writing was 6 points and 12 points at the sixth writing, it was achieved with a 6 points improvement during the learning in the English writing class. The writing pieces of sample participant 2 are in the following.

a) *From my point of view, we should treat each other equally.*

*There are several reasons.*

*The first one is.....*

*In conclusion, teaching children of different abilities together benefits all of them. That's obvious.*

It can be seen that the first piece contended a very short and ambiguous introduction, even if it gave a personal comments in the passage. However, with the consideration on the scores of the summary, this writing did not present the summary of the writing test question, as a consequence a lower score was given to this piece writing within the section of the content expression.

b) *As people's life becomes better, more and more people pay attention to the problems of medical care and education. And the cost of them is something that many people are worried about and think about. There are two ideas of thoughts on this issue.*

*The first points of view is people thinking that the government should bear the part of cost .....*

*The second points of view is that kinds of people who feel they should pay for their education and health care.....*

*As far as I am concerned, both ideas are reasonable, so put it all together, I think we should pay for some cost.....*

From this piece of writing, a detailed summary of the writing test question was depicted in the first paragraph. More importantly, the sample participants made a conclusion by giving personal comments on the writing test

question by using “as far as I am concerned” to illustrate his ideas on the given materials.

Compared with the first piece of writing with the second writing work, a clearer summary and comments on the given writing test questions and materials was achieved in the second piece of writing, more scores in the category of summary and comment were acquired to prove the improvement on the abilities on summarizing and commenting.

Student 3: It can be seen from the Figure 5.6 scores of writing of sample student 3, the scores of the first writing was 10 points and 15 points at the sixth writing, a 5 points improvement was achieved on the process of having English writing class.

a) *Charity is a very meaningful organization and has helped a lot of people get through this. But many things face ambiguity and doing good needs is no exception.*

.....

*As far as I am concerned, I think I am selfish.....*

*Charity also has big and small. Regional charities should mainly help their own people.....*

The first piece of writing met the same problem as the writing of the sample participant 2. It is thought that the summary of the give material and the writing test question was presented in the writing. It, however, was not fully summarized. Moreover, the comments of the writing test question were with simple sentences and it could not be clearly express his thoughts under the analysis and the evaluation on the given material. Lower scores were obtained due to the ambiguous on the summary and comments.

b) *With the continuous development of society, people pay more and more attention to health problems. Opinions about the responsibility of the government on social medical services vary from person to person. Personally, I partially agree with.....*

*In brief, I definitely believe the benefits of national healthcare, especially in terms of its great contribution to the social fairness and stability.*

Instead, compared with the first piece of writing, this writing work not only gave a vivid summary on the writing test question and give material with expressing “*people pay more and more attention to health problems. Opinions about the responsibility ...*”. At the end of the writing, more clear comment was introduced by using “*I definitely believe...*”. It is inevitably a higher score could be acquired in the writing task.

### **The accuracy of language usage**

Considering the points of content expression and composition organization, the accuracy of language usage plays a dominate role in the marking scale of the writing section in TEM within 7 points, occupying 35% proportion points of the marking scale.

However, based on the analysis of the education background of the sample participants (see Chapter I), the group of participants faced and met a lot of problems on the language usage, not only in the using of high level grammatical structures, but in applying academic vocabulary in their composition. Han (2014) found in his research that the mistakes in the compositions of the students are mainly the lack of the language accuracy and the dissiliency of the text views, including: the misuse of words, the misuse of linking words, and the confusion on using noun monoplural. In addition, the usage of the single sentence structures is frequently appeared and the compound sentences are not actively used on the syntactic level in their writing composition. It can be seen that problems on the accurate usage on English language are the predominate issue in the writing section of TEM 4 test.

By analyzing and evaluating the writing compositions of the 3 sample participants, their language usage is presented in the following from the first writing to the sixth one. The sentences were selected to present the changes during the conduction of the designed teaching programme.

Student 1:

a) *Celebrities reported in the media have social influence, so they do good or bad things that affect children's values.*

b) *The understanding of society and many other aspects which have the great influence.*

From the two sentences, mistakes in using accurate grammatical structures could be easily recognized. The sentence “*Celebrities reported in the media have social influence*” has two verbs of “reported” and “have”. Moreover, in the second sentence it included a attributive clause which could be a means to increase the score, nevertheless there was no predicate in the main clause. The two mistakes on the grammatical structures would lower the scores in the category of the accuracy of language usage.

In the sixth piece of writing composition, the grammatical structures had changed with the following expression.

c) *It is commonly and widely recognized that the benefit of video games has overweighed the drawbacks of the video games, which means video games are no longer harmful as people think.*

d) *To make matters worse, some individuals will also be unreasonable to recharge, which will also destroy family relationship.*

Through analyzing the two sentences of the composition of sample student 1, it can be figured out that the two sentences consisted three clauses within a subject clause and two non-defining attributive clauses in each sentences which could be seen as a change of using compound sentences, compared with the first writing composition. Furthermore, the infinite phrase “*To make matters worse*” was used as the adverbial to deeply express the ideas of the topic.

It is considered that the changes between the first writing composition and the sixth one were apparently revealed from using simple sentences with mistakes in grammatical structures to applying different compound sentences and the infinite phrase to evidently demonstrate the ideas and opinions on the given

test writing topics. The changes were distinctly happened during the conducting of the designed teaching programme.

Student 2 :

a) *There is a general discussion on the problem of the government should or should not bear the education and medical expenses of residents.*

b) *First of all, citizens need to pay taxes, some poor families can't pay these two expenses.*

In these two sentences, mistakes on grammatical structures and the misusing on vocabulary could be easily find out. In the first sentence, errors were appeared within the part on “*on the problem of the government should or should not bear*” as a there be sentence was used and it could not have another predicate in the sentence composition. It seemed as a serious mistake on using predicate. At the mean time, in the second sentence with the usage on the word “pay”, we commonly used it as pay for... something, and with the understanding of the word “expenses”, it is commonly believed that the word “afford” would be the best choice to substitute the word “pay”. These two mistakes were the commonest errors in TEM 4 writing composition.

c) *What is obvious is that advertisement is one of the most significant matters for commerce, therefore, advertisements are found everywhere in our lives.*

d) *At the same time, advertisements do contain some useful information which are helpful for children's growing.*

In their sixth writing composition, the compound sentences and linking word could be flexible applied into their sentences composition. For instance, in the first sentence, a subject clause and a predicative clause were used to replace the sample sentences. In the second sentence, an emphatic sentence was conducted with an attributive clause. In these two sentences, the compound sentences were the main method of sentences composition. Moreover, the linking



words “therefore” and “at the same time” were used to enhance the logic of the ideas. The changes from the first writing composition to the sixth one varied dramatically.

Student 3:

a) *If they can teach other students, which means they well mastered the knowledge.*

b) *Parents believe that learning is the only way out, so urge children to study.*

In the first piece of writing, it could be seen that the two sentences contained mistakes on grammatical structures, in particular the first sentence with an obvious error of using the compound sentence as there was no main sentence in the first sentences. It was considered that

c) *What is well-known is that the ability of human is limited, we are expected to deal with something in our power.*

d) *There is no doubt that preserving the environment from pollution is essential for us.*

In the sixth writing composition, the two selected sentences consisted a subject clause, a predicative clause and a appositive clause. In the usage of vocabulary, academic vocabulary, for example, preserving and essential. No matter in the usage of grammatical structures and vocabulary, changes on expressing ideas were apparently appeared to improve the accuracy on language usage.

Taking the analysis of three sample students into consideration, dramatic changes had been happened during the writing tasks within given TEM writing test topics and given materials. According to the TEM writing marking scale (see Figure 5.3), the scores of the writing composition from first on to the sixth one based on these three categories had been improved, the effectiveness on teaching how to compose an argumentative writing based on the critical thinking skills-based

programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China had been revealed in this writing task.

### **The composition organization**

Zhang (2020) mentioned that the chapter organization requires “ (1) to summarize the main content in the Summary part and then to clarify their claims; (2) to provide the main arguments in the Comment part based on their main views and the use of cohesion words should be logical; (3) to summarize the full text or reiterate the central idea in the conclusion part and it can put forward suggestions for future development.

The first and the last requirements were fulfilled in the category of the content expression. In this part, “to provide the main arguments in the comment part” was the main section for analyzing.

A typical English argumentative essay contains five paragraphs, within three parts: introduction paragraph, expanded paragraph and ending paragraph. The expanded paragraphs were considered to consist of at least three paragraphs, and each of the several arguments within the main paragraph is further demonstrated and explained (Zhang 2008). According to this statement, except the introduction and the conclusion, the body of the writing composition at least was considered within one paragraph to illustrate and explained the arguments. In the part, writing composition of two sample participants were randomly selected to see the changes in the composition organization. The following illustration was depicted the body part of writing composition of sample participants (except the introduction and the conclusion) to analysis their expression and composition in this part.

Student 1:

a) *Give longer prison sentence is not the best way of reducing crime, we should start from the motivation, not the consequences. We should take a series of effective measures, such as improve national quality, give more attention to education and care about people's quality of life.*

The body part of this writing composition consisted of one paragraph, it was followed the making scale as an illustration on the argument was happened to

express further demonstration on the writing topic question. It, however, was not giving a clear expansion on illustrating and explaining the argument. It was considered that a ground of argument and a personal comment were expressed here in this writing composition, unfortunately, an expansion on the argument was not achieved. Examples on personal comment were given in this part, but it did not mention the key point of this writing topic question. According to the explanation on Zhang (2008), it is believed that this kind of body composition did not meet the requirement on the organization of the argumentative composition.

In addition, based on the writing composition requirements of TEM writing section, it was said that “write your response in no less than 200 words”. Taking the words of the body part of this writing composition, it could not complete the requirement in the writing. As a consequence, the scores would be lower not only as the inadequate illustration and explanation on the argument, but also as the insufficient words requirement.

*b) To begin with, it is obvious that celebrities who are provided with flow have necessary influence on people. However, some celebrities are not behaved themselves or have some inappropriate words, which cause a harmful effect on children, and it is a hinder that is not beneficial to the growth of children.*

*However, some celebrities have a favorable impact on children. For example, some celebrities give financial aid to support some children who live in poor areas in order to provide children with better surroundings. And some celebrities spread useful knowledge to children by advertisements or giving assistance to help the development of their hometowns and so on.*

*Finally, celebrities under the spotlight have a vital effect in children, which is musty when teaching children. Teachers and parents ought to tell these impacts and use them advisably. The media coverage of the celebrities are supposed to take notice of the matter. Then taking necessary measures to avoid the negative effects of the celebrities.*

In this writing composition, it could be seen that a three paragraphs body composition was achieved by using linking words- “to begin with; however and finally” to divide the illustration and explanation into three parts. With the consideration on the content organization, the main argument was expanded by expressing that different celebrities might have different view on influencing people, and examples were used to achieve further explanation on the argument.

In addition, a key argument sentence showed in every paragraph demonstrates the main point of the writing composition with discussing the social phenomenon and giving personal comments.

With the consideration on the word, this body composition included three paragraphs with about 150 words. The requirement on the NO LESS THAN 200 WORDS could be easily attained.

Taking two body composition of TEM4 writing test questions into consideration, better scores were reached in the second piece of writing as it met the requirements of TEM 4 writing section, no matter in organization, but also the sequence of arguments illustration and explanation. With better scores were attained in the second piece of writing, changes on composition organization could be easily figured out with the analysis on the writing composition of sample participants.

Student 2:

*a) Some people think the best way to reduce crime is to give longer prison sentences. As far as I am concerned, I think that solving life after getting out of prison is the real reason. It is difficult for them to begin a new life. Our government are supposed to establish a complete social security system to ensure that they can return to social life.*

In this writing piece, the body part consisted one paragraph within discussing the main argument and giving personal comments. It seemed that it fulfilled the requirements of marking score. In the main argument discussion part, however, an expansion on the argument was not written in the body part, only with a simple sentence of stating the topic sentence.

Compared with the student 1, this body part was better as a slightly detailed personal comment was presented and the expansion on the personal comment was achieved in this part.

In addition, this piece of writing shared the same problem with the first writing composition of student 1, this body part was only with 65 words, it could not be attained the requirement of NO LESS THAN 200 words. In the process of scoring the writing composition in TEM 4 test, a lot scores would be deducted from the total scores and it might influence the final scores of pasting the TEM 4 test.

*b) The first negative impact results from children's imitation of celebrities' behaviors. It is well known that being fond of imitation is a child's nature. That is to say, children may assume that such acts smoking and drinking are cool and fashionable, so they will start to do so on their own. In this case, the media coverage of celebrities becomes a potential risk to children's health.*

*Additionally, most stars are beautiful with thin, which can become a very misleading signal for children. To be frank, children don't have a clear understanding about what kind of body shape is healthy or fit, so they will naturally learn from those thin celebrities, which may seriously damage their body health.*

In the second selected writing composition, two paragraphs were presented in the body part with a sequence of different points of view. Moreover, some linking words, for instance, that is to say; to be frank; and additionally, were used to connect the expansion on discussing argument and depicting personal comments. More importantly, with the consideration on composition organization, the usage of the casual relationship was proved the relationship between the argument and the social influence on the heated social topic. It was considered that more smooth sequence on the discussion of the main argument and the social influence on the heated social topic was achieved with presenting both main

argument and the personal comment. Consequently, good scores on this writing composition would be met.

In this part of giving bi-weekly writing task to the participants in the teaching experiment, the thinking skills, for instance, analysis, evaluation, interference and synthesis had been enhanced during the teaching experiment. The enhancement on the thinking skills can be summarized in the following,

To begin with, in the marking category of summarizing and commenting the given TEM 4 writing section test question and material, classroom activities were carried out to enhance the critical thinking skills of the participants (see Appendix the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China), for example, analysis on the sample writing composition, reading on foreign journals, group talk and debate. These activities assisted the group of participants to enhance critical thinking skills by the following steps.

1) the thinking skills of analysis, synthesis and evaluation were improved by requiring the group participants to read the sample writing composition and foreign journals as it was considered that they should concentrate on analysis the useful information and synthesize the important ideas in these reading materials in order to fulfill the requirements of summarizing the main points in the give testing writing materials. In addition, the skill of evaluation was enhanced when the participant was composing the writing piece by giving his or her own comments on the given test writing topic. In this section, critical thinking skills were improved by the designed classroom task.

2) With considering the effectiveness of the classroom activities on group talk and debate, it gave the group of participants more rooms to share personal views on the give TEM 4 writing testing topics and materials as they should present their thinking skills of analysis, evaluation and synthesis. The group of participants not only shared their personal comments, but also analyzed and synthesized other participants' points of view, in order to achieve a better expansion and explanation on the main argument.

Continuously, considering the results and performance on the writing composition of the selected sample participants, the dramatic changes had been

happened in the bi-weekly writing task, in particular from the first writing composition to the sixth one. Based on the explanation on the TEM 4 writing section marking scale, no matter in the section of content expression and composition organization, the participants performed better within the input and teaching of the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China.

From what has been summarized, the results and the performance of the bi-weekly writing task had been improved during the 16 weeks teaching within the designed teaching programme, the scores of the group of participants had been increased to help them pass the TEM 4 test. It can be seen that the designed classroom activities and the teaching assisted the participants to achieve dramatic changes on the English writing composition.

### The reflective journal

The reflective journal acted as an aid to help the research to have a deep evaluation on both the designed teaching programme and the improvement of the participants. By analyzing all the reflective journals of all the participants, it can be concluded into five categories by giving a vivid analysis on it and the improvement on both the critical thinking skills and the English writing competency can be distinctively figured out by the Figure 20.



Figure 20 Responses of participants on the English writing class

In this part, with the analysis on the reflective journal of the participants, we may inevitably be summarized that with teaching English writing to the group of participants in the teaching experiment, a dramatic improvement on English writing ability could be seen, no matter in the improvement on the critical thinking skills, logical thinking ability or the grammatical structures and vocabulary. The classroom activities which were designed in the programme were conducive to improve English writing skill and encourage the participants to speak out their feeling about their writing performance.

Indeed, most the participants shared the same or similar reflection on the English writing class, and by analyzing their reflective journals, the qualitative data was analyzing in the following.

The first category presents the reflection on the improvement of critical thinking skills and its assistance to enhance English writing skills.

Student 1: *Initially, what I have learned is to employ tentative rather than assertive or even positive language in academic English writing. Secondly, I learned to use more rhetorical devices to spice the articles.*

*It is the following reasons that have been conducive to my English writing. First of all, **Maintaining critical thinking**. Moreover, **analyzing and evaluating the excellent sample essays provided by the teacher**. Ultimately, applying these techniques to personal writing and makes for a more coherent and literary essay.*

Student 2: *In the English writing class, **I have learned the critical thinking skills**. We should **analyze the writing topic and gather the useful information** from the writing topic. It can help us give strong statement to support our points of view. Moreover, the teacher taught us how to **evaluate the important information** in the writing topic to support our statement. Lastly, the teacher asked us to have debate in class with the TEM writing topics, we should have independent study on the relevant information and select critical ideas on the Internet or books to defense in the class. It can not only give me courage in speaking out in English, but also let me open my*



*horizons on the whole world. I have learned many important opinions from my classmates*

With the analysis and evaluation on the reflection of the participants, 14 participants in the experimental group pointed out its importance and could help them analyze and evaluate the useful information in the TEM writing test questions in the English writing section. Based on the pre-research on the investigation on the critical thinking skills of participants by conducting CCTDI to them (see 5.2.1 Data analysis of CCTDI), the critical thinking skills was dramatically enhanced and they had a clear understanding of what they need to do in the English writing composition in the TEM test. In addition, the materials which were provided by the teacher gave more space and time to the participants to have independent study, it required them to cultivate the critical thinking skills to evaluate the sufficient useful information in the topics in TEM writing section in order to support themselves in the classroom activities in debating. From what has been discussed, the participants realized the importance on the cultivation the critical thinking skills and they gradually accept the methods and techniques which was taught by the teacher and learned how to have independent study.

By analyzing the first category on the improvement on critical thinking skills, 12 participants claimed in their reflective journals that their logical thinking ability was enhanced in the English writing class and they learned to know the sequence of English writing. The responds of the participants in this category is presenting in the following.

*Student 3: Through the writing class that we learned, I can know more details such as how to compose a composition that make the language we can express incline to have logical, a qualified composition should contain three parts, introduction, body and conclusion.*

*The reason why the ability of writing I can improve are as follow. For instance, properly dividing the composition into different parts and using some conjunction to connect them in order to give a better way of expressing the composition expediently and make it more logical.*

*Student 1: the improvement, after a semester of writing course, I have learned and be beneficial a lot from it. I have learned about the methods and skills about academic writing and know how to use them to improve my writing. For example, to create a mind map is vital for finishing an essay logically and effectively.*

*The problems, I should accumulate more advanced words and expressions to substitute the oral expressions. In addition, I have little accumulation for many social events so that I cannot devote myself to English writing so well.*

Logical thinking ability is seen as the essential ability in English writing. Logical thinking is a process in which people can reflect the reality through concept, judgment and reasoning in the process of understanding (Chen 2003). The logical thinking ability could help the participants improve the skill of analyzing in order to analyze and evaluate the information in the writing test questions in the TEM test. What's more, by cultivating the logical thinking ability of the participants, a clear and effective sequence of English writing composition could be achieved as a result of achieving a good score in writing section in TEM.

To the pre-research on the group of participants, it was reported that the writing test questions of writing section of TEM test was a difficult part of writing section for students as they need to analyze the given text and synthesize the useful information in it. Not only the writing skill is required, but also the reading comprehension skill in writing of TEM. By researching the participants of using the reflective journal, their responses of writing test questions of writing section of TEM, and their feedback and solutions are as follow,

*Student 1: we have learned the process of writing. Interpret and analyze the assigned essay questions, then gather relevant information. What's more, write an essay plan and outline, finally revise the article. The other point is to try to writing point of view as clear as possible and do not write ambiguous.*

*Student 2 : we need to determine what the genre of the article is, and the determine what aspects we should write the article from. We can use mind map to plan our essays so that we can write smoothly and efficiently.*

*Student 3: it is the process of writing which is about making a mind map before writing and analyzing the writing test question. Writing a mind map or a linear outline can help students clearly know their writing steps and content. The reason why I improved my English writing skill is I think about **the topic and then write a mind map** before I write.*

From what have been discussed about the writing test questions and making a mind map, it can be seen that some of participants, due to analysis of their reflective journals, deemed that learning how to analyze of the writing test questions of writing section in TEM or learn how to make a mind map of their writing could help them in perform better in English writing. In addition, by teaching how to make a mind map of the writing task, it was reported that a better logical thinking ability was achieving as they, the participants in the research, used to plan the writing in their mind with Chinese without writing it down. As a result, it might be missed some useful information when they were composing their work.

For the last category mentioned above about the feedback on the grammatical structures and vocabulary, 10 participants illustrated that they have achieved a clearer understanding on the usage of grammatical structures and vocabulary in their writing due to the learning in the English writing course. It is commonly believed that grammatical structures and vocabulary are the basic elements of English writing, a good piece of writing cannot be done without them. However, based on the educational background of the participants, they have already learned English for more ten years, some academic or written vocabulary and grammatical structures have been studied in their previous school time. With the enhancement on teaching academic vocabulary and grammatical structures, it reported that less participants mentioned the improvement on the grammatical structures and vocabulary, compared with the critical thinking skills and logical thinking ability, the high order thinking skills. By analyzing the reflection, it was reported in the following,

*Student 1: it is unusual to make contractions in the writing. Admittedly, employing formal vocabulary, negatives and quantifiers. Besides, I was used to employing personal pronoun in the academic writing. It is unadmitted that using slogan like "Let's make efforts together!" in the writing. I am extremely benefited from these writing lessons.*

*Student 2: For example, in writing, we will consciously avoid some low-level mistakes and try to use formal language as much as possible. What's more, we can learn that reading is very helpful for writing, because we can accumulate advanced sentence patterns and correct grammar usage in reading.*

The reflective journal was acted as a conducive tool to investigate the feelings of the participants out of class. It was a good way to evaluate the improvement on the English writing of the participants as they could writing their real and authentic feeling about the class. In addition, not only the improvement of the participants were presented above, but also reported some problems on writing in English. Indeed, the reflective journal gave more space for the participants to share their ideas on writing class.

### **Opinions toward the critical thinking skills-based programme**

In this part of the research, the data from the interviews of both the experienced teachers and the randomly selected participants were analyzed and presented literally in the following to support the qualitative data of the research.

#### **The interviews of the participants**

It is considered that the students' impressions and feelings of the designed teaching programme would last for a short time as they had different courses everyday and it was hard to keep their memory on the teaching, thus the interviews of students were carried out immediately after the teaching experiment. Ten students from the experimental group were asked to take part in the one-by-one interviews. The qualitative data from the face-to face interviews of the students were coded by conducting the content analysis. Furthermore, with the consideration on the content analysis and the flexibility to the researcher, an online artificial intelligence tool-

iFLYTEK was used to record and transcribe the audio-sound into script and it would be presented in the appendix. Considering all the experienced teachers were majored in English, English was the target language which was used in the interviews.

By analyzing their responses, it can be divided into the following parts.

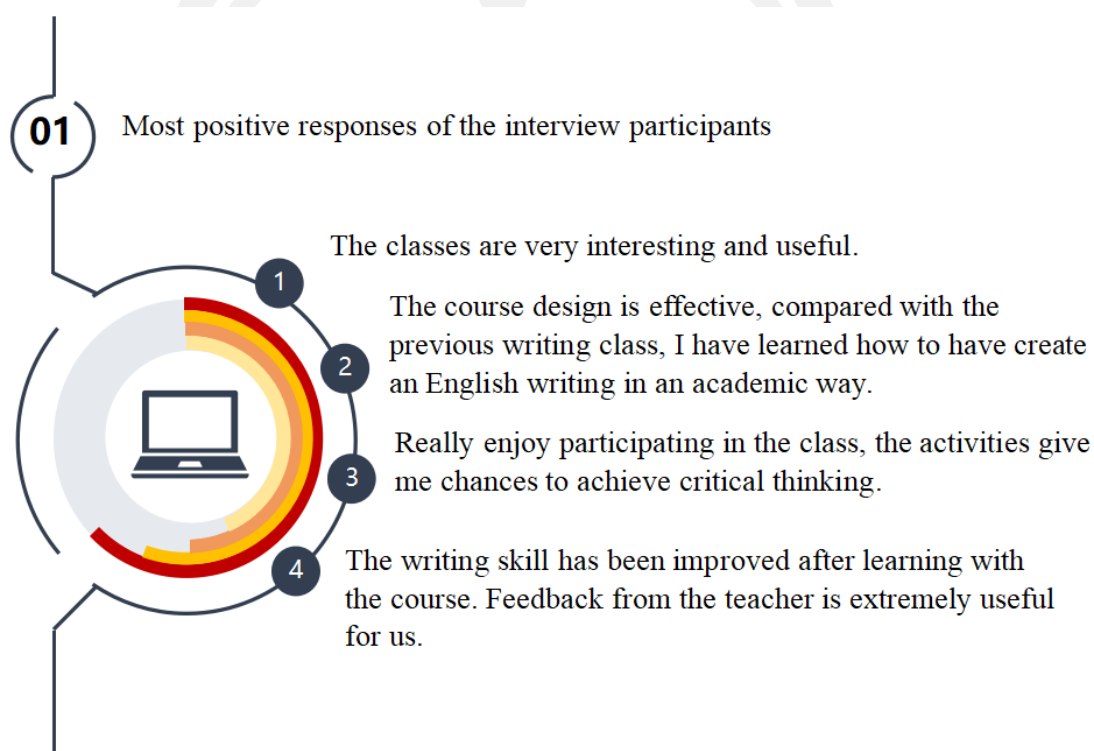


Figure 21 Positive Responses of the interview participants

The responses of the participants were classified into four categories with the most frequency. And the data in the one-by-one interviews revealed that the participants who took part in the interviews were enjoying the teaching design of the designed teaching programme. From the responses, it can be seen that critical thinking skills, for instance evaluation skill and logical achievement, were cultivated. And most of them mentioned that their writing ability had been improved after learning with the designed programme. With analyzing the responses of the participants, the quotations of their responses are followed to illustrate their opinions.

*T1: I am delighted to attend the English writing class and I benefited a lot from it. For example, I realized that a brilliant writing includes the visionary stage, the evaluation stage and the revisionary stage, outline is beneficial to present points smoothly and logically.*

*T2: After a semester English writing training, I have had a better understanding of the writing, especially know how to write a logical passage. It is very wonderful to correct some of my mistakes in learning. And I have realized what I was learning and what I was missing.*

Some participants said that their writing skills has been improved after learning with the course (the designed teaching programme). They responded that their improvement on the English writing in the several ways by actively participating in the classroom activities. And they think the improvement on their English writing is significant for TEM tests. Their reports were quoted to present their views on the designed teaching programme.

*T3: Through the semesters writing class, I learned some writing skills. Among all the activities, the most important is mind map. It can be a good way to clarify my writing thought. The mind map also helps me my English writing to some extent and I have a basic idea about academic writing for TEM 4 test.*

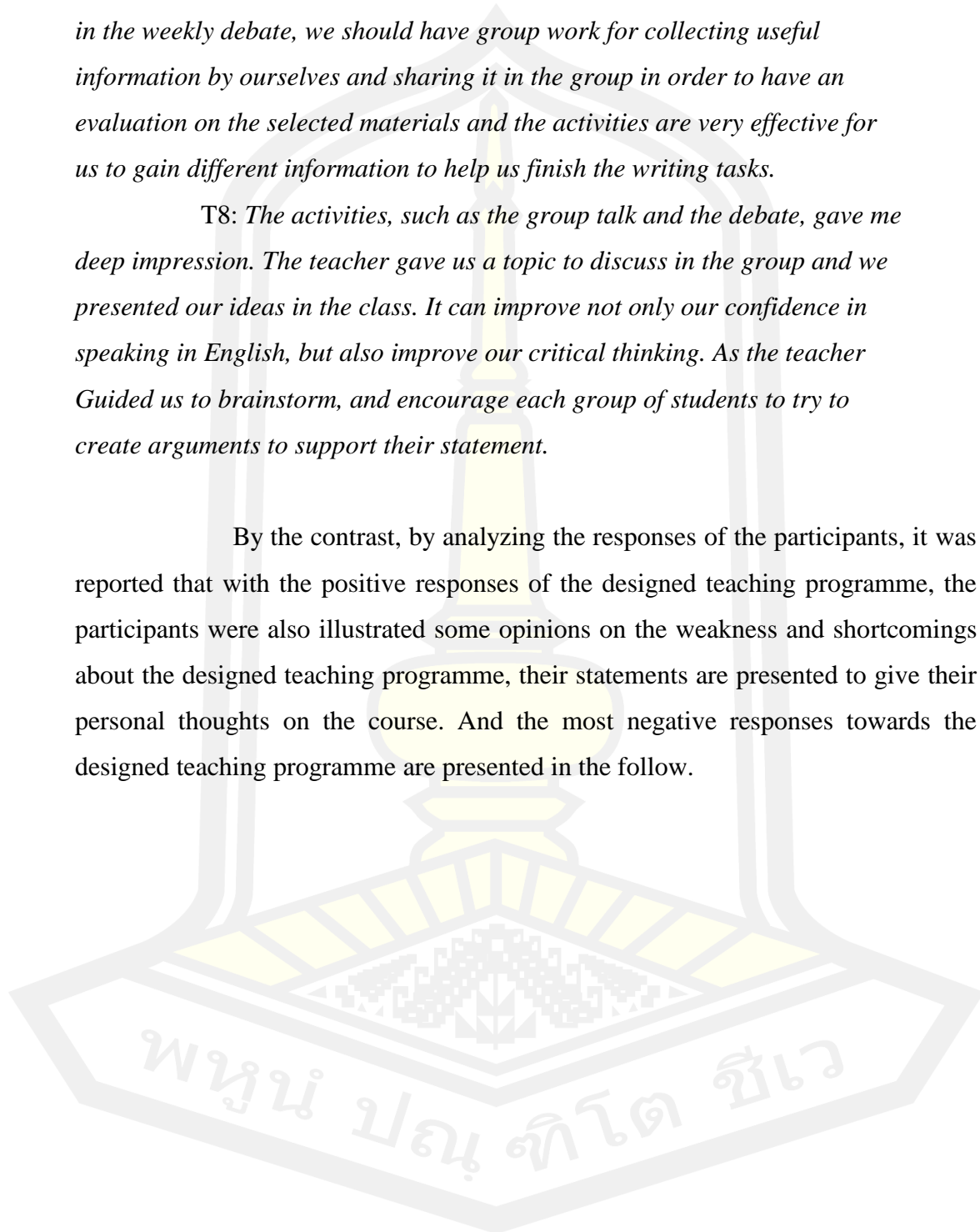
*T5: I had a wonderful and interesting writing class in this term. Though the activities in the writing class, I have learned how to achieve a formal style in academic writing instead of informal. Language, vocabulary, grammar, qualifiers ought to be used accurately, it is really helpful to my English writing. I think I could have a better score in TEM 4 test.*

From the conclusion on the responses of the participants in the interviews, some participants illustrated that the participation on the classroom activities cultivate their critical thinking skills and it could help them compose their English writing pieces and improve their English writing skill. The following responses can be seen as a reflection on the designed programme.

*T6: The writing class is very interesting and the classroom activities are very practical to practice our critical thinking skills, especially in the weekly debate, we should have group work for collecting useful information by ourselves and sharing it in the group in order to have an evaluation on the selected materials and the activities are very effective for us to gain different information to help us finish the writing tasks.*

*T8: The activities, such as the group talk and the debate, gave me deep impression. The teacher gave us a topic to discuss in the group and we presented our ideas in the class. It can improve not only our confidence in speaking in English, but also improve our critical thinking. As the teacher Guided us to brainstorm, and encourage each group of students to try to create arguments to support their statement.*

By the contrast, by analyzing the responses of the participants, it was reported that with the positive responses of the designed teaching programme, the participants were also illustrated some opinions on the weakness and shortcomings about the designed teaching programme, their statements are presented to give their personal thoughts on the course. And the most negative responses towards the designed teaching programme are presented in the follow.



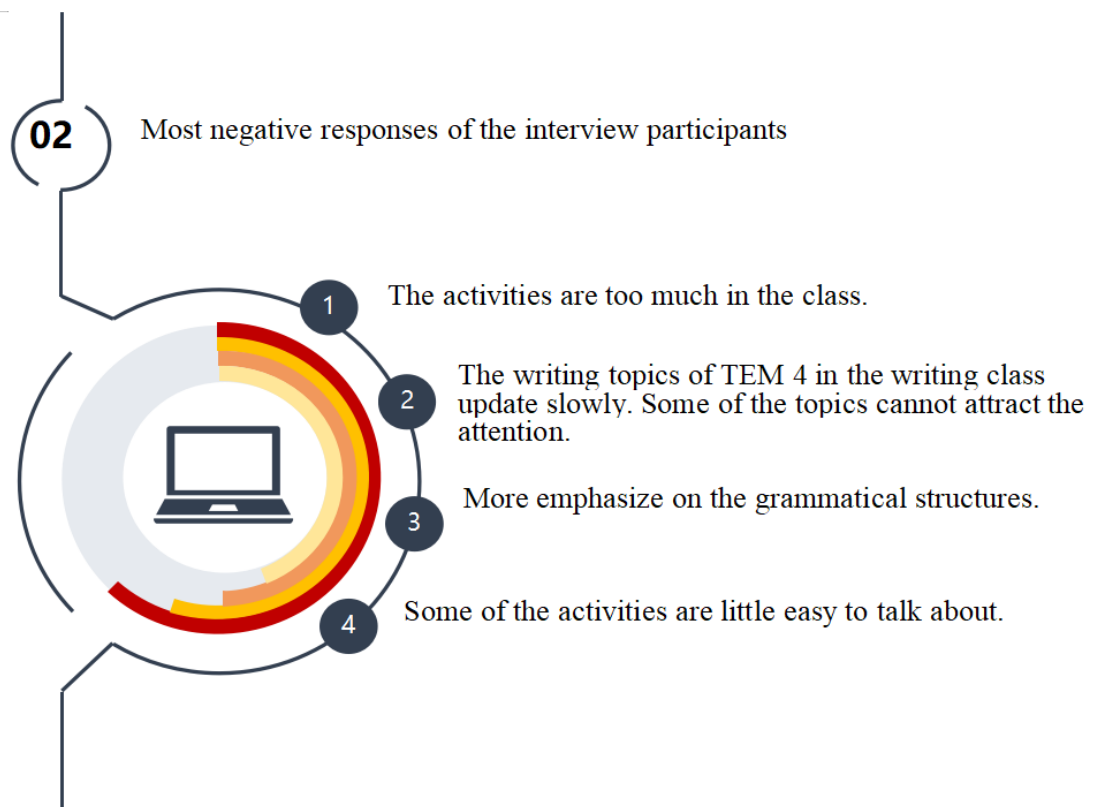


Figure 22 Negative Responses of the interview participants

T4: *I think doing activities in the class is a better way to improve our speaking ability and writing ability. But I think the activities are too much in the class, I prefer the teacher teaching, the teacher should talk more in the class. And I want to say the teacher should monitor the classroom more as we sometimes are not discussing the information about the class.*

T9: *When we are discussing the TEM 4 writing topics in the writing class, it is really a good way for us to understand the procedure of writing academic writing in the TEM 4. But some of the topics which are chosen by the teachers are too old style to discuss, some topics were from last century. I think all the topics we talk about are new and based on the social phenomenon.*



T5: *I still have great quantities of problems need to tack. My sentences are to simple without high level grammar and I cannot make good use of sentence patterns that I have remembered. In the writing class, we have talk about and discuss a lot of TEM writing questions, it is good for us, and I think my teacher can teach more grammar in the class and tell me how to use these grammars properly.*

T10 : *I want to suggest that some of the activities, especially pair work discussion, are little easy to talk about. And the teacher gave us 5-8 minutes to talk about. I think the time is a little long, we can talk about more challenge topics about TEM 4 test and it can help us have a good score in the test. At last, I think I really like the English writing class, one term learning with the teacher is not enough.*

From the data in the interviews of the students, both positive and negative perspectives were reported to state the personal views of the designed teaching programme, most participants illustrated that after learning with the programme, their English writing competency has been enhanced and they had a better understanding on the English academic writing which is the writing testing type in the TEM tests.

### **The interviews of the experienced teachers**

The qualitative data from the face-to face interviews of the experienced teachers were coded by conducting the content analysis. Furthermore, with the consideration on the content analysis and the flexibility to the researcher, an online artificial intelligence tool- iFLYTEK was used to record and transcribe the audio-sound into script and it would be presented in the appendix. Considering all the experienced teachers were majored in English, English was the target language which was used in the interviews.

By using the thematic analysis method to analyze the qualitative data from the interviews of the experienced teachers, similar expression including vocabulary and sentences would be classified into same theme. The data from the interviews of the experienced teachers was used as the evidence to examine the effectiveness of the designed teaching programme and answer the research questions

(see the Chapter I). the data analysis on the interviews was presented in the following.

In order to obtain the information and ideas of the five experienced teachers, one to one interviews were carried out to investigate their thoughts on the designed teaching programme. As mentioned before, these teachers were taught English writing to ethnic minority students for more than ten years and some of them were administrators in the English department of Guizhou Minzu University, it is believed that their responses were meaningful to the designed programme no matter in the process of teaching, but the overall consideration to the development to the designed teaching programme in reliance on the National Core Curriculum.

In the following part, the responses of the experiences teachers would be classified into three categories of 1) thoughts on the designed teaching programme, 2) advantages and shortage needed to improve later in developing the designed teaching programme and 3) free comments on the designed teaching programme. Their responses which were interacted based on the designed questions are presented with coding name of T1-T5.

Categories One: thoughts on the designed teaching programme

T1 : *I do like this teaching programme. That's really a good way, I think the details in this programme would definitely bring huge benefits for students. Since, from my teaching experience I have already seen the huge gap between the students and the missing of critical thinking skills, no matter in English writing or in reading. And in TEM tests, the major trend of the writing tests is designed to attach the critical thinking ability in TEM4 OR 8, that's quiet normal now. And on the other hand, the various area of Chinese higher education background do bring certain problems for the ethnic minority students in Southwest China. Some of them had no idea about what is authentic academic writing patters or any rules, their writing style were more like a narrative writing, had none solid supporting details. They just kept writing, that was really suffered when I checked their works.*

T2: *The objective of the designed teaching programme is very clear and is designed under the objectives of the National core curriculum and the English Major syllabus. In the classroom activities designing, critical thinking skills had been well cultivated in the classroom, as Academic English courses are mostly related to the text analysis, in particular the classroom activities of the debate, the peer review and the group talk . When analyzing and evaluating the context, students analyzed and evaluated relevant information with the help of the teacher, and in the process of developing critical thinking skills, English writing skill has also improved due to the input of critical thinking skills. Students open their eyes to evaluate the world and express themselves with personal comments, this is a big improvement in the designed programme compared with previous English writing course.*

T3: *The teaching programme based on the critical thinking skills is different with the previous programme and classroom teaching designing, it focus on the cultivation of critical thinking skills, and English writing ability is improved and enhanced by having classroom activities to stimulate enthusiasm of students to express themselves with the social heated topics, for instance the debate, group talk. To some extent of taking TEM tests, it can benefit a lot for the students who want to pass the TEM tests.*

*However, I just want to share my humble opinion about the dislike part in the teaching programme, maybe it should be designed or carefully selected sample writings texts, in particular the writing topics are the heated topic in TEM testing.*

From the thoughts of the three experienced teachers, they all shared the points that the designed teaching programme was beneficial to the ethnic minority students as it was the means to improve the English writing ability under the cultivation of critical thinking skills. The interviewees T2 and T3 pointed the same thoughts on the designing on the classroom activities, they shared the evaluation on the activities of debate and group talk which were beneficial to students most and stimulated enthusiasm of students to express themselves, and

turned the classroom into a platform for expressing, communicating and discussing. Moreover, the interviewee T1 expressed the love to the designed teaching programme, and she stated the cultivation on the critical thinking skills was very important as the TEM tests now was designed to attach critical thinking skills. With the consideration on help students to pass the TEM tests, the development on the designed teaching programme seems as a effective way to cultivate the critical thinking skills in order to improve the English writing ability.

More importantly, the interviewee pointed out that some aspects of the designed teaching programme might meet problems on teaching English writing to student. Within the usage of model example context, the selection and the updating on the contexts should be carefully chosen, as the writing topics of the TEM 4 test are usually picked out from the heated topics in the society, for instance, pollution, communication, education, etc. Careful selection on the model example contexts could assist students to have a better understanding on how to compose a writing composition in the environment of taking TEM 4 writing testing.

Category Two: advantages and shortage needed to improve later in developing the designed teaching programme

*T2: I do like to say the drawing of an outline before writing, which really helps students to organize their ideas before conducting the writing task, and analysis certain model example under the guidance of the teacher to summarize the basic structures of writing composition. Taking one example for further extension, I used to assign one writing task to students in my class, the topic is about talking about both advantages and disadvantages in certain fixed topic, almost all my students tended to talk about only one side, they chose to ignore the other side to give any explanation, during the feedback stage they did admit that they had no clues about how to writing the other side, they had no idea to give any solid supporting parts.*

*T4: The classroom designing is better than the previous English writing courses as they were used to be the teacher-centered classroom within a lot of time on the teacher talking time. The conduction of this teaching programme gave more space to students to share and express*

*personal opinions which is beneficial to them when composing the TEM 4 writing works as commenting is one of the most important part in the writing section. But I think more than 4 kinds of classroom activities, for instance the debate, the group talk, the peer talk, the peer review, were taken in class, the improvement on the English writing could be not easily identified in the instant class. And the feedback to students can be not achieved to every student as the limit on the class duration. We may find a useful way to evaluate the improvement on English writing ability.*

*T5: Cultivating the critical thinking skills is a good way for ethnic minority students to improve and enhance their English writing ability as they have different education background, different languages and most important is most of them come from the rural areas, they are accustomed to the teacher-centered classroom. As a result, they do not have abilities on independent thinking, appropriate expression and learning enthusiasm. This teaching programme gives this group of students space to develop themselves in learning how to study English with thoughts.*

*When conducting the teaching programme, we should think about the frequency of using the target language-English. It is considered that the size of the class in with 40 students, it is a little difficult to monitor every students in using the target language. If the teacher could not achieve to monitor all the students, Chinese-Mandarin might be the main language for communicating in the classroom of group talk and peer talk. It seems that the improvement on the usage of the target language language cannot be attained.*

From what has been presented, it can be seen that shortages on classroom activities designing are embodied in monitoring and instantly evaluating the group of students. It is considered that the experimental students are all ethnic minority students who have different learning and living background with other majority Han students. Their motivation on learning English, even English writing, might be ambiguous as they do not hold a vivid learning objective in the duration of studying in the university. As the interviewees T4 and T5 said, in the light of the

specialty of this group of ethnic minority students, shortages of designing the teaching programme should arise the attention in conducting the classroom activities.

The interviewee T2 mentioned about classroom activity- the drawing of an outline before writing, it is an activity for the students to cultivate and enhance critical thinking skills by analyzing certain model example under the guidance of teachers and summarizing the basic structures. As mentioned before in classroom activities designing (see appendix teaching plan), critical thinking skills can be cultivated by asking students to draw a mind map, and it is a process for students to practice both thinking ability and writing ability.

Category three: free comments on the designed teaching programme

*T1 : May try to conduct more activities or procedures to keep track of the changes of students during this teaching programme. English writing tests are considered as a difficult part for both teachers and students. In the process of learning and teaching English or English writing, Chinese is the main language which plays the dominate role in teaching and learning in class. Therefore, thoughts in Chinese expression influence the composition of English writing. I think more activities design for the writing class or the programme could force students to use more English in or out of the class and foster their thinking by using English instead of Chinese. Chinglish may not exist in their English writing in order to achieve a better organization and expression in writing.*

*And I want to say, cultivating critical thinking skills to the ethnic minority students is a good way to them to improve their English writing ability and the most important is the classroom activities give them more time and space to express themselves by using English, it is also a good method to practice their English oral speaking.*

*T3: In the programme, I want to give some suggestions on the process and format of evaluation to the students. Firstly, I would like to say, this programme really motivate students to learn and to participant in the*

*classroom activities. However, on the evaluation or assessment stage, we should not only concentrate on the improvement on the English writing ability, but also focus on the engagement in the classroom activities and the performance on expressing themselves. The group of ethnic minority students is a group of students with special characteristics in English learning background, the influence on their mother tongue and the motivation on learning English. So we should give students more space to grow up, not only focus on the improvement on the scores in English writing, we, as teachers, should give more concerns on their inside changes.*

*T4: The teaching programme needs to have both the particularity of school characteristics, regional characteristics as the programme is designed to improve the English writing ability of ethnic minority students. With the consideration of the specialty of this group of students, many of them have different interests and English comprehension ability in result of making it impossible for teachers to teach all kinds knowledge according to the original teaching plan. And English writing skill is an important language skill for English major students as many of them will be English teachers and translators, obtaining a good writing skill is the fundamental skill for them to find a job. In addition, on the thoughts of TEM tests, writing section occupies 25% scores in the tests, if a student could acquire better scores in writing, it is easy for them to pass the exam. In order to achieve a good score in the writing section, I suggest that in designing the programme, the classroom activities and discussion topics should be appropriately adjusted according to the students' recent learning conditions. We need to ensure the improvement of students to the English writing ability is enhanced step by step.*

In the final category of interview questions, the responses of the experienced teachers were given by different perspectives.

To begin with, three interviewee teachers expressed their delight thoughts on the designing the teaching programme for the group of ethnic minority

students, they admitted the effectiveness of this designed teaching programme in improving the English writing skill for this group of students as they have different educational background or learning motivation from the majority students with the identity of Han People. Designing the teaching programme is effective for the group of students to improve both English writing skill and critical thinking skills, with the combination of the kinds of skill, the group of ethnic minority students could achieve a better performance on English writing.

Secondly, taking the evaluation section in the designed teaching programme into consideration, more formats of evaluation should be conducted, teachers would not only focus on the scores, but also the performance inside the class, for instance speaking out their ideas and comments on the given writing topics or the interaction with both teachers and students, even they did not perform well in English writing composition. It is considered that more encourage to the group of ethnic minority students would motivate them in learning English and English writing.

Last but not least, as the interviewee T4 expressed that we need concentrate on the learning process of students, more concerns should be happened on the recent leaning situation. Based on the interviewee T3'comments, we should concentrate on the evaluation to the group of students, and according to the leaning performance and feedback of students, the classroom activities designing, writing materials selection, and formats of evaluation should be changed in order to provide this group of ethnic minority students space to learn English writing and how to think with critical thinking skills.

From what has been discussed above, classroom activities designing, formats of evaluation should be changed based on the learning situation of students. It is considered that the aim of this designed teaching programme is to assist the group of ethnic minority students to cultivate their critical thinking skills as a result of improving English writing ability.



## CHAPTER V

### DISCUSSION AND CONCLUSION

The chapter is to attempt to discuss the findings and the effectiveness of the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China. The findings in the Chapter IV are discussed here in this chapter to address three research questions on the designed teaching programme to evaluate the improvement on the English writing competency of the ethnic minority English major students. In addition, with the analysis and evaluation on the data in the research, a conclusion of the research will be drawn in the following part.

#### **Findings**

With the pre-research by using the CCTDI and the designed questionnaire to the research participants, a fundamental understanding of the research participants was figured out with the truth that they are lack of critical thinking skills and do not have a good performance on TEM writing composition. With the pre-consideration on the facts of the participants, the sequence of applying the research to them find out. And the main findings can be summarized in the following.

Firstly, the changes on the English writing composition of the TEM writing topics of the participants has been dramatically placed. Based on the presented marking scores of the participants in performing the writing task of TEM4 writing writing test questions, it can be vividly seen from the participants that it was a progress of the score increasing during the period of composing the TEM4 writing.

Secondly, the designing activities in the designed teaching programme cultivate the critical thinking skills of the research participants in the revealing of the skills on TEM writing topics analysis, logically self-evaluation on the writing composition, relevant information gathering and explaining personal ideas. Critical thinking skills of the research participants has been improved through the designed teaching programme.

Thirdly, with the consideration on the teaching programme designing, both the experienced teaching who observed the teaching experiment for 16 weeks and the research participants expressed the positive views on the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students and affirm its effectiveness towards the enhancement on the English writing competency in the TEM tests for the ethnic minority students in the English major in China.

### **Discussion**

By designing the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students and analyzing the data in the research designing, three research question were addressed: 1) What are the effects of this critical thinking skills-based programme of enhancing writing competency in TEM Tests among ethnic minority students in Southwest China? 2) To what extent, ethnic minority students could improve their writing competency in TEM tests through this critical thinking skills-based programme? 3) How does critical thinking skills-based programme enhance writing competency in TEM Tests among ethnic minority students in Southwest China?

In the first and second research questions, the effects and the effectiveness of the designed teaching programme were analyzed and discussed by conducting the bi-weekly writing tasks and the reflective journal to the participants, their improvement has been arising due to their changes on English writing composition.

In the last research question, the interviews to both the experienced teachers and the randomly selected participants were carried out to address the third research question with the ways of enhancement on the English writing composition of the research participants. In the following part, the detailed discussion on the research questions were summarized.

#### **Discussion on question one**

Based upon the findings in the chapter IV, the data revealed that both the critical thinking skills and the English writing competency of the research participants have been improved in the process of learning with the designed teaching programme. According to the results, it can be generalized that the research

participants in the teaching experiment have improved themselves from the perspective of the scores on the TEM writing topics questions as it is proved in the Chapter IV.

In the pre-research phase, the results of lack of critical thinking skills and poor performance on the English writing composition were expressed by the research participants through the CCTDI and the designed questionnaire. In the following research procedure, a teaching experiment was conducted among the participants within 16 weeks and a bi-weekly writing task, a final reflective journal and the interviews for the participants were carried out to help the researcher to investigate the changes of the research participants. From the data and the results of the two tasks for the participants, both positive and negative effects of the designed teaching programme revealed in their responses towards the designed teaching programme. The positive effects, however, outweighed the negative effects.

Through discussing the effects of the designed teaching programme, it can be summarized in the following parts.

Firstly, through the result from the interview and the task of the reflective journal, the responses of the research participants reported that 1) the activities arrangement, 2) the classroom interaction and 3) the classroom participation in the designed teaching programme can be seen as the positive effects towards the designed teaching programme. In the findings of the reflective journal and the interviews from both teachers and participants, the designing on the classroom activities played a dominant role in the designed teaching programme to cultivate critical thinking skills of the participants and also to arouse the interests in learning with the English writing class. The responses of the participants and teachers proved the enhancement on the English writing competency based on the learning and observation on the designed teaching programme. Based on the analysis of the literature review, the emphasis on the classroom activities arrangement plays an important role in the cultivating critical thinking skills to English major student in Chinese universities (Li, 2014; Yu, 2017; Pan & Zou, 2020). With the research on the participants, findings on the classroom interaction and participation to the group of ethnic minority students could help them enhance and improve both critical thinking skills and the English writing competency. Wang (2016) stated the ideas on classroom

atmosphere can be a further consideration on the ethnic minority students majored in English in enhancing English writing competency.

In the responses of the participants, many of them claimed that the improvement on the critical thinking skills helped them enhance the English writing competency and the enhancement on the logical thinking ability assisted them know the sequence of English writing composition. Some scholars hold the same ideas as the findings in the research (Jin, 2020; Gong, 2021; Zhang, 2022) For instance, one participant wrote in her reflective journal: “properly dividing the composition into different parts and using some conjunction to connect them in order to give a better way of expressing the composition expediently and make it more logical.”

It is believed that the improvement on both the critical thinking skills and the English writing competency were coming from the arrangement of the classroom activities. With the interaction and the participation in the classroom activities, the learning motivation was cultivated in the environment of enhancing English writing competency with critical thinking skills. Some of the Chinese scholars hold the similar ideas in designing classroom activities for cultivating critical thinking skills and enhance English writing competency. The implementation on conducting diverse classroom activities, using the problem-solving method for teaching, the students-centered classroom environment and enhancing the practical activities (Wen, 2017; Feng, 2019; Zhang & Kim, 2018; Han, 2015)

As one of the research participants illustrated in the reflective journal, “Maintaining critical thinking. Moreover, analyzing and evaluating the excellent sample essays provided by the teacher. Ultimately, applying these techniques to personal writing and makes for a more coherent and literary essay.”

And another participant illustrated the interaction in the class, “It can improve not only our confidence in speaking in English, but also improve our critical thinking. As the teacher Guided us to brainstorm, and encourage each group of students to try to create arguments to support their statement.” From the two statements, it can be seen from the response that the classroom activities gave huge supports to the participants to enhance their English writing competency.

In addition, with the thinking on the classroom activities involvement and participation, it is a good way to foster the interests on learning English writing

with the designed teaching programme as the participants possessed a great number of time to interact with the teacher and the classmates. For instance, one participants in the interview reported that “The writing class is very interesting and the classroom activities are very practical to practice our critical thinking skills, especially in the weekly debate, we should have group work for collecting useful information by ourselves and sharing it in the group.” In this kind of learning atmosphere, not only the target learning objects can be learned in the class, but also can cultivate the learning motivation of the research participants. In the perspective of the aspect on the critical thinking- emotional attitude- the classroom involvement and the participation could help the teacher build the communication relationship with the students, in order to actually understand the needs and the deep feelings on learning English writing. Based on the finding of Wen (2017), the practical atmosphere of class could motivate students in fostering critical thinking skills.

By analyzing the bi-weekly writing tasks of the research participants, the indication of it indicated that with the learning with the designed teaching programme, the scores of the participants’ English writing composition on the TEM writing topics were increasing step by step and almost all the participants have been achieved a big improvement on English writing composition, no matter on the writing sequence, the accuracy on language or the writing organization. For instance, some of the writing techniques which was taught in the teaching experiment was considered usefully for the participants.

One research participants wrote in the reflective journal, “We can use mind map to plan our essays so that we can write smoothly and efficiently.” It can be seen from the response the learning with the designed teaching programme, especially the classroom activities designing could enhance the English writing competency of the participants. At the writing sequence level, the participants understand the correct sequence of English writing composition with the sequence of introduction, body and conclusion to express the opinions on the give writing topics. As the accuracy level, academic vocabulary and grammatical structures help the participants realize the appropriate expression on English writing, for instance the decreasing on the usage of Chinglish. Zhang (2022), Chang (2020) shared the same ideas on the teaching on the

academic vocabulary and grammar. However, most researches were concentrated on the language accuracy, but little on the discussion on the usage of Chinglish.

Lastly, at the writing organization level, key arguments with further explanation and linking words are identified in the writing composition to demonstrate the main ideas of the writing topics. And it can be a positive way to organize the composition with order.

Taking it into consideration, it proves the usefulness of the designed teaching programme in the research environment for the ethnic minority students majored in English. The findings in Chapter IV also proved the effectiveness on the designed teaching programme. However, nearly almost researches were focused on the researching on the general groups of students, not pay attention on the ethnic minority students majored in English in the Southwest China (Shen & Chen, 2017), and Luo & Nuangchalem (2022) also stated “due to the small number of English major students in Chinese universities, compared with non-English major students, few researched are conducted among English major students in the TEM testing environment.” This study may give further consideration on the ethnic minority students majored in English in cultivating critical thinking skills.

Secondly, with the consideration on the responses in the interviews for the research participants, negative effects: 1) less feedback, 2) unclear target focus on the designed teaching programme were reported as same as the positive effects.

The time of class is limited, too many classroom activities would be result in a more students talking time classroom environment. Some of the participants demonstrated they prefer a balance on the teacher talking time and students talking time. Taking one participants as an example, “I think the activities are too much in the class, I prefer the teacher teaching, the teacher should talk more in the class.” With the regards to the response of the participants, more monitoring and feedback giving should be carried out to adjust the leaning habits of the participants.

Moreover, the designed teaching programme is focused on the cultivation on the critical thinking skills and the improvement on English writing competency. It aimed to enhance English writing competency of the participants through cultivation on critical thinking skills. Unfortunately, one of the research participants illustrated in the interview with expressing the needs on learning English

grammatical structures as she did not have a good understanding on grammar, in particular difficult grammar patterns. The responses indicated that the analysis on the needs of the participants should be carefully carried out.

Both the positive and negative effects can be seen as the way to address the research question as it is the responses from the participants. As mentioned before in this section, the positive effects outweighed the negative effects as the improvement on both the critical thinking skills and the English writing competency are apparent revealed in the research. However, taking the negative effects into consideration, further research should concentrate on the needs and the changeable feeling on the teaching programme for the students as the students are changing everyday and their acceptance on the teaching is different. More monitoring and feedback should be given to the students in or out of the class in order to find a better way to help them improve themselves in English language learning, especially the ethnic minority students.

#### **Discussion on question two**

As discussed before in the last section and the data analysis in the Chapter IV, both the critical thinking skills and the English writing competency have been cultivated and improved through learning with the critical thinking skills-based programme for enhancing writing competency to ethnic minority students. With regards to the research question on “To what extent, ethnic minority students could improve their writing competency in TEM tests through this critical thinking skills-based programme?”, the degree on the improvement on English writing competency in TEM test can be summarized as a big improvement of the research participants.

Taking the findings in the research phases of the bi-weekly writing tasks and the reflective journal into consideration, the big improvement on English writing competency in TEM test can be revealed in the following aspects.

First, well designed writing tasks can first arouse learners' desire to express their thoughts. Secondly, it can provide space to expand learners' English application ability and critical thinking skills (Yang 2012). With analysis on the bi-weekly writing tasks, all the writing tasks were based on the TEM 4 writing topics and the scoring on the writing composition was under the instruction of the marking scale of the TEM tests. It can be seen from the writing tasks that the English writing

competency of all the students has been improved as almost all the students have improved their TEM writing topics-based writing composition with 4-7 points from the first piece of writing to the sixth one. And based on the marking scale of the TEM writing section, 4-7 points improvement on the writing competency in the TEM tests can be seen as a big improvement as the writing section in TEM tests consisted 20 points.

Secondly, according to the expression of the participants in the phase of the reflective journal, almost all the participants wrote that their English writing competency have been improved by learning with the designed teaching programme. And some of them thought they performed better in their writing as the they were really interested in the involvement and the participation on the classroom activities. For instance, the participants wrote in her reflective journal,

*“Through the writing class that we learned, I can know more details such as how to compose a composition that make the language we can express incline to have logical, a qualified composition should contain three parts, introduction, body and conclusion.” and other participants wrote with the same feeling about the designed teaching programme.*

*“The improvement, after a semester of writing course, I have learned and be beneficial a lot from it. I have learned about the methods and skills about academic writing and know how to use them to improve my writing.”*

From the expression of the two participants, they have improved their English writing competency to some extent and the second participant expressed with the big improvement on saying “be beneficial a lot from it” as it was proved in the findings.

From the improvement on the English writing competency of the participants, the results from the tasks which were conducted in the research can be seen that all the participants have improved their English writing competency. With the consideration on the changes of the scores in the bi-weekly tasks, a big improvement on the English writing competency is considered to be presented to



address the second research question. The findings in the research supported the other scholars who studied critical thinking skills and college students in China, the cultivation on critical thinking skills could help enhance the writing competency (Su 2021, Wang 2016, Yu 2020, Ma 2014).

However, with above analysis on the literature review, the findings in the other researches only stated the improvement on the English writing competency through the cultivation on critical thinking skills, it did not mention the personal difference in the enhancement. Based on the findings in chapter IV, the scores on the bi-weekly writing task were presented differently. In this study, the personal differences on the English writing competency were presented with the analysis of the bi-weekly writing task, the degrees on the improvement might demonstrate differently based on the personal development on learning English.

### **Discussion on question three**

It was found in the research that both the critical thinking skills and the English writing competency have been cultivated and improved under the instruction on the designed teaching programme. As the result revealed in the Chapter IV, the figure 18 (see Chapter IV), the participants were really interested in the designed teaching programme and their opinions towards it can be seen as the answers to address the Research Question Three.

Effective Course designing could help teachers cultivate the interests on leaning English (Jin, 2020). Firstly, the course design is effective, compared with the previous writing class, the participants have learned how to have create an English writing composition in an academic way. The teaching experiment of the designed teaching programme consists a lot of classroom activities, for example given topic debate, group discussion, pair talk, peer review, model text analysis, etc. With the conducting of these classroom activities, the participants could realize the skills on both critical thinking skills and English writing composition. For instance, the participants in the interviews expressed their feelings about the designed teaching programme and their improvement on the English writing competency. One of the participants expressed,

*“Through the semesters writing class, I learned some writing skills. Among all the activities, the most important is mind map. It can be a good way to clarify my writing thought.”*

And another one said, “The writing class is very interesting and the classroom activities are very practical to practice our critical thinking skills, especially in the weekly debate”.

Secondly, the participation on the classroom activities, the classroom activities conducting gave huge space for the participants to develop themselves in cultivating critical thinking skills, in order to achieve the improvement on the English writing competency. As Mao (2017) suggested, “As the leading student of English writing, teachers play an important role in guiding students 'learning.’” the teacher encourages students to participate in the classroom activities and cultivate critical thinking skills.

In the responses of the interview to the participants and the reflective journal, the classroom activities acted as an important tool to cultivate and improve both critical thinking skills and English writing competency of the participants. For instance the classroom activity group discussion, the group discussion involved an exchange on the personal views in result of an active learning and participation were occurred (Orlich et.al., 2013). As their potential skills which has not been developed, such as skill on analyzing useful information, skill on synthesizing information for debate and group talk, skill on evaluating the peer English writing composition, etc. As Halvorsen (2005) presented in his paper that conducting the debate in the ESL/EFL environment could not only enhance language use, but also cultivate critical thinking skills. It can be seen the classroom activities plays a dominate role in the improvement of the participants. Taking the factors into consideration, the responses of the participants are presented to verify the factors.

*“The activities, such as the group talk and the debate, gave me deep impression. The teacher gave us a topic to discuss in the group and we presented our ideas in the class.”*

Thirdly, feedback from the teacher. The interview for the experienced teachers gave many inspirations and suggestions on the process of the designing the critical thinking skills-based programme to the ethnic minority students in enhancing writing competency in TEM tests. In the aspect on the improvement of English writing competency, their responses on the improvement to the participants were objectively present the development on the designed teaching programme as all of them had been observed class in the procedure of the teaching experiment.

*“In the classroom activities designing, critical thinking skills had been well cultivated in the classroom, as Academic English courses are mostly related to the text analysis, in particular the classroom activities of the debate, the peer review and the group talk.”*

And another experienced teacher responses with the same thought on the designed teaching programme.

*“It focuses on the cultivation of critical thinking skills, and English writing ability is improved and enhanced by having classroom activities to stimulate enthusiasm of students to express themselves with the social heated topics, for instance the debate, group talk.”*

From what have been discussed above for the research question Three on How does critical thinking skills-based programme enhance writing competency in TEM Tests among ethnic minority students in Southwest China, it can be seen that the classroom activities designing and conducting were beneficial to the improvement to the participants. By using this kind of students-centered classroom with the designed activities, both the critical thinking skills and the English writing competency had been cultivated and improved.

Lastly, the feedback from the teacher in or out of the class. Feedback is a useful method to provide the correct information to the participants directly. Within the teaching environment in the Chinese universities, feedback from teachers seem to

be an effective way to evaluate the performance on English writing and English writing competency of students (Zhang, 2022; Liu, 2014). With the regards to the designing classroom activities in the teaching experiment, instant feedback could revise and correct the mistakes and misuse in expressing, writing and reading to the given topics or model writing composition.

In addition, the after-class feedback were the main way to give suggestions to the participants as the time was limited during the class within only 45 mins. In the process on the feedback giving, the improvement on expressing, writing and reading was dramatically achieved, especially on expressing. The participants have known how to express themselves with correct ways in English in result of influencing on their English writing composition.

On another perspective of giving feedback to the participants, it is considered as a good tool for both the teacher and the participants to interact in or out of the class (Zhu, 2007). As a consequence, it could help the participants build confidence in exploring themselves in learning with this designed teaching programme and the English writing class. Under this kind of circumstance, the critical thinking skills could be easily cultivated with the emotional factors on the critical thinking skills.

In the present study, the findings were vividly demonstrated the designed teaching programme was significant to their English writing learning, in particular the teaching procedure, the programme arrangement, the teaching methods and teaching techniques. This study was focus on the research on the group of participants who were ethnic minority students and majored in English. Nearly little researches were concentrated on this group of students. In addition, with the construction on the programme designing, the structure, the theoretical framework, the teaching methods and the designed classroom activities could give further suggestions. As in other studies (Zhang, 2015; Zou, 2012) share the same ideas on constructing the English writing class. However, they did not focus on one curriculum or programme, a unique class or one semester course was discussed to give further suggestions on teaching English writing.

With the consideration on both the present study and the previous studies, and it was also mentioned in Chapter II, less studies focused on the group of

ethnic minority students and even with the English major students as the passing rate of the TEM tests was considered lower than the average passing rate of the whole nation (Shen & Chen, 2017). Other studies, for example, Wan (2012) concentrated on investigating critical thinking skills among the general college students in Chinese universities. The designing of the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China is needed.

### **Conclusion**

The present study presented the process on designing a critical thinking skills-based programme for ethnic minority students in enhancing writing competency in TEM tests. And the sequence research steps were carried out to investigate the features of the participants on both the critical thinking skills and the English writing competency. With the investigation on the participants, the teaching experiment and the interviews were conducted in the following to assist the participants on developing themselves in both the critical thinking skills and the English writing competency. In the teaching experiment, bi-writing tasks were designed to figure out the improvement on the English writing competency in TEM writing section.

The results of the present study presented and illustrated the positive effectiveness on the teaching this group of ethnic minority students with the designed teaching programme. Both their critical thinking skills and the English writing competency have been cultivated and improved. The main findings have been presented in the Chapter IV.

With the research on a group of ethnic minority students majored in English major in a Southern China university, the contribution of this study can be demonstrated in the two parts.

Firstly, the contributions to the knowledge. With the consideration on the studies of the group of ethnic minority students majored in English, it is thought that English major students, in particular the ethnic minority students are with a small population, previous studies on teaching English writing are not concentrated on the ethnic minority students, and the studies on the cultivating and improving the critical thinking skills and English writing competency are nearly not find out in the field of

teaching English writing composition to ethnic minority students. Almost all the studies are focused on the English major students without special identity. Most studies on researching on the ethnic minority students were concentrated on the English language skills for example, listening, speaking, reading and writing skills (Lin, 2016; Zhang, 2009; Wang & Cai, 2018). The thinking skill, in particular critical thinking skills are not the focus. And the more studies on teaching English writing to English major students are concentrated on the students in the developed areas within key universities. This group of students is considered with a good foundation in English language, compared with the ethnic minority students in underdeveloped areas.

Considering these factors, this study has added the knowledge in the field of teaching ethnic minority students in the underdeveloped areas within the skills of critical thinking and the ability on English writing from the theoretical perspective.

Additionally, with the designing of the designed teaching programme, the classroom activities designing could be expected to be significant to the previous studies on teaching to the English writing class with ethnic minority students from the perspectives in practical. The practical contributions of the present study can be summarized into following parts.

To begin with, based on the finding in the present study, on designing the teaching programme for English major students in the English writing class, the teachers should concentrate on the classroom activities designing. The usage on different kind of activities, especially the activities with active interaction, could give more space to students to explore themselves in developing both high order thinking skills and language skills in the class. With the interaction with teachers and the classmates, a more active participation in the class can be achieved in result of develop a emotion on self-confidence in expressing themselves.

Secondly, the importance on the feedback giving should be aroused attention by the teachers. With the identification changes in the class, students are the center with the guidance of the teacher, feedback from the teacher could instantly or directly correct and revise the mistakes which have been made by the students in taking the classroom activities or in their writing tasks. In the process of giving feedback to the

students, a relationship is built to be shown the encouragement on cultivating the confidence of students.

Eventually, the experience on designing the teaching programme for the ethnic minority students, in particular in the underdeveloped areas, could contribute to the pedagogy of teaching ethnic minority students within the high-order thinking skills and writing skill. In addition, it also contributes to the teaching methods and teaching strategies in the ethnic minority universities for teaching English in English majors and non-English major students.

### **Limitations**

This research aims to enhance the English writing competency of the ethnic minority students majored in English under the critical thinking skills-based programme. Based on what has been researched and discussed, the limitations of the research should be taken into consideration in the field of teaching English language to ethnic minority students in Chinese universities.

Firstly, the sample of this study only contains 40 students from a university in Southwest China. Considering the factor of size of the sample group, it is thought that these 40 sample students could represent the ethnic minority students majored in English in Chinese university. In addition, the sample students are in the second year of English major in the university for taking TEM 4 test, for considering the aims of the design teaching programme to TEM tests, it might be hard to represent the ethnic minority students majored in English in the fourth year for taking TEM 8 test.

Secondly, the TEM writing scores in the TEM 4 test is the modifier to prove the usefulness of the designed teaching programme. However, due to the Covid-19 epidemic in China, the TEM tests has been canceled in the year of 2022. The result of TEM writing section cannot be the variable to modify the usefulness of this designed teaching programme. It is thought that without the result of the TEM writing section of the participants, it limits in developing the designed teaching programme.

Finally, in the pre-research phase, the CCTDI was sent to the participants to investigate the level of critical thinking skills of the participants, however, the Post-investigation on critical thinking skills to the participants were not

conducted, the cultivation of critical thinking skills were evaluated through the English writing composition and the performance on the classroom activities. Without the post-investigation on the critical thinking skills, it is a little difficult to realize the improvement of the participants.

### **Implications**

English writing competency is considered as the most important language skill for ethnic minority students in China as mentioned before, they have their own language and community. English is acted as a foreign language for them and most of them started to learn English at the age of 12. English writing composition became a difficult part for them. In fulfilling the research to the group of ethnic minority students in a Chinese university, some implication can be summarized and give further suggestions to other relative studies.

From the pedagogical perspective, based on the effects of the designed teaching programme, the implications could be summarized by the criteria and the implementation of the designed teaching programme.

Firstly, the designing process with the selected teaching methods and the teaching strategies in the designed teaching programme can be used and improved in other studies. The traditional teaching method in teaching English writing should be changed to adjust the development of the students. They are more interested in participating in the classroom activities as it can motivate them in developing interests in learning with the course. In addition, with the interaction with both teacher and the classmates, confidence can be cultivated to properly express themselves in speaking and writing.

Secondly, the teachers in teaching English writing or other English language skill course should change the role in the class. A student-centered classroom atmosphere could encourage students to participate in the classroom activities in order to achieve the improvement in English language learning. The teacher should act as the classroom activities guide, the organizer in the class and the feedback in and after class.

Thirdly, with the usefulness of the design teaching programme for ethnic minority students in enhancing writing competency under the cultivation on



critical thinking skills. In the forthcoming English writing class, the cultivation on critical thinking skills should be aroused the attention for both teachers and students.

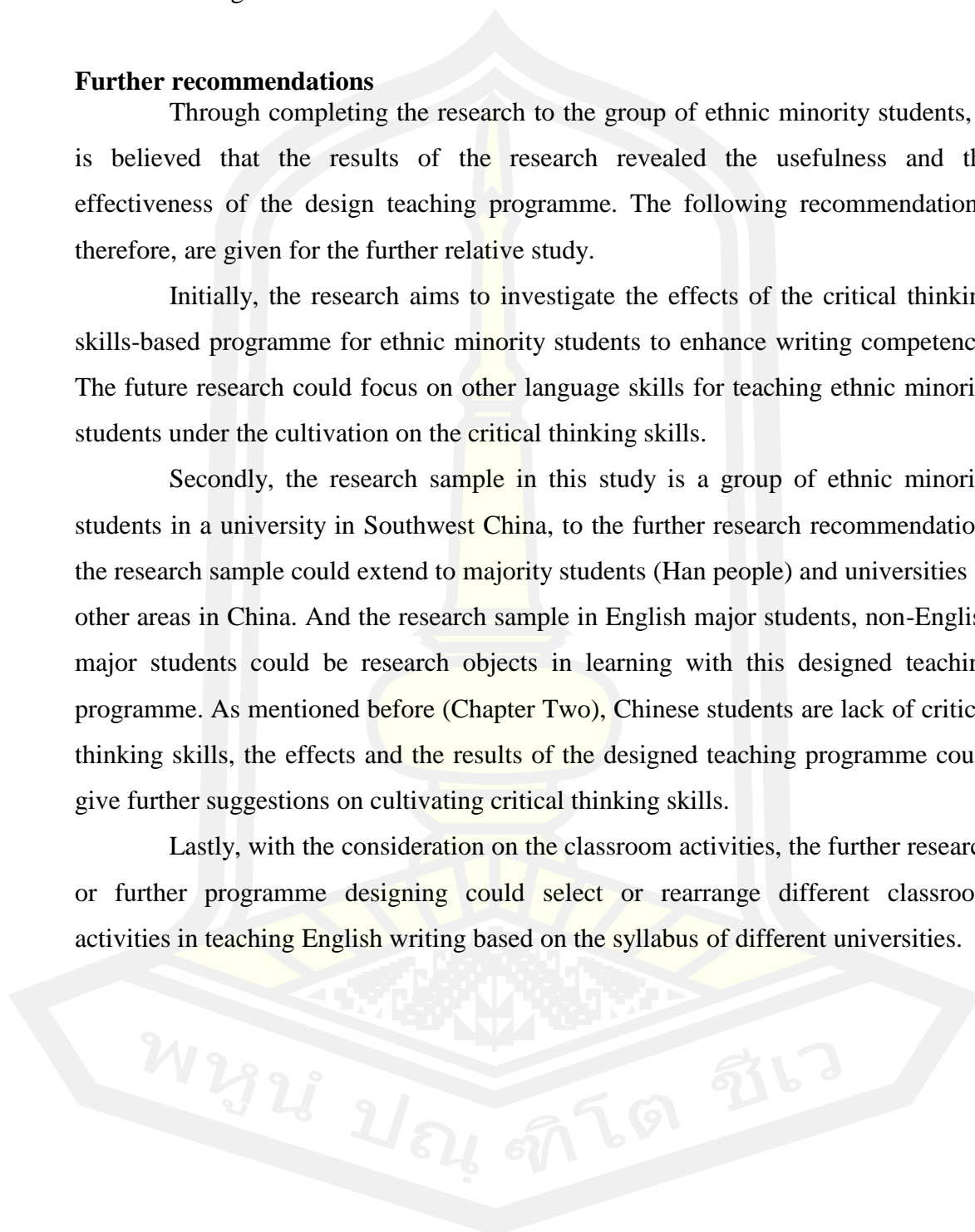
### **Further recommendations**

Through completing the research to the group of ethnic minority students, it is believed that the results of the research revealed the usefulness and the effectiveness of the design teaching programme. The following recommendations, therefore, are given for the further relative study.

Initially, the research aims to investigate the effects of the critical thinking skills-based programme for ethnic minority students to enhance writing competency. The future research could focus on other language skills for teaching ethnic minority students under the cultivation on the critical thinking skills.

Secondly, the research sample in this study is a group of ethnic minority students in a university in Southwest China, to the further research recommendation, the research sample could extend to majority students (Han people) and universities in other areas in China. And the research sample in English major students, non-English major students could be research objects in learning with this designed teaching programme. As mentioned before (Chapter Two), Chinese students are lack of critical thinking skills, the effects and the results of the designed teaching programme could give further suggestions on cultivating critical thinking skills.

Lastly, with the consideration on the classroom activities, the further research or further programme designing could select or rearrange different classroom activities in teaching English writing based on the syllabus of different universities.



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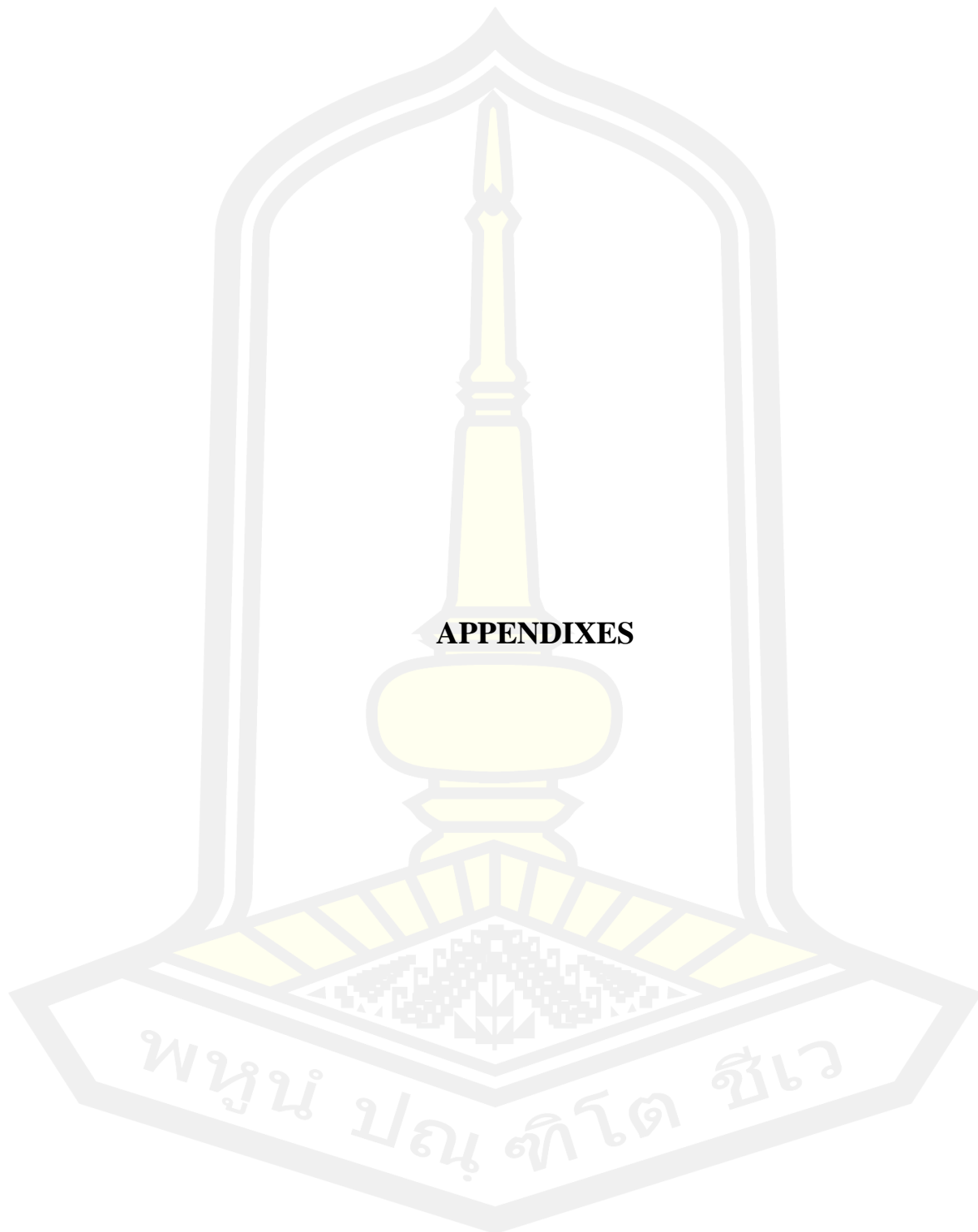
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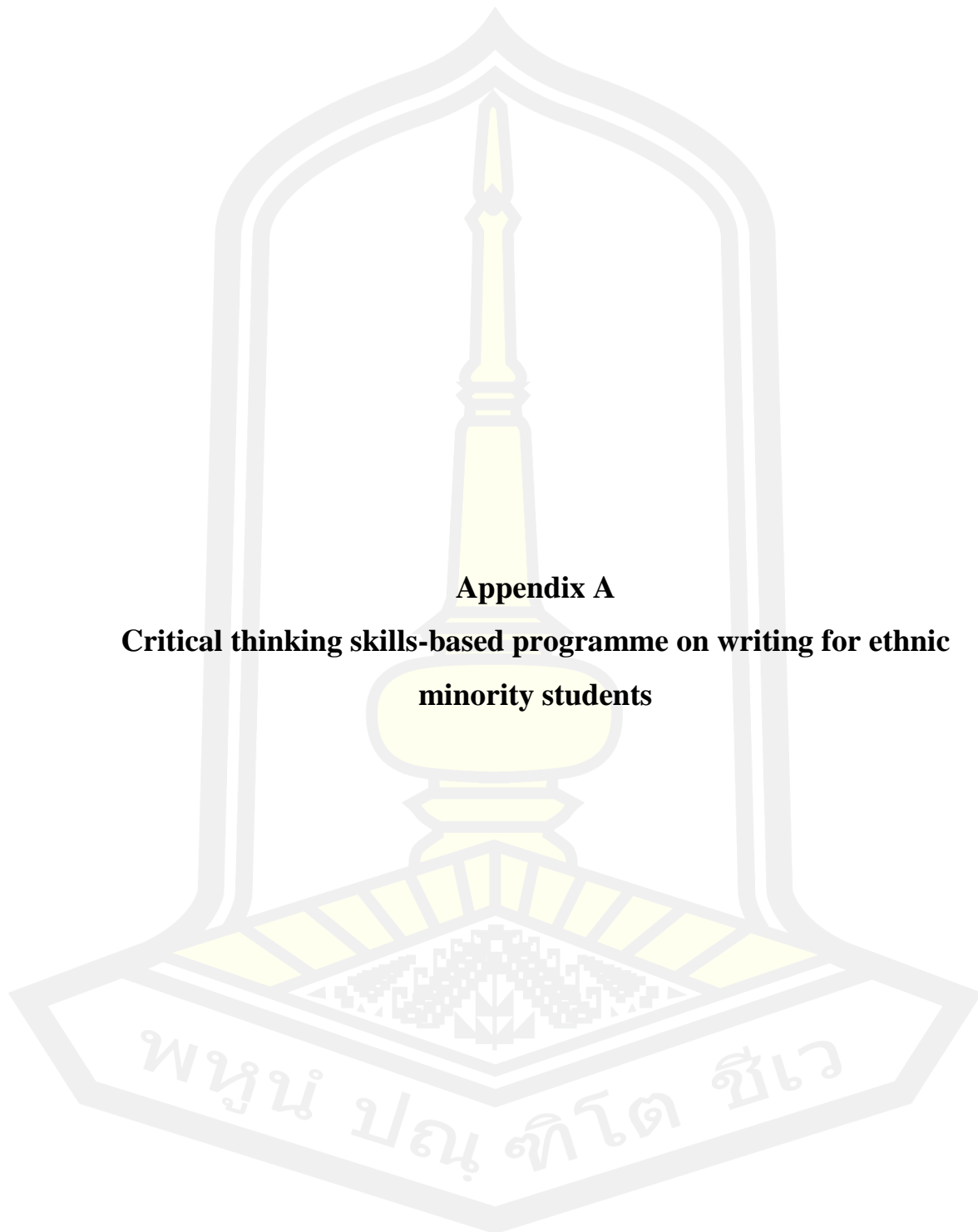
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**APPENDIXES**

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**Appendix A**  
**Critical thinking skills-based programme on writing for ethnic  
minority students**

## **Critical thinking skills-based programme on writing for ethnic minority students**

### 1. Background information analysis

Critical thinking skills are a group of skills of thinking and distinguishing, thinking is an ability of analyzing, inference and evaluating, and distinguishing is an ability of analyzing category and content. The study on critical thinking skills in western countries has been researched for many years and it already formed a good foundation on critical thinking skills in education system. However, critical thinking skills have been attracted Chinese scholars for several decades. Compared with western countries, the relevant study on critical thinking skills have been started late and most scholars studied on its surface definition, the small numbers of empirical studies on critical thinking skills are conducted to research its impact on different subjects. For instance, Wen (2011), Huang (1998) and Sun (2011) did empirical study on critical thinking skills to English major students, and defined current situation on critical thinking skills of Chinese college students.

By these empirical studies, it can be seen that traditional teaching methods play the dominant role in English language teaching and it limits the cultivation of critical thinking skills of Chinese students and teachers. Firstly, in traditional English language classroom, students are accustomed to cramming method and teacher-centered environment. It is thought that no space on self-discovering, self-evaluation and peer review, more abilities are trained to pass exam.

Secondly, the characteristics of writing itself limits the development on cultivating critical thinking skills in writing class as writing is a process of emphasizing products. Bu influencing on the exam-oriented environment, students are concentrated on writing a passage in a short time not on constructing passages with thinking and solving the problems.

Thirdly, the teaching method of product-oriented restricts the development on cultivating critical thinking skills to students, as the writing products occupy the predominant role in teaching writing and more accurate grammatical structures and vocabulary are to be focused on. The logic information construction and thoughts expression do not mentioned in class instead of concentrating on surface error and evaluation.

Fourthly, the assessment system limits the development of critical thinking skills of students, summative assessment is focus on teachers evaluation in writing class. In result of it, there is no needs for students to review their content and logic structures of writing, no chances on debating with teachers and classmates would restrict the development of cultivating critical thinking skills of students. Lastly, the arrangement classroom activities by teachers also limits the development of critical thinking skills as most teachers lack of critical thinking skills. The critical thinking skills cannot be revealed on the selection of teaching methods, teaching strategies and classroom activities.

Ethnic minority student is a group of students with different language and culture background, they may not only have problems on critical thinking skills, but also the problems on language usage. It is difficult to help them improve their writing competency compared with other group of students. Thus, how to enhance writing competency in TEM tests for ethnic minority students with cultivating critical thinking skills become important as teachers not only help them pass the tests for the purpose of finding jobs after graduation, but also assist them to have an ability on critical thinking in order to achieve all-round talents in the field of English language and influence their future learning ability.

Based on the core curriculum of English majors in China, the objective of the core curriculum is to have solid foundation of English language and could apply their language knowledge in the field of translation, education, management and research in order to be inter-disciplinary talents. It is believed that the type of national curriculum is subject-centred and teacher-centred.

a. Writing is an important course for English majors in China, English major students, in particular minority students as they lack of critical thinking skills based on the authentic teaching experience of teachers and the critical thinking skills-based programme on writing is intended to cultivate and improve ethnic minority students critical thinking skills and writing competency in TEM Tests.

b. More importantly, the students who in this programme are in the second year and third year of college. It is believed that critical thinking skills needs to

enhance within this group of students, thus, the type of this programme is student-centred curriculum.

c. Under considering the type of this programme, the resources which consist in this programme are using online and textbook resources.

d. As this programme focuses on critical thinking skills and writing competency in TEM Tests, students-centered activities will be carried out to cultivate thinking abilities to solve questions in learning English.

e. Role of teachers: in this programme, it aims to require teachers with a good understanding on critical thinking skills as teachers are going to design classroom activities for sample students. with considering the objectives of this programme, teachers need to achieve their ability on developing well-designing writing activities and discover students' interests on writing in order to achieve abilities on discover problems in writing activities and solve problems with group discussion or peer debate.

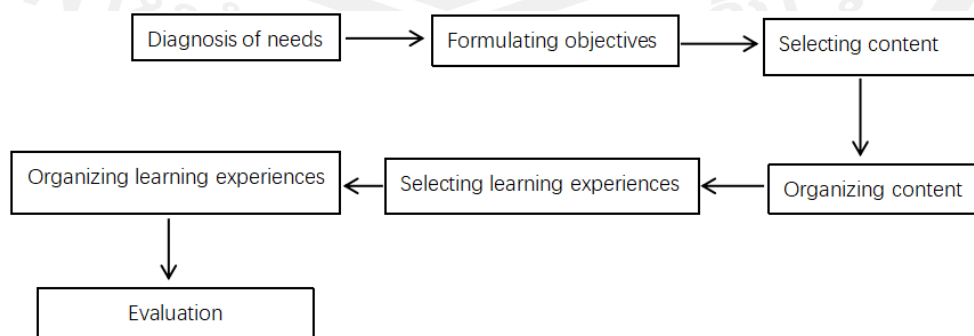
### **Educational theories and structures of the programme**

When developing the critical thinking skills-based programme, the educational theories that applied into the programme are about the critical thinking skills, students abilities on learning language and programme development. Firstly, developing a critical thinking skills-based programme should be concentrated on the development of critical thinking skills, Ennis (1987, 2011) defined critical thinking skills can be clearly presented the critical thinking skills elements and help developing and implementing programme.

skill	Sub-skill
1. Interpretation	<ul style="list-style-type: none"> <li>● Categorization</li> <li>● Decoding Significance</li> <li>● Clarify Meaning</li> </ul>
2. Analysis	<ul style="list-style-type: none"> <li>● Examine Ideas</li> <li>● Identify arguments</li> <li>● Identify reasons and claims</li> </ul>
3. Evaluation	<ul style="list-style-type: none"> <li>● Assessing Claims</li> <li>● Assessing arguments</li> </ul>
4. Inference	<ul style="list-style-type: none"> <li>● Query Evidence</li> <li>● Conjecture Alternatives</li> <li>● Draw logically valid and Justified Conclusions</li> </ul>
5. Explanation	<ul style="list-style-type: none"> <li>● State Results</li> <li>● Justify Procedures</li> <li>● Present Arguments</li> </ul>
6. Self-regulation	<ul style="list-style-type: none"> <li>● Self-monitor</li> <li>● Self-correct</li> </ul>

Revealed from the skills of critical thinking, writing activities and writing process can be conducted in class. The structures of activities and steps of writing process will be presented in the following.

Hilda Taba model (1966) presented the steps of developing the curriculum, and this model is conducted in teaching to enhance the thinking ability of students. By following the steps of Taba model:

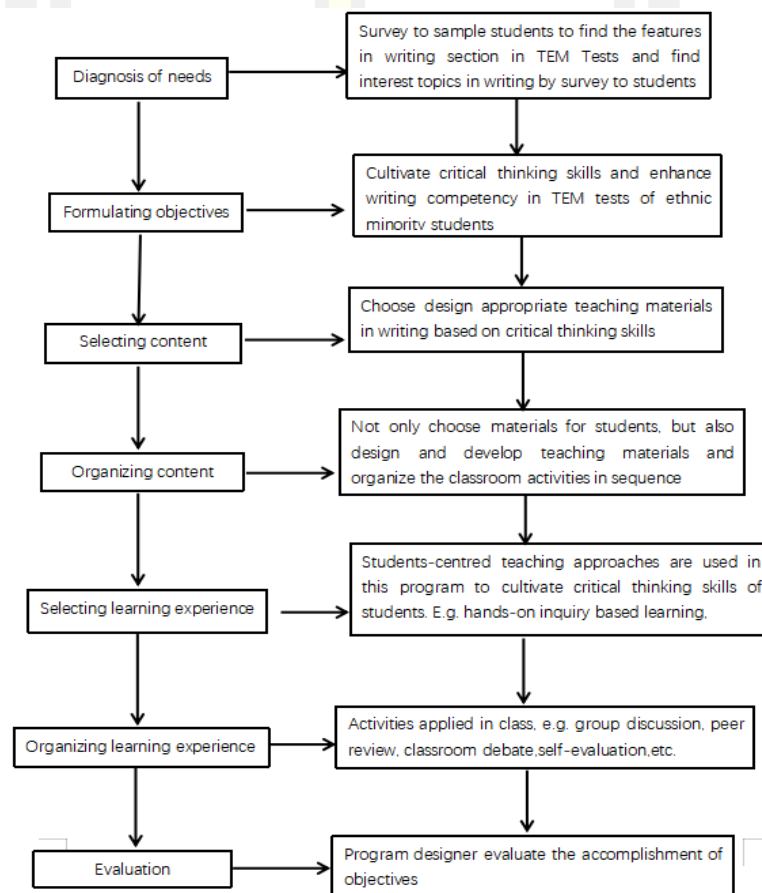




The programme aims cultivating critical thinking skills of ethnic minority students in order to enhance writing competency in TEM Tests.

By developing the programme, discovery learning theories, self-determination theory, information process learning theory and theory of inquiry will be applied in the activities designing and students' development.

Basic structure of the programme based on Taba model (1966)



### 1. Objectives of the programme

Firstly, the objective of critical thinking skills -based programme is to enhance writing competency in TEM Tests to ethnic minority students.

Secondly, the objectives of my writing course in the author's school are training students with excellent writing skill and cultivating students with ability of independent study and fostering high-quality language talents.

Based on the two concepts, the objective of critical thinking skills-based programme is to cultivate ethnic minority students critical thinking skills and enhance their writing competency in TEM Tests by developing well-organized classroom activities based on critical thinking skills. More sub-objectives are as follow,

- a. Stimulate students' interests in discovering and solving problems.
- b. More detailed abilities of students are analyzing questions, discussing personal opinions in group, evaluating relevant evidences, searching for solution and forming convincing ideas.
- c. language skills: students master writing skills with critical thinking skills/
- d. Critical thinking skills: trough student-centred activities, cultivating students' ability on critical thinking skills in order to enhancing writing competency of ethnic minority students.

## 2. Selection of learning content

Considering the requirement of writing section in TEM tests, argumentation and exposition are the main types of writing format to evaluate writing competency in TEM Tests. The learning content in this programme is developing in 5 categories in enhancing writing competency, the general learning content divides as follow,

- a. Paragraph writing
- b. Persuasive exposition on giving examples
- c. Persuasive exposition on comparing
- d. Analytical exposition on reasons and results
- e. Analytical exposition on categorizing

With introducing to different types of exposition writing, materials should be included in all target types of exposition, and writing products of students need to be accomplished with the requirements.

## 3. Learning guide

- a. Presenting the objectives of critical thinking skills-based programme to students
- b. Generally presenting the course syllabus to students

c. Informing the assessment of this course to students

d. Giving students course outline

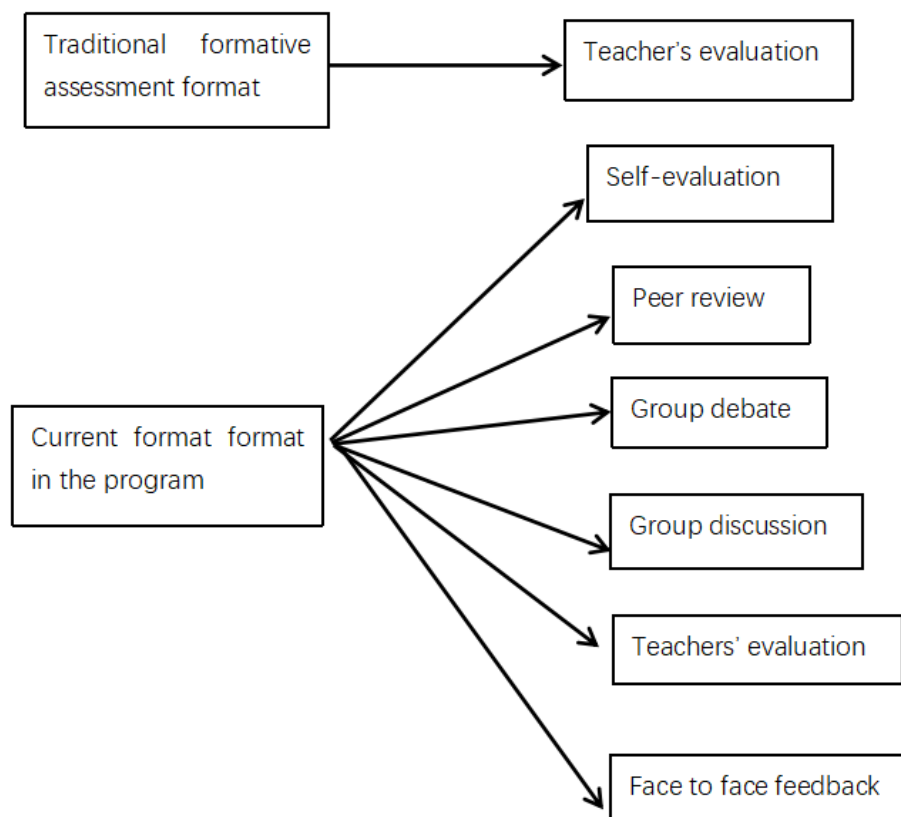
#### 4. Assessment

The evaluation of students learning consists of formative assessment and summative assessment. It refers to procedural assessment conducted in learning process.

Comparing with traditional teaching programme, this programme transfer teacher's role in assessment. The formative assessment which designed in the programme is students' self-assessment, peer- assessment and teacher- assessment.

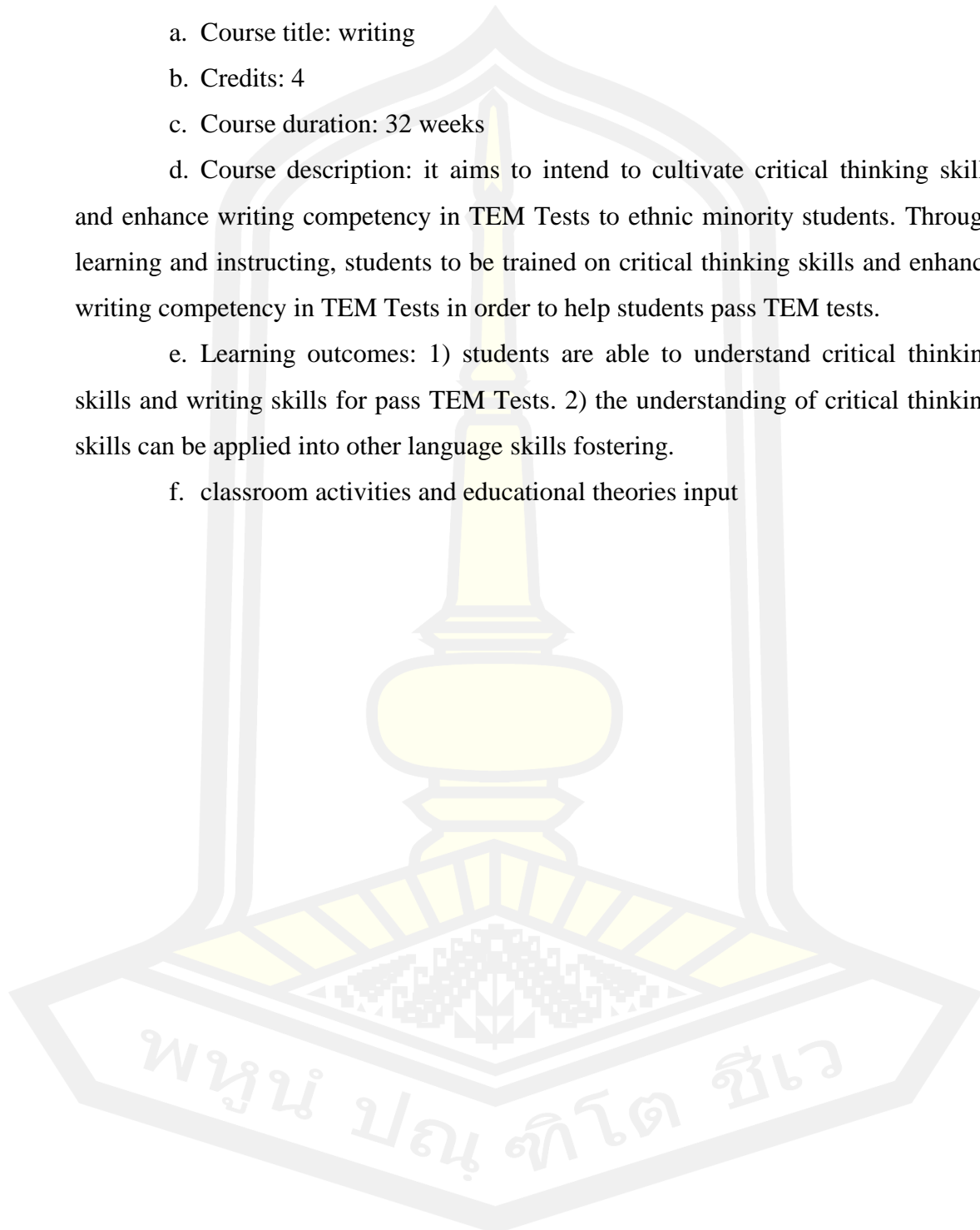
The summative assessment is conducted with the writing section in TEM Tests.

The transformation of traditional assessment format to current format in this programme:



## 5. Course syllabus

- a. Course title: writing
- b. Credits: 4
- c. Course duration: 32 weeks
- d. Course description: it aims to intend to cultivate critical thinking skills and enhance writing competency in TEM Tests to ethnic minority students. Through learning and instructing, students to be trained on critical thinking skills and enhance writing competency in TEM Tests in order to help students pass TEM tests.
- e. Learning outcomes: 1) students are able to understand critical thinking skills and writing skills for pass TEM Tests. 2) the understanding of critical thinking skills can be applied into other language skills fostering.
- f. classroom activities and educational theories input



a. Discovery learning theory learning theory takes place in problem solving situations where the learner draws on his or her own past experience and existing knowledge to discover facts and relationships and new truths to be learned.

b. Self-determination theory (SDT) assumes that inherent in human nature is the propensity to be curious about one's environment and interested in learning and developing one's knowledge.

c. information process learning theory Encourage students to pay attention to target content in the present time and implement elaborative rehearsal in order to achieve long-term memory.

d. Theory of inquiry, Students are encouraged to ask questions in group or in the class.

e. scaffolding theory, Jerome Bruner(1960) gave the definition of scaffolding, students are given the support they need while learning something new, they

Based on the concept of discovery learning, it could encourage students with active engagement, promote learning motivation, and autonomy, responsibility, independence, and develop creativity and problem-solving skills. It is considered as the basic elements of critical thinking. Classroom activities on peer review, group debate and group discussion can assist students to develop their critical thinking skills.

Self-evaluation can motivate students to develop personal opinions to support their presentation and debate in class as students are encouraged to discuss and debate in group and observe other students' behaviour in order to acquire new content.

In addition, students' response activity has achieved discussion and debate in group, inquiry is needed as students could exchange different ideas and find new the answers to the designed topics.

Teachers' face to face feedback encourages students to pay attention to target content and implement elaborative rehearsal in order to achieve long-term memory of constructing passages.

And teachers act not only as a teacher

g. Requirement

a) Attendance	5%
b) Class presentation and participation	40%
c) Assignment	20%
d) Mid-term test	5%
e) Final-test	30%

## Implementation

### 1. Course implementation process

a. Objectives of critical thinking skills-based programme: cultivate critical thinking skills and enhance writing competency in TEM Tests of ethnic minority students.

b. Teaching object: second year and third year ethnic minority English major students

c. Teaching resources: Literal resource- writing materials, model writing pieces Internet resource- apps for writing, e.g. Pi gaiwang (app for writing practice)

#### d. Arrangement of teaching procedure

It is considered that writing is the core course of English major in China, the arrangement of the course is 4 hours per week within one semester of 64 hours, 128 hours for two semesters in total.

#### e. Teaching method

Considering the objectives and type of this programme, the traditional writing teaching method-product method will not be used, the programme focuses on process teaching method as dominant with Task-based language teaching and communicative language teaching as supplementary.

#### f. Teaching techniques

Social media, free online learning tools are considered as the main teaching techniques in this programme, as it provides students with a free and interesting learning environment with discovering interesting topics and presenting personal ideas.

#### g. Teaching strategies

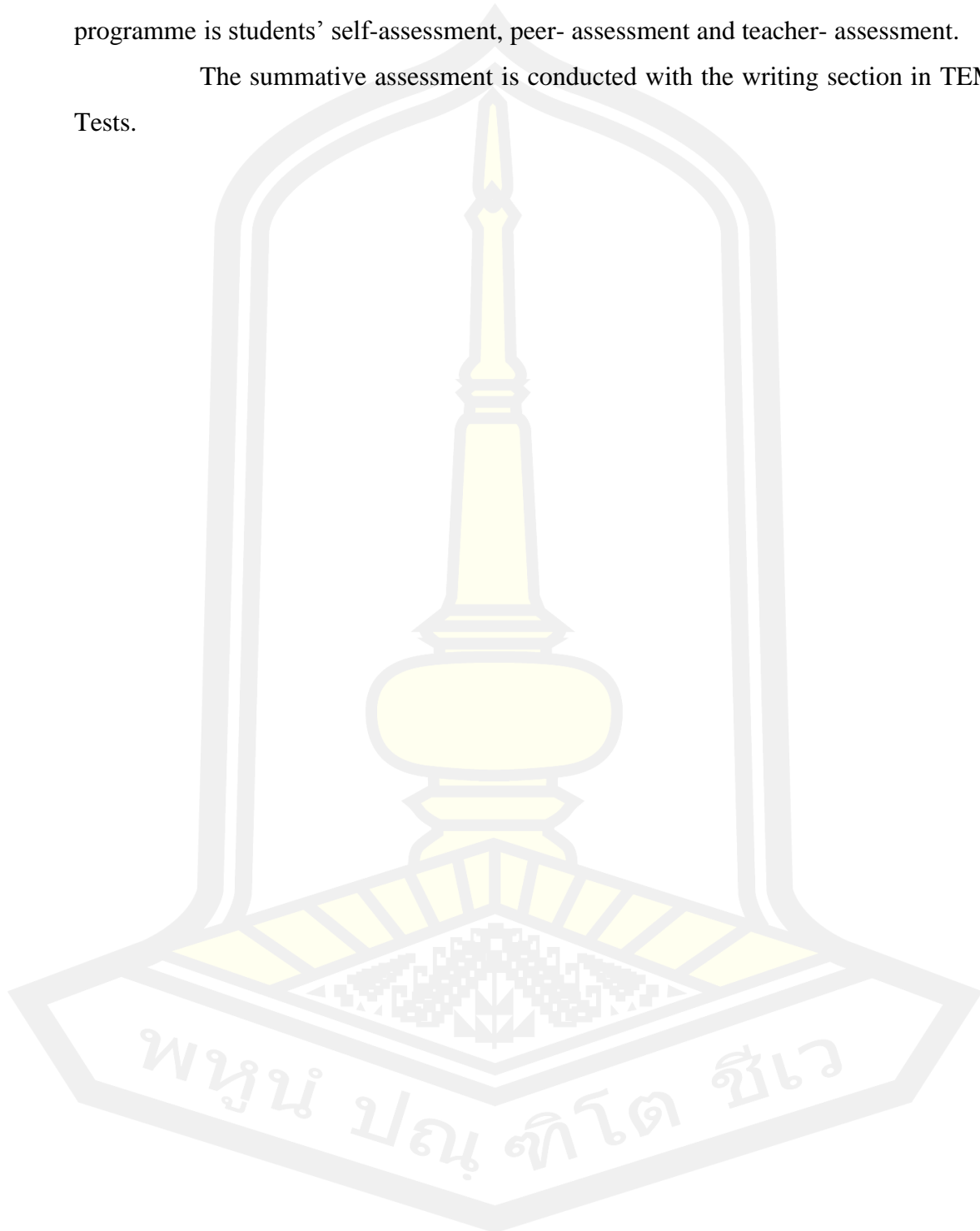
In this programme, the teaching strategies can be presented into three aspects: 1) reconstructing the assessment format, 2) motivating students with self-development and 3) rebuilding language learning environment

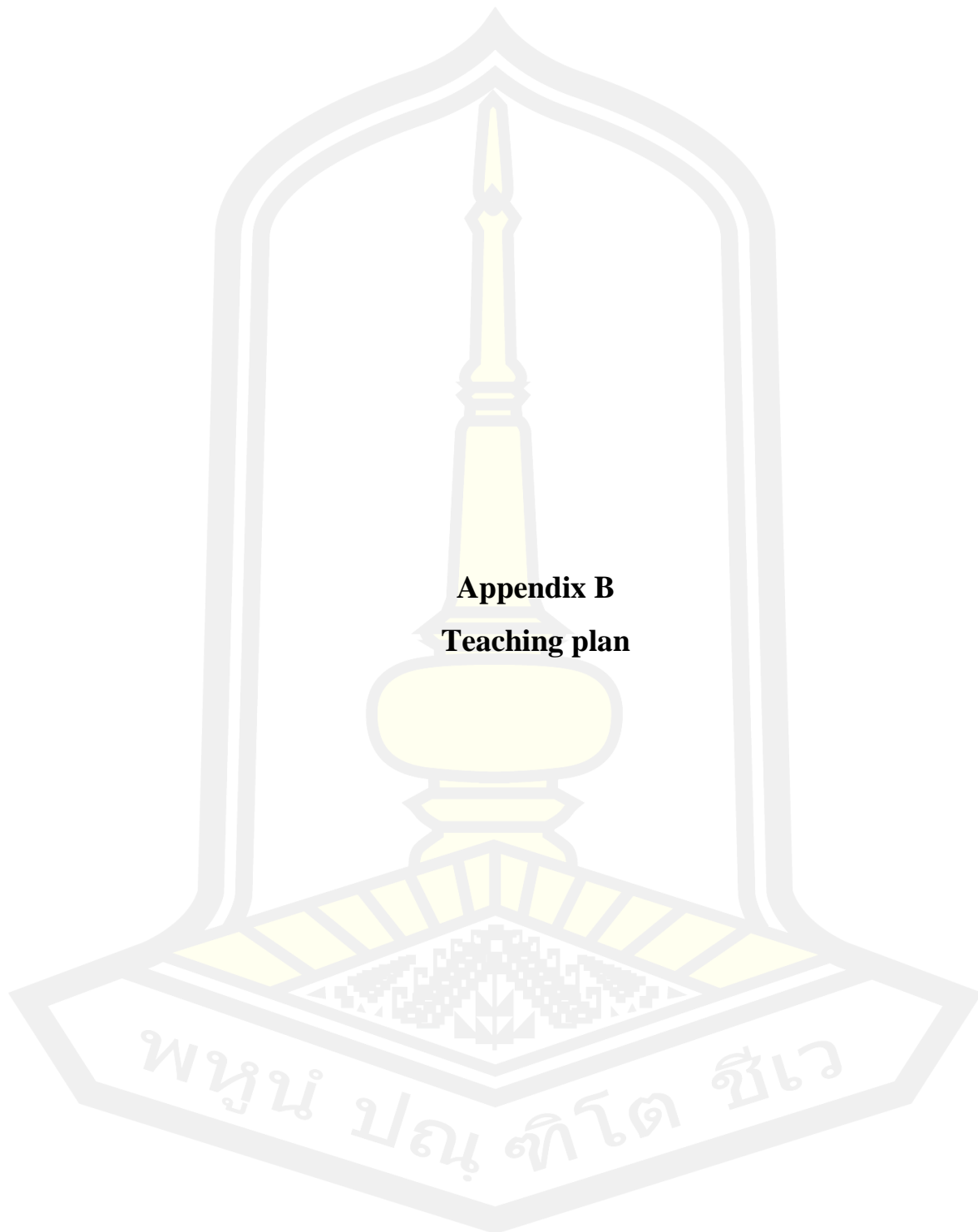
#### h. Assessment and evaluation of students

The evaluation of students learning consists of formative assessment and summative assessment. It refers to procedural assessment conducted in learning process.

Comparing with traditional teaching programme, this programme transfer teacher's role in assessment. The formative assessment which designed in the programme is students' self-assessment, peer- assessment and teacher- assessment.

The summative assessment is conducted with the writing section in TEM Tests.





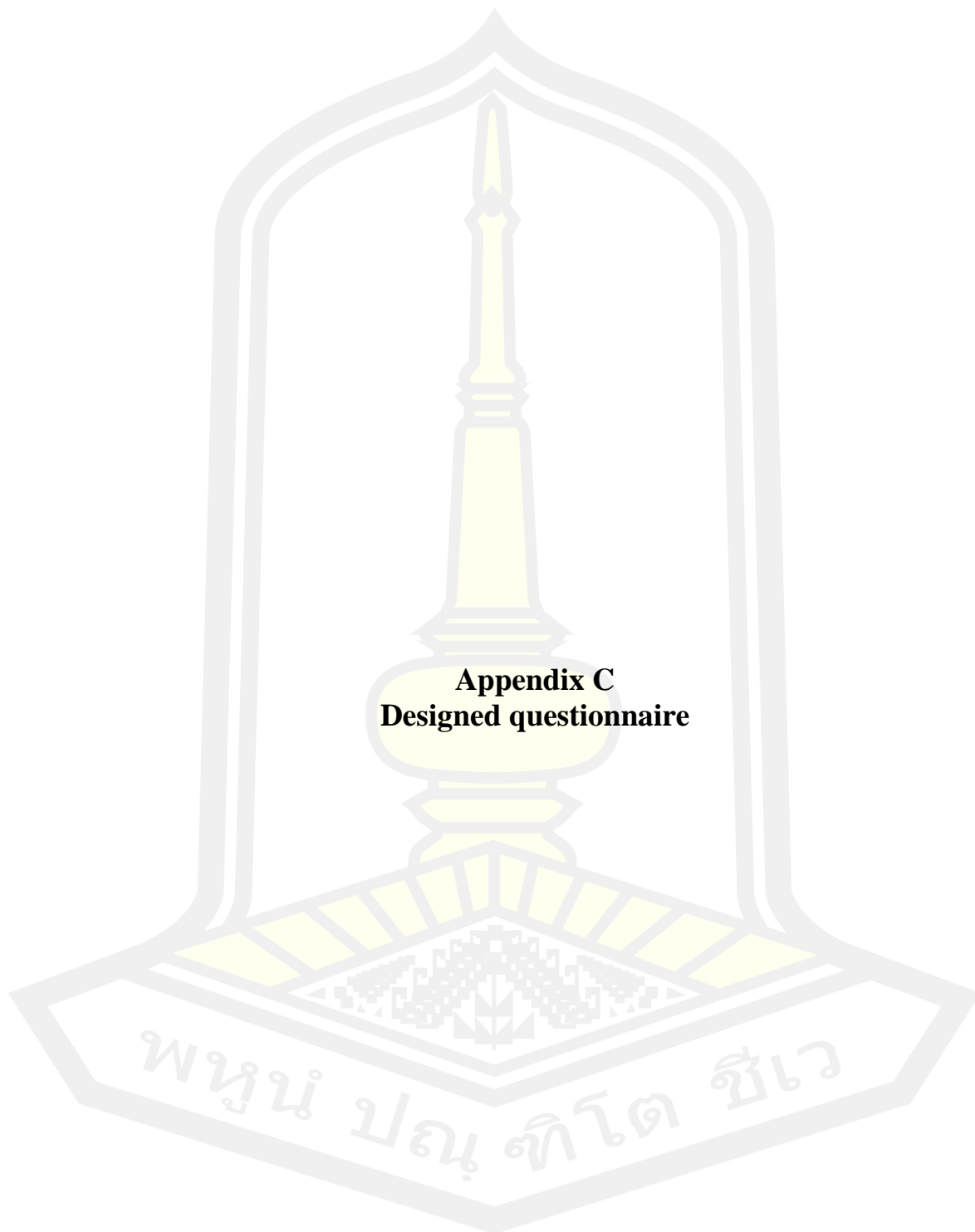
**Appendix B**  
**Teaching plan**

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### Teaching plan

Learning topics	Time	Learning content	Critical thinking skills cultivation activities	Writing competency enhancement	Roles of teacher and students
Paragraph writing	2weeks	Paragraph structure construction with discuss topic sentence and evidences presenting	self-evaluation, group discussion, peer-review, group debate, selective materials presenting	Constructing paragraph with appropriate evidences and format	Teacher: guider, participant Students: participant
Persuasive exposition on giving examples	2weeks	Materials selection, constructing passage structure, evaluation and passage correction, conception building	self-evaluation, group discussion, peer-review, group debate, selective materials presenting	Target writing composition type with appropriate evidences presenting and format correction	Teacher: guider, participant, presenter Students: participant
Persuasive exposition on comparing	2weeks	Materials selection, constructing passage structure, evaluation and passage correction, conception building	self-evaluation, group discussion, peer-review, group debate, selective materials presenting	Target writing composition type with appropriate evidences presenting and format correction	Teacher: guider, participant, presenter Students: participant
Analytical exposition on reasons and results	3weeks	Materials selection, constructing passage structure, evaluation and passage correction, conception building	self-evaluation, group discussion, peer-review, group debate, selective materials presenting	Target writing composition type with appropriate evidences presenting and format correction	Teacher: guider, participant, presenter Students: participant
Analytical exposition on categorizing	3weeks	Materials selection, constructing passage structure, evaluation and passage correction, conception building	self-evaluation, group discussion, peer-review, group debate, selective materials presenting	Target writing composition type with appropriate evidences presenting and format correction	Teacher: guider, participant, presenter Students: participant
Mid-term	1 week	assessment			
Final	1week	assessment			



**Appendix C**  
**Designed questionnaire**

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**Questionnaire on English Writing in TEM for ethnic minority  
students of English major Time: September 15, 2021  
School of Foreign Languages, Guizhou Minzu University**

● This questionnaire is designed for research purposes only and is done on an anonymous basis. All the information will be kept confidential.

❖ Gender: Male  Female

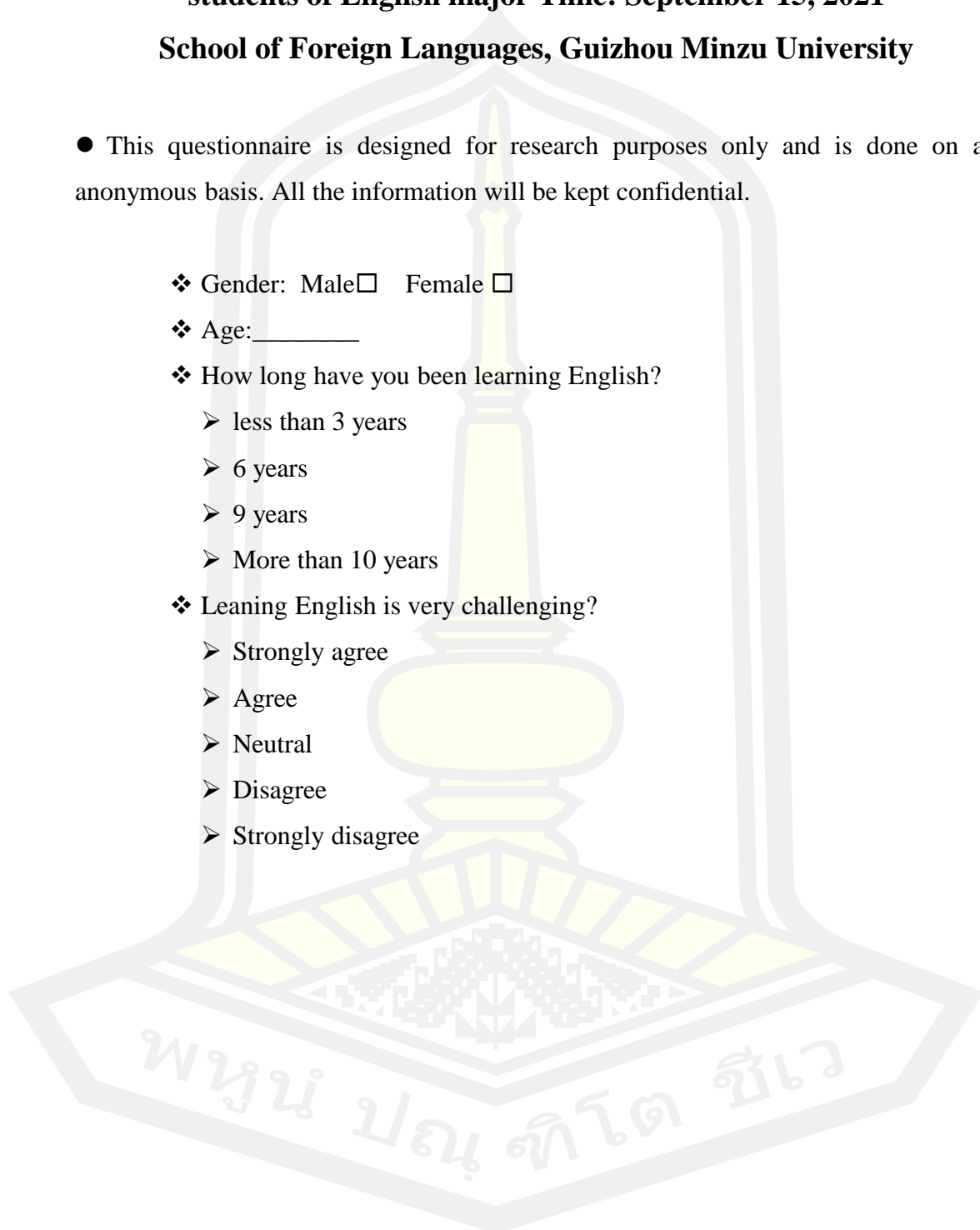
❖ Age: \_\_\_\_\_

❖ How long have you been learning English?

- less than 3 years
- 6 years
- 9 years
- More than 10 years

❖ Learning English is very challenging?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree



✧ Close questions

★For each of the item of investigating general information on critical thinking skills and writing section in TEM as listed below, please tick the box that best describes your opinions.

No.	Item	Levels of evaluating the degree of personal opinions on various items				
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Your ethnic minority languages influence your English writing.					
2	Writing skill is significant to TEM tests.					
3	You often write in English for the purpose of preparing TEM testing.					
4	You are satisfied with the arrangement of current writing course.					
5	You are satisfied with the teaching methods of current writing course.					
6	You often hear the term Critical thinking skills.					
7	The term critical thinking is often mentioned in other courses.					
8	Critical thinking could be helpful to improve your writing skill in TEM?					

★For each of the item of evaluating the degree of difficulty in TEM writing as listed below, please tick the box that best describes your opinions.

No.	item	Level of personal opinions on various items				
		Very easy	Easy	Neither easy or difficult	Difficult	Very difficult
1	Identifying the theme of writing section in TEM tests					
2	Clarifying the key concepts of writing section					
3	Making an outline of the composition					
4	Selecting proper vocabulary and grammatical structures					
5	Logically organizing the composition					
6	Tracing your viewpoints that fit your composition					

**Open questions:**

1. Based on your self-evaluation, please give the details on the evaluation of your writing proficiency? Details can be describes as your thoughts on vocabulary, grammatical structures...

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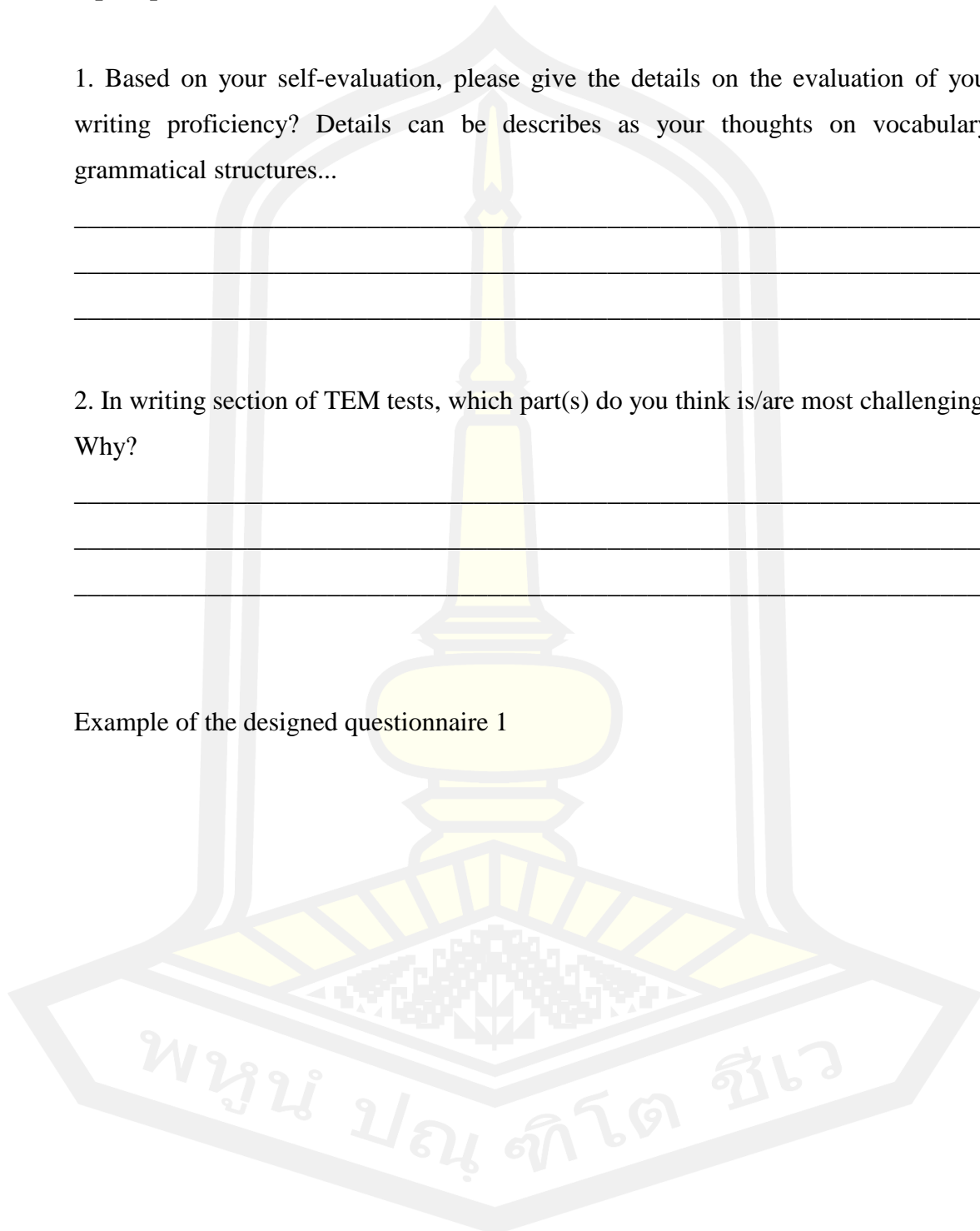
2. In writing section of TEM tests, which part(s) do you think is/are most challenging? Why?

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Example of the designed questionnaire 1



## Example of the designed questionnaire 1

**Questionnaire on English Writing in TEM for ethnic minority students of English major (designed for Investigating the feature of students in English writing)**

**Time: September 15, 2021**

**School of Foreign Languages, Guizhou Minzu University**

● This questionnaire is designed for research purposes only and is done on an anonymous basis. All the information will be kept confidential.

◇ Gender: Male  Female

◇ Age: 27

◇ How long have you been learning English?

➢ less than 3 years

➢ 6 years

➢ 9 years

➢  More than 10 years

◇ Learning English is very challenging?

➢ Strongly agree

➢  Agree

➢ Neutral

➢ Disagree

➢ Strongly disagree

◇ Close questions

★ For each of the item of investigating general information on critical thinking skills and writing section in TEM as listed below, please tick the box that best describes your opinions.

No.	Item	Levels of evaluating the degree of personal opinions on various items				
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Your ethnic minority languages influence your English writing.		<input checked="" type="checkbox"/>			
2	Writing skill is significant to TEM tests.	<input checked="" type="checkbox"/>				
3	You often write in English for the purpose of preparing TEM testing.			<input checked="" type="checkbox"/>		
4	You are satisfied with the arrangement of current writing course.		<input checked="" type="checkbox"/>			
5	You are satisfied with the teaching methods of current writing course.		<input checked="" type="checkbox"/>			
6	You often hear the term Critical thinking skills.	<input checked="" type="checkbox"/>				
7	The term critical thinking is often mentioned in other courses.				<input checked="" type="checkbox"/>	
8	Critical thinking could be helpful to improve your writing skill in TEM?	<input checked="" type="checkbox"/>				

★ For each of the item of evaluating the degree of difficulty in TEM writing as listed below, please tick the box that best describes your opinions.

No.	Item	Level of evaluating the degree of personal opinions on various items				
		Very easy	Easy	Neither easy or difficult	Difficult	Very difficult
1	Identifying the theme of writing section in TEM tests				<input checked="" type="checkbox"/>	
2	Clarifying the key concepts of writing section				<input checked="" type="checkbox"/>	
3	Making an outline of the composition			<input checked="" type="checkbox"/>		
4	Selecting proper vocabulary and grammatical structures					<input checked="" type="checkbox"/>
5	Logically organizing the composition			<input checked="" type="checkbox"/>		
6	Tracing your viewpoints that fit your composition				<input checked="" type="checkbox"/>	

◇ Open questions:

1. Based on your self-evaluation, please give the details on the evaluation of your writing proficiency? Details can be describes as your thoughts on vocabulary, grammatical structures...

I think my writing proficiency isn't very good. the advance vocabulary is too <sup>just a little</sup> small and the grammar and sentence structure are not well grasped.

2. In writing section of TEM tests, which part(s) do you think is/are most challenging? Why?

The most challenging is to open your mind. The thinking is restricted by the exam-oriented.

## Example of the designed questionnaire 2

### Questionnaire on English Writing in TEM for ethnic minority students of English major (designed for Investigating the feature of students in English writing)

Time: September 15, 2021

School of Foreign Languages, Guizhou Minzu University

- This questionnaire is designed for research purposes only and is done on an anonymous basis. All the information will be kept confidential.

Gender: Male  Female

Age: 18

How long have you been learning English?

less than 3 years

6 years

9 years

More than 10 years

Leaning English is very challenging?

Strongly agree

Agree

Neutral

Disagree

Strongly disagree

#### Close questions

★ For each of the item of investigating general information on critical thinking skills and writing section in TEM as listed below, please tick the box that best describes your opinions.

No.	Item	Levels of evaluating the degree of personal opinions on various items				
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Your ethnic minority languages influence your English writing.					<input checked="" type="checkbox"/>
2	Writing skill is significant to TEM tests.	<input checked="" type="checkbox"/>				
3	You often write in English for the purpose of preparing TEM testing.		<input checked="" type="checkbox"/>			
4	You are satisfied with the arrangement of current writing course.		<input checked="" type="checkbox"/>			
5	You are satisfied with the teaching methods of current writing course.		<input checked="" type="checkbox"/>			
6	You often hear the term Critical thinking skills.		<input checked="" type="checkbox"/>			
7	The term critical thinking is often mentioned in other courses.		<input checked="" type="checkbox"/>			
8	Critical thinking could be helpful to improve your writing skill in TEM?	<input checked="" type="checkbox"/>				

★ For each of the item of evaluating the degree of difficulty in TEM writing as listed below, please tick the box that best describes your opinions.

No.	Item	Level of evaluating the degree of personal opinions on various items				
		Very easy	Easy	Neither easy or difficult	Difficult	Very difficult
1	Identifying the theme of writing section in TEM tests			<input checked="" type="checkbox"/>		
2	Clarifying the key concepts of writing section				<input checked="" type="checkbox"/>	
3	Making an outline of the composition				<input checked="" type="checkbox"/>	
4	Selecting proper vocabulary and grammatical structures				<input checked="" type="checkbox"/>	
5	Logically organizing the composition				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	Tracing your viewpoints that fit your composition				<input checked="" type="checkbox"/>	

#### Open questions:

1. Based on your self-evaluation, please give the details on the evaluation of your writing proficiency? Details can be describes as your thoughts on vocabulary, grammatical structures...

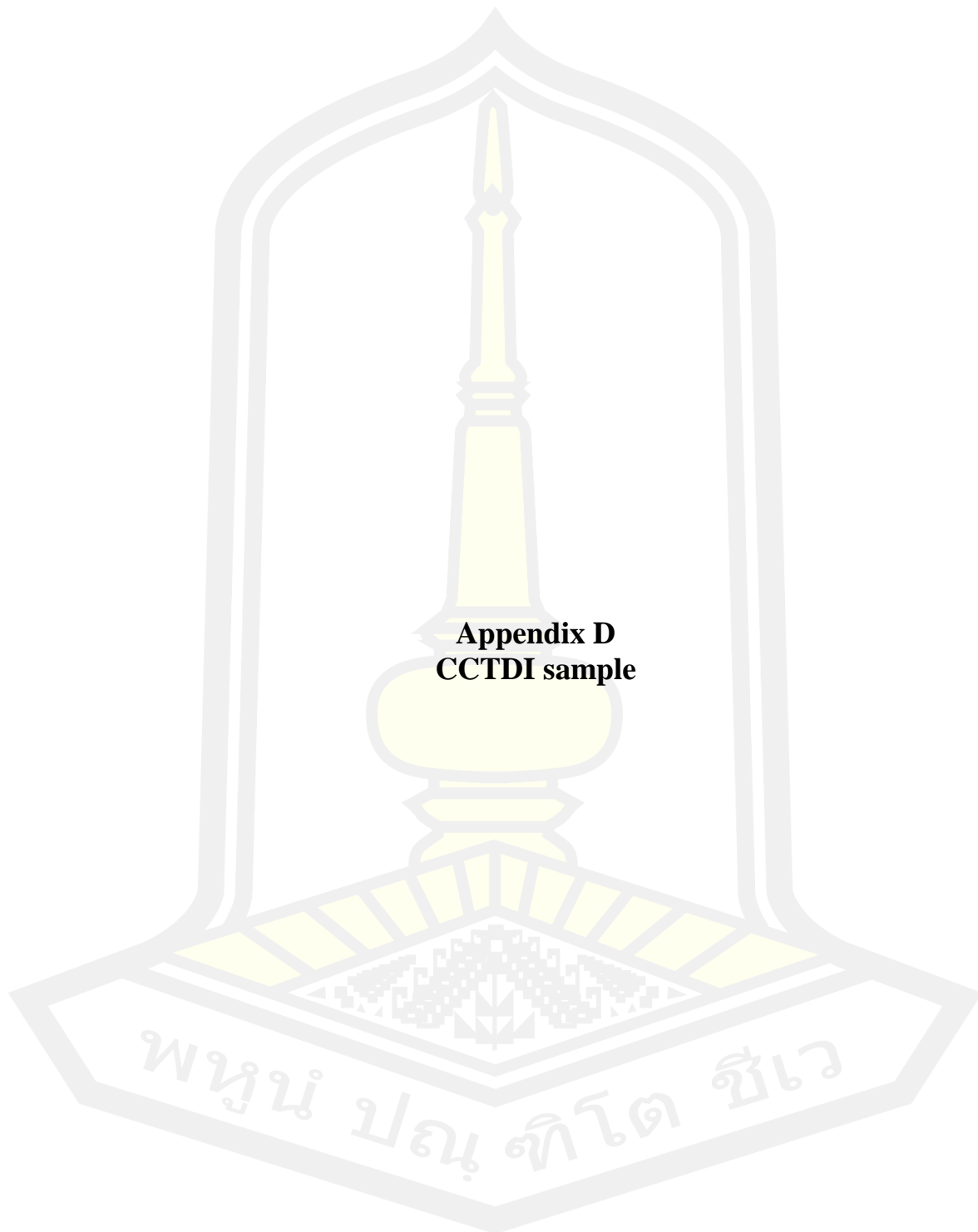
*vocabulary is short and it is difficult to write an essay that is satisfied to the writing requests. what's more time is not enough.*

2. In writing section of TEM tests, which part(s) do you think is/are most challenging? Why?

*vocabulary and sentences are short of features. Because it is difficult to think different and fascinating.*

พหุบัณฑิต





**Appendix D**  
**CCTDI sample**

序号: 1

填写时间: 2022/5/24 22:26:58

来源IP: 220.197.5.156 (贵州-贵阳)

来源渠道: 微信

一、性别 \*\*

女

1.面对有争议的论题,要从不同的见解中选择其一,是极不容易的。 \*\*

一般赞同

2.对某件事如果有四个理由赞同,而只有一个理由反对,我会选择赞同这件事。 \*\*

一般赞同

3.即使有证据与我的想法不符,我都会坚持我的想法。 \*\*

一般赞同

4.处理复杂的问题时,我感到惊惶失措。 \*\*

一般赞同

5.当我表达自己的意见时,要保持客观是不可能的。 \*\*

一般赞同

6.我只会寻找一些支持我看法的事实,而不会去找一些反对我看法的事实。 \*\*

一般赞同

7.有很多问题我会害怕去寻找事实的真相。 \*\*

一般赞同

พหุบัณฑิต ชีวะ

8.既然我知道怎样作这决定,我便不会反复考虑其他的选择。 \*\*

一般赞同

9.我们不知道应该用什么标准来衡量绝大部分问题。 \*\*

一般赞同

10.个人的经验是验证真理的唯一标准。 \*\*

非常不赞同

11.了解别人对事物的想法,对我来说是重要的。 \*\*

一般赞同

12.我正尝试少做主观的判断。 \*\*

一般赞同

13.研究外国人的想法是很有意义的。 \*\*

一般赞同

14.当面对困难时,要考虑事件所有的可能性,这对我来说是不可能做到的。 \*\*

相当不赞同

15.在小组讨论时,若某人的见解被其他人认为是错误的,他便没有权利去表达意见。 \*\*

一般赞同

16.外国人应该学习我们的文化,而不是要我们去了解他们的文化。 \*\*

非常不赞同

17.他人不应该强逼我去为自己的意见作辩护。 \*\*

一般赞同

พหุ ประถมศึกษา

18.对不同的世界观(例如:进化论、有神论)持开放态度,并不是那么重要。 \*\*

一般赞同

19.各人有权利发表他们的意见,但我不会理会他们。 \*\*

相当不赞同

20.我不会怀疑众人都认为是理所当然的事。 \*\*

一般赞同

21.当他人只用浅薄的论据去为好的构思护航,我会感到着急。 \*\*

一般赞同

22.我的信念都必须有依据支持。 \*\*

一般赞同

23.要反对别人的意见,就要提出理由。 \*\*

一般赞同

24.我发现自己常评估别人的论点。 \*\*

一般赞同

25.我可以算是个有逻辑的人。 \*\*

一般赞同

26.处理难题时,首先要弄清楚问题的症结所在。 \*\*

一般赞同

27.我善于有条理地去处理问题。 \*\*

一般赞同

พหุบัณฑิต ชีวะ

28.我并不是一个很有逻辑的人,但却常常装作有逻辑。 \*\*

相当不赞同

29.要知道哪一个是较好的解决方法,是不可能的。 \*\*

非常不赞同

30.生活的经验告诉我,处事不必太有逻辑。 \*\*

非常不赞同

31.我总会先分析问题的重点所在,然后才解答它。 \*\*

一般赞同

32.我很容易整理自己的思维。 \*\*

一般赞同

33.我善于策划一个有系统的计划去解决复杂的问题。 \*\*

一般赞同

34.我经常反复思考在实践和经验中的对与错。 \*\*

比较赞同

35.我的注意力很容易受到外界环境影响。 \*\*

一般赞同

36.我可以不断谈论某一问题,但不在乎问题是否得到解决。 \*\*

相当不赞同

37.当我看见新产品的说明书复杂难懂时,我便放弃继续阅读下去。 \*\*

一般赞同

พหุ ประถมศึกษา

38.人们说我作决定时过于冲动。 \*\*

非常不赞同

39.人们认为我作决定时犹豫不决。 \*\*

一般赞同

40.我对争议性话题的意见,大多跟随最后与我谈论的人。 \*\*

一般赞同

41.我欣赏自己拥有精确的思维能力。 \*\*

一般赞同

42.需要思考而非全凭记忆作答的测验较适合我。 \*\*

一般赞同

43.我的好奇心和求知欲受到别人欣赏。 \*\*

一般赞同

44.面对问题时,因为我能做出客观的分析,所以我的同辈会找我作决定。 \*\*

一般赞同

45.对自己能够想出有创意的选择,我很满足。 \*\*

非常赞同

46.作决定时,其他人期待我去制定适当的准则作指引。 \*\*

一般赞同

47.我的求知欲很强。 \*\*

一般赞同

ศูนย์ ประถมศึกษา

48.对自己能够了解其他人的观点,我很满足。 \*\*

一般赞同

49.当问题变得棘手时,其他人会期待我继续处理。 \*\*

一般赞同

50.我害怕在课堂上提问。 \*\*

一般赞同

51.研究新事物能使我的人生更丰富。 \*\*

一般赞同

52.当面对一个重要抉择前,我会先尽力搜集一切有关的资料。 \*\*

一般赞同

53.我期待去面对富有挑战性的事物。 \*\*

一般赞同

54.解决难题是富有趣味性的。 \*\*

一般赞同

55.我喜欢去找事物是如何运作的。 \*\*

一般赞同

56.无论什么话题,我都渴望知道更多相关的内容。 \*\*

一般赞同

57.我会尽量去学习每一样东西,即使我不知道它们何时有用。 \*\*

一般赞同

พหุ ประถมศึกษา

58.学校里大部分的课程是枯燥无味的,不值得去选修。 \*\*

一般赞同

59.学校里的必修科目是浪费时间的。 \*\*

一般赞同

60.主动尝试去解决各样的难题,并非那么重要。 \*\*

一般赞同

61.最好的论点,往往来自于对某个问题的瞬间感觉。 \*\*

一般赞同

62.所谓真相,不外乎个人的看法。 \*\*

一般赞同

63.付出高的代价(例如:金钱、时间、精力),便一定能换取更好的意见。 \*\*

一般赞同

64.当我持开放的态度,便不知道什么是真、什么是假。 \*\*

一般赞同

65.如果可能的话,我会尽量避免阅读。 \*\*

一般赞同

66.对我自己所相信的事,我是坚信不疑的。 \*\*

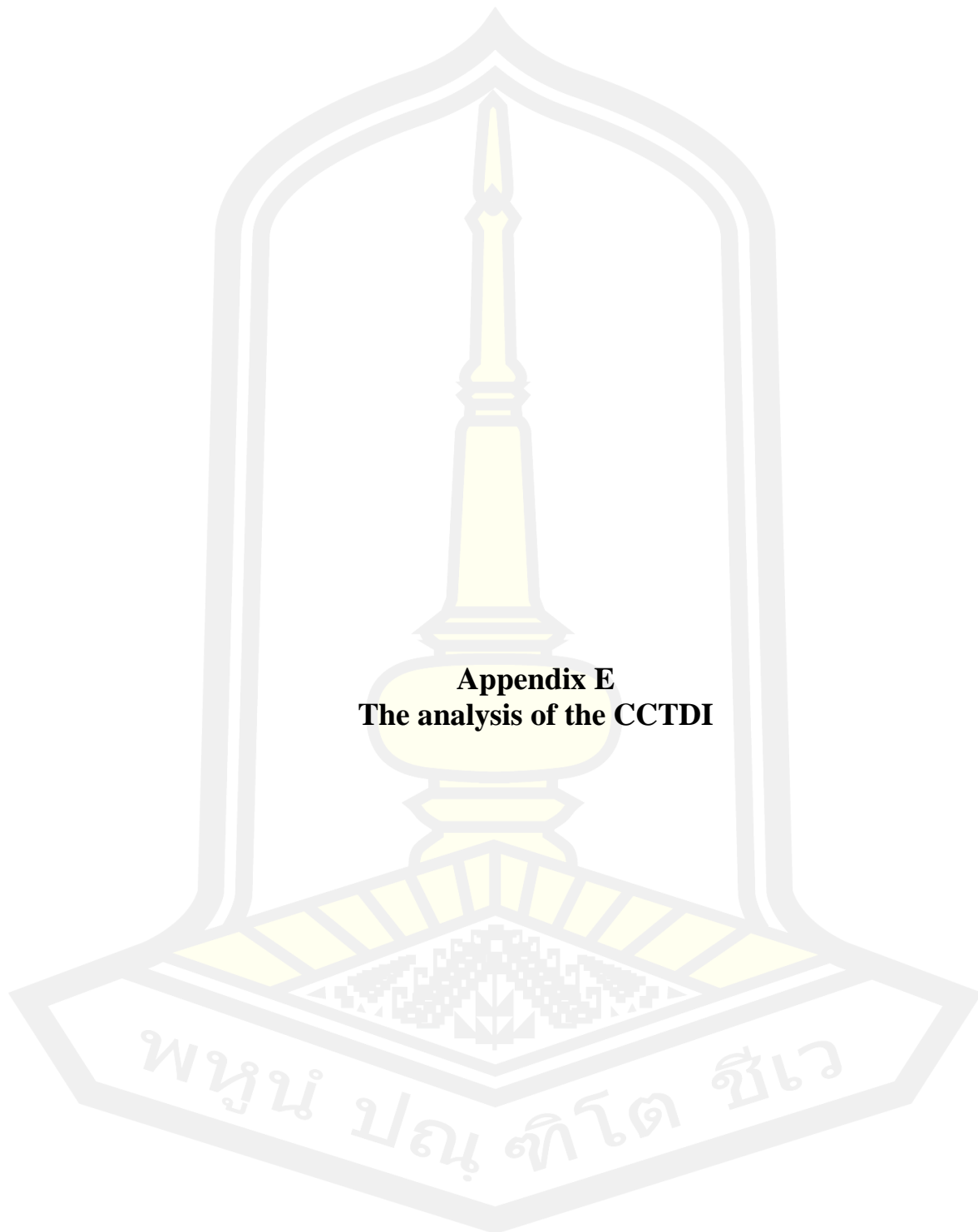
比较赞同

67.用「比喻」去理解问题,像在公路上驾驶小船。 \*\*

一般赞同

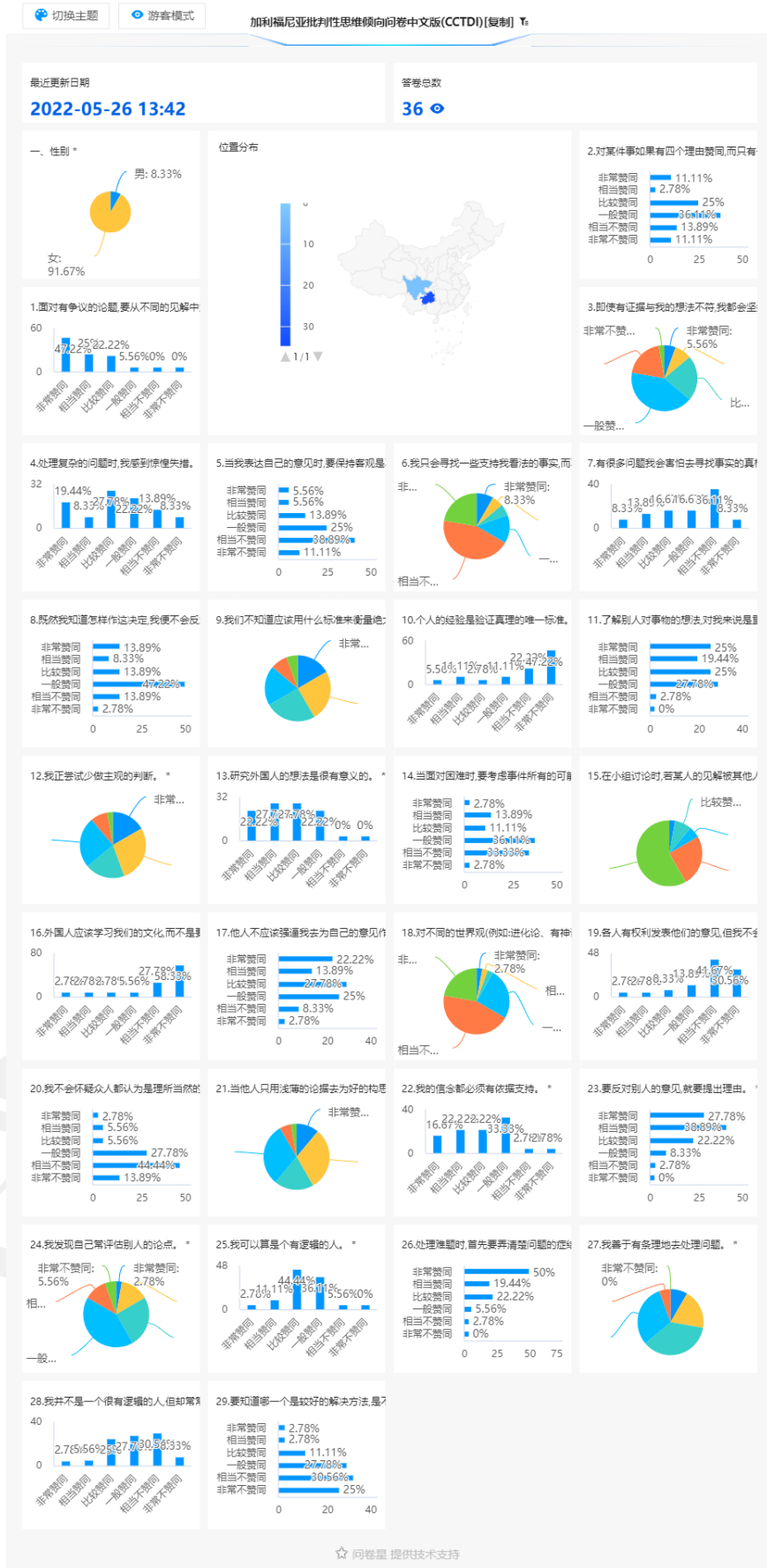
มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี

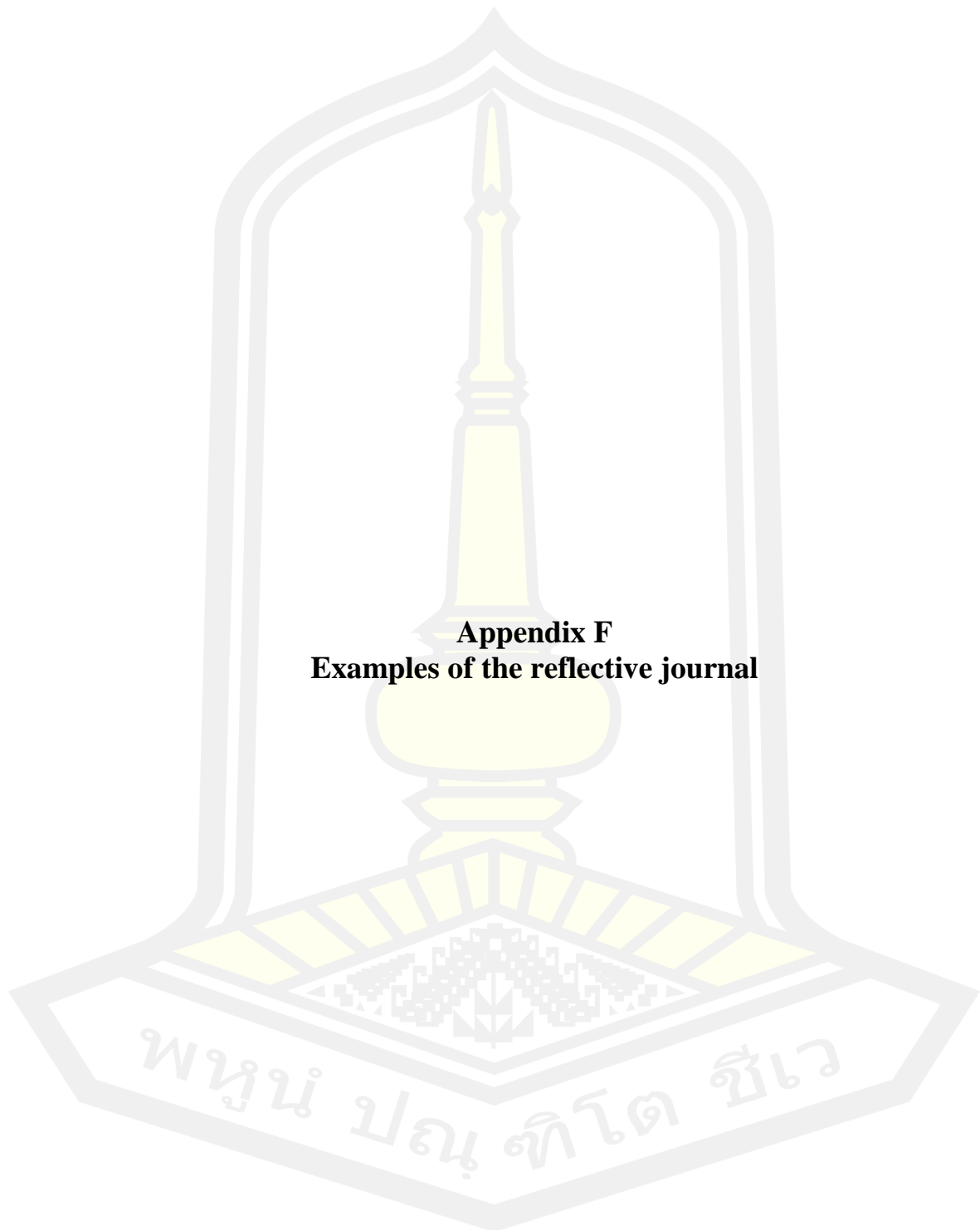




**Appendix E**  
**The analysis of the CCTDI**

พหุณ ปณุกิตโต สีเว





**Appendix F**  
**Examples of the reflective journal**



Guizhou Minzu University

Through the writing class that we learnt I can know more details such as how to compose a composition that make the language we can express incline to have logical, a qualified composition should contain three parts, introduction, body and conclusion. few conjunction words play a big part for the development of the composition, when we are writing. the words whether rigor should be noticed and the accuracy of the words is essential. last but not least, a clear structure and mind mapping give composition a big boost.

The reasons why the ability of write I can improve are as follows can account for. For the first instance, properly dividing the composition into different parts and using some conjunctions to connect them give a better way of expressing the composition expediently and make it more logical. With the proficient use of the words make the whole article more rigorous. Therefore, when I am writing the



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whole structure, the cause, the effect, the use of the words I will consider. After that, I can writing through a more flexible and logical way, building a basic frame of mind gradually.

The problem still existing is that when I want to writing, the question of how to compose an essay make me feel confused. The misgiving about how to appropriately use the content I learnt is still tricky.

10218



Guizhou Minzu University

### Reflective Journal

I'm delighted to attend the class of Ms. Zhang, and I benefited a lot from it. There are major aspects that I have learned.

At first, I got several principles of academic writing. Especially, it is suggested that we are supposed to avoid using personal pronouns and employ tentative rather than assertive language. At present, I would avert overly positive vocabulary and personal pronouns. Besides, when writing the body section of an essay, it is necessary to provide any evidence and examples to support points, which makes text convictive. And I learned to organize main ideas in order of importance. In addition, from the course, I realized that a brilliant writing includes the visionary stage, the evaluation stage and the revisionary stage, in particular, outline is beneficial to present points smoothly and logically. More importantly, I acquired that academic writing not only requires formal language, but also demands diversity of it. In other words, we ought employ



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synonyms or vivid expression to convey the same meaning, and now I would enrich content of composition by this method. Lastly, I obtained a number of interesting language, such as an ear of corn.

However, it is hard to change the thought of translating Chinese into English. What's more, sentence structures and vocabularies are monotonous, and grammar also needs to improve. With the assistance of teacher, I have attempted to reduce these drawbacks and make progress as far as possible.

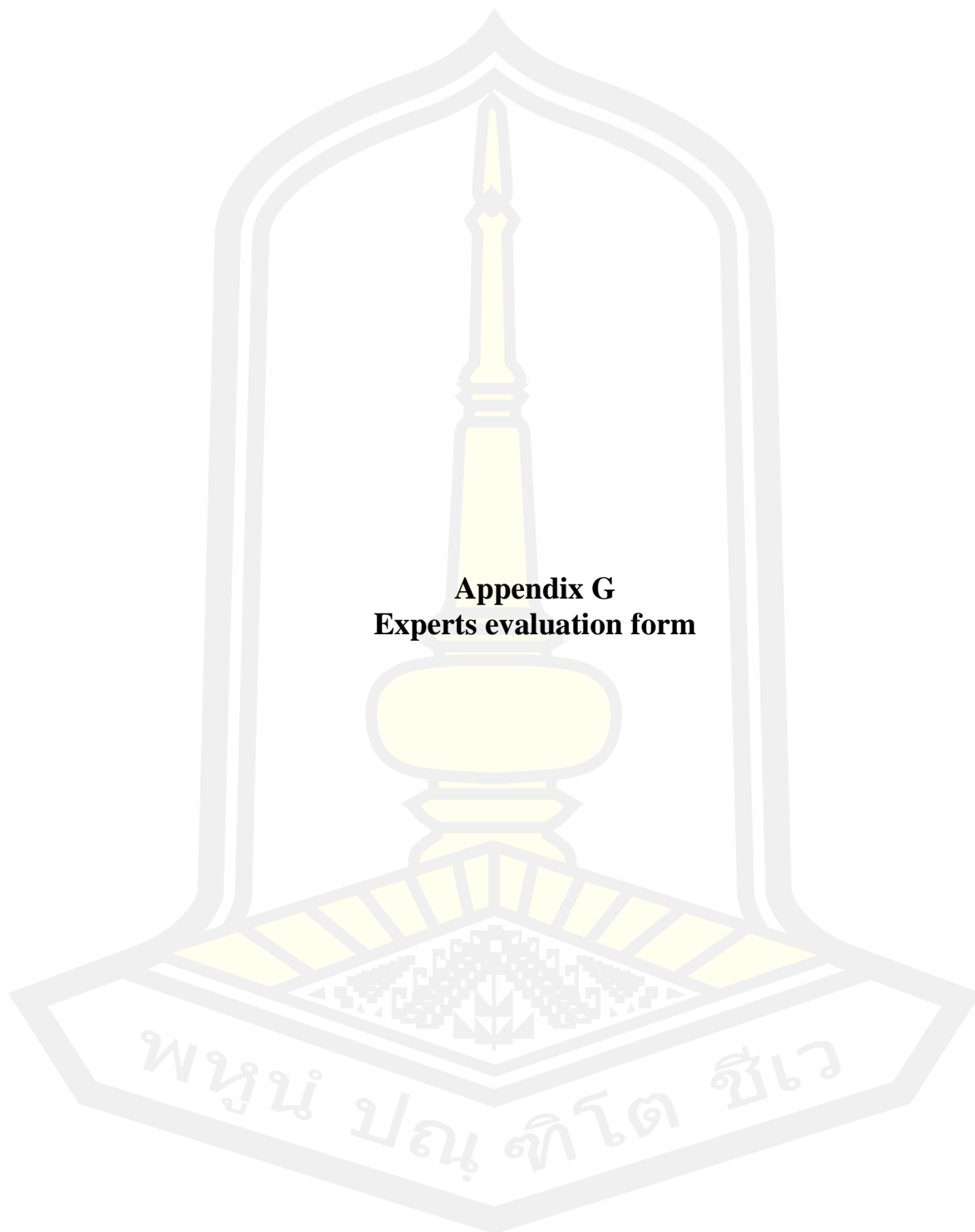
## Reflective Journal

After a semester of writing course, I have learnt and benefited a lot from it. I have learnt about the methods and skills about academic writing and how to use them to improve and finish my writing. For example, to create a great plan for a writing is vital for a people to finish a writing logically and effectively. At the same time, I have learnt a lot about some new ideas and information around the world from the course.

For me, I probably have a cleared mind when writing and try to change a few words and expressions more consciously. I think these changes are more likely to be due to the systematic explanation of items about academic writing and supplement of extra-curricular knowledge from teachers or classmates. Besides, teachers encourage us to read more articles, especially from China Daily in a special way, which do help us learn about the world.

What's more, I should solve some problems about my writing as soon as possible. First, and foremost I should overcome my slight aversion to writing. Secondly, I should

accumulate more <sup>advanced</sup> words and expressions ~~to~~ substitute oral expressions with written ones. Thirdly, I should read more English articles, books and current politics around the world. Last but not least, I should employ what's mentioned above and what I have learnt in my writing.



**Appendix G**  
**Experts evaluation form**

Experts evaluation form for the designed programme (This form aims to investigate the authentic feedback from the experts in English language teaching. No names will be referred in the thesis paper.)

	Statement	Points	rating scale
the programme object	1. has a clear teaching goal.		rating scale of 1 to 5 points (1 is the lowest and 5 is the highest point, the total highest point is 55)
	2. has a complete goal on knowledge and emotion.		
	3. has a clear analysis on considering the factors of students' natural ability.		
the teaching contents	4. The teaching content selection is appropriate in line with the actual needs of students, and consists with the teaching objectives.		
	5. The textbook content is scientific, enlightening and highlighting the cultivation of practical ability.		
	6. The use of the textbook framework and the content organization are clear.		
the teaching organization	7. The integrity of the instructional structure design		
	8. The focus, practicality and guidance of the content		
	9. The flexible use of a variety of teaching methods for teaching		
	10. The accuracy of the important and difficult point setting		
	11. Rationality of the unit time setting		
	12. Application of modern educational technology		
	13. Rationality of the classroom setting		



the teaching pedagogy and methods	14.the matching degree between teaching methods and contents		rating scale of 1 to 5 points (1 is the lowest and 5 is the highest point, the total highest point is 55)
	15.The harmonization of the teaching methods collocation		
the overall effects of the designed programme	16. could stimulate and sustain students interests in the course		
	17. could collect and sort out the students' learning materials timely.		
	18. could carry out classroom activities to improve students' writing ability		
	19. The cultivation of students' independent learning ability		
the meaning of curriculum development	20.The curriculum is closely related to the national curriculum and the local curriculum, which is a supplement to it and highlights the characteristics of the school.		
	21. The curriculum promotes the development of students 'personality and improves students' quality in all aspects.		
Comments and suggestions			

Signature : .....

Date : .....

### Example of experts evaluation form

#### Experts evaluation form for the designed programme

(This form aims to investigate the authentic feedback from the experts in English language teaching. No names will be referred in the thesis paper.)

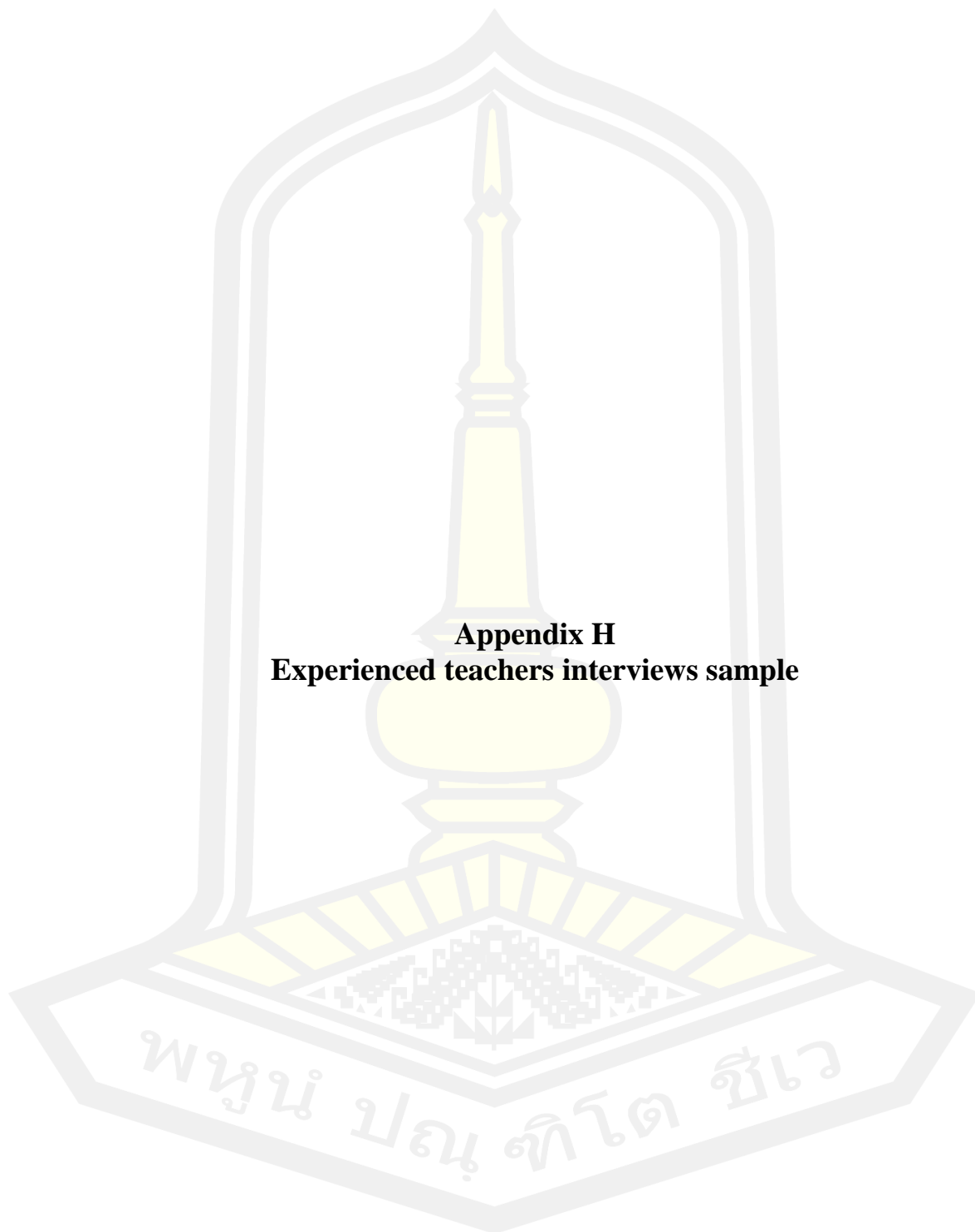
	Statement	Points	rating scale
the programme object	1. has a clear teaching goal.	5	rating scale of 1 to 5 points (1 is the lowest and 5 is the highest point, the total highest point is 55)
	2. has a complete goal on knowledge and emotion.	4	
	3. has a clear analysis on considering the factors of students' natural ability.	5	
the teaching contents	4. The teaching content selection is appropriate in line with the actual needs of students, and consists with the teaching objectives.	4	
	5. The textbook content is scientific, enlightening and highlighting the cultivation of practical ability.	4	
	6. The use of the textbook framework and the content organization are clear.	5	
the teaching organization	7. The integrity of the instructional structure design	4	
	8. The focus, practicality and guidance of the content	5	
	9. The flexible use of a variety of teaching methods for teaching	4	
	10. The accuracy of the important and difficult point setting	4	
	11. Rationality of the unit time setting	4	
	12. Application of modern educational technology	4	
	13. Rationality of the classroom setting	4	

the teaching pedagogy and methods	14. the matching degree between teaching methods and contents	4	rating scale of 1 to 5 points (1 is the lowest and 5 is the highest point, the total highest point is 55)
	15. The harmonization of the teaching methods collocation	5	
the overall effects of the designed programme	16. could stimulate and sustain students interests in the course	5	
	17. could collect and sort out the students' learning materials timely.	5	
	18. could carry out classroom activities to improve students' writing ability	5	
	19. The cultivation of students' independent learning ability	4	
the meaning of curriculum development	20. The curriculum is closely related to the national curriculum and the local curriculum, which is a supplement to it and highlights the characteristics of the school.	4	
	21. The curriculum promotes the development of students' personality and improves students' quality in all aspects.	5	
Comments and suggestions	<p>The course is really interesting and the critical thinking ability is cultivated in the writing class. The course design is significant for ethnic minority students. All the students enjoy the class.</p>		

Signature: 符平

Date: 2021.10.28





**Appendix H**  
**Experienced teachers interviews sample**

## Experienced Teachers Interview questions (example)

Interviewee: one of the experienced teacher Zhang

Interviewer: the researcher(R)

Time: June,4th, 2022

R: Thanks for joining in the interview. As you are experienced teacher and you observed my lesson so I want to ask about the designed teaching programme used in the Chinese classroom. What do you think about the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China?

Zhang : Well, as far as I am concerned, I do like this teaching programme. Since, from my teaching experience I have already seen the huge gap between the ss and the missing of critical thinking skills no matter in writing or in reading, you know both are very important English abilities. And in TEM tests, the major trend of the writing tests is designed to attach the critical thinking ability in TEM4 OR 8, that's quiet normal now. and on the other hand, the various area of Chinese higher education background do bring certain problems for the ethnic minority students in Southwest China, take one example for further extension. I used to assign one writing task to ss in my class, the topic is about talking about both advantages and disadvantages in certain fixed topic, almost all my ss tended to talk about only one side, they chose to ignore the other side to give any explanation, during the feedback stage they did admit that they had no clues about how to writing the other side, they had no idea to give any solid supporting parts. What's even more worse, some of them had no idea about what is authentic academic writing patters or any rules, their writing style were more like a narrative writing, had none solid supporting details. They just kept writing, that was really suffered when I checked their works.

R: what aspect of the designed teaching programme do you think has advantages on teaching and learning how to compose English writing under the TEM 4 test?

Zhang: Well I do like to say the drawing of an outline before writing, which really helps ss to organize their ideas before conducting the writing task, and analysis

certain model example under the guidance of teacher to summarize the basic structures.

R: What do you think about input of critical thinking skills of the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China?

Zhang: That's really a good way, I think the details in this programme will definitely bring huge benefits for ss.

R: 4. What do you like and dislike about the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China?

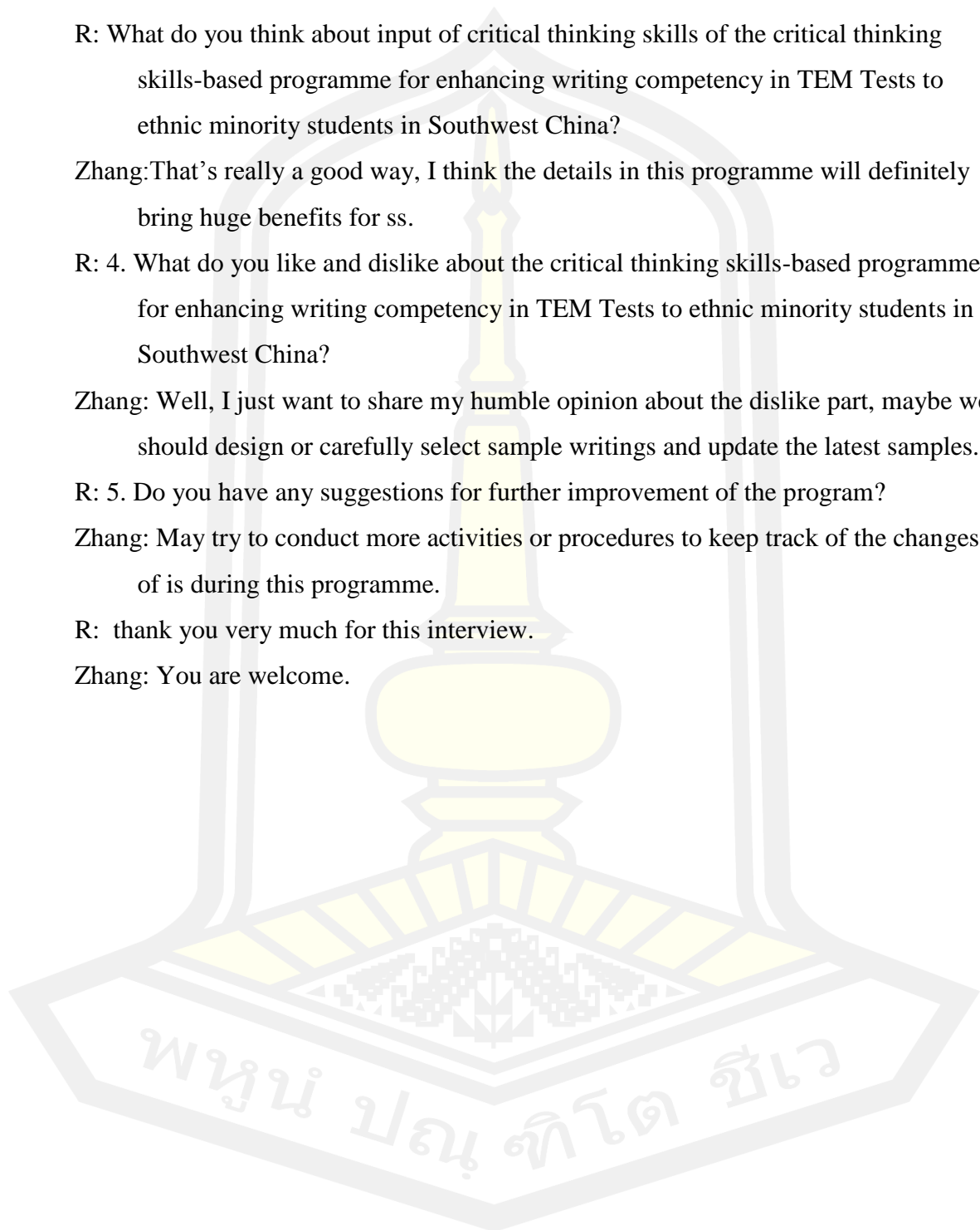
Zhang: Well, I just want to share my humble opinion about the dislike part, maybe we should design or carefully select sample writings and update the latest samples.

R: 5. Do you have any suggestions for further improvement of the program?

Zhang: May try to conduct more activities or procedures to keep track of the changes of is during this programme.

R: thank you very much for this interview.

Zhang: You are welcome.





**Appendix I**  
**Participants interview sample**

พหุณฺ์ ปณฺุ จิตฺโต ชีเว

## Participant Interview questions(example)

Interviewee: student one Wei

Interviewer: the researcher(R)

Time: June,7th, 2022

R: Thanks for joining in the interview. As you have learned with me and the class for 16 weeks, so you may have deep feelings about the class, I wanna ask about what do you think about the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students in Southwest China?

Wei: I am delighted to attend the English writing class and I benefited a lot from it. For example, I realized that a brilliant writing includes the visionary stage, the evaluation stage and the revisionary stage, outline is beneficial to present points smoothly and logically. And I really love learning in the writing class.

R: what aspect of the designed teaching programme do you think has advantages on learning how to compose English writing under the TEM 4 test?

Wei: I think the classroom tasks have advantages on my learning in the writing class. Especially the the task of practicing writing outline. Through the outline, the framework and purpose of the whole writing will be clear. When writing, you can quickly put forward ideas and organize language, which not only makes the logic clear but also saves time for writing.

R: What do you think about the feature of critical thinking skills of the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students?

Wei: In my opinion, the arrangement of the class and the way of teaching of the teacher really help me in learning how to write. And the tasks in class give us a lot of time and space to share personal points in the class, I fell the different feeling with other class. And about the critical thinking, I think Critical thinking is a kind of innovative thinking, which is conducive to stimulating students'

creative potential, improving the quality of English writing and making their writing ideas brilliant.

R: Anything else you want to talk about the class?

Wei: This class taught me to think critically when I am writing. Next, I want to know more about the background knowledge of western culture, exercise western writing thinking, and enhance the understanding of the model articles. Because I think the reading on the model articles can help me to understand what I should use in my writing.

R: What do you like and dislike about the critical thinking skills-based programme for enhancing writing competency in TEM Tests to ethnic minority students ?

Wei: I do like the writing class as I feel free to talk and share my personal ideas. And the teacher did not stop us talking in the class and always give feedback in the class or after the class. And in the class, I can expand my thoughts as some of the ideas from my classmates I never heard before and I use these ideas in my writing. I think it is really helpful for my writing, my writing score is improved at the end of the writing class.

For the part of dislike, I think sometimes the update of TEM 4 writing questions is a little bit slow. I know the teacher wants us to have more time to know how to think, but I want to pass the TEM 4 test, I need to practice more questions on the TEM 4.

I really like the writing class.

R: Do you Think you met difficulties in the writing class with learning with the designed teaching programme?

Wei: Yes, when writing, it is often difficult to come up with novel ideas and examples to support the whole article. And the daily accumulated English argument materials and argument materials are too poor, it is impossible to combine the sporadic materials to form a logical and authentic article. Moreover, the habitual Chinese thinking makes the article less logical.

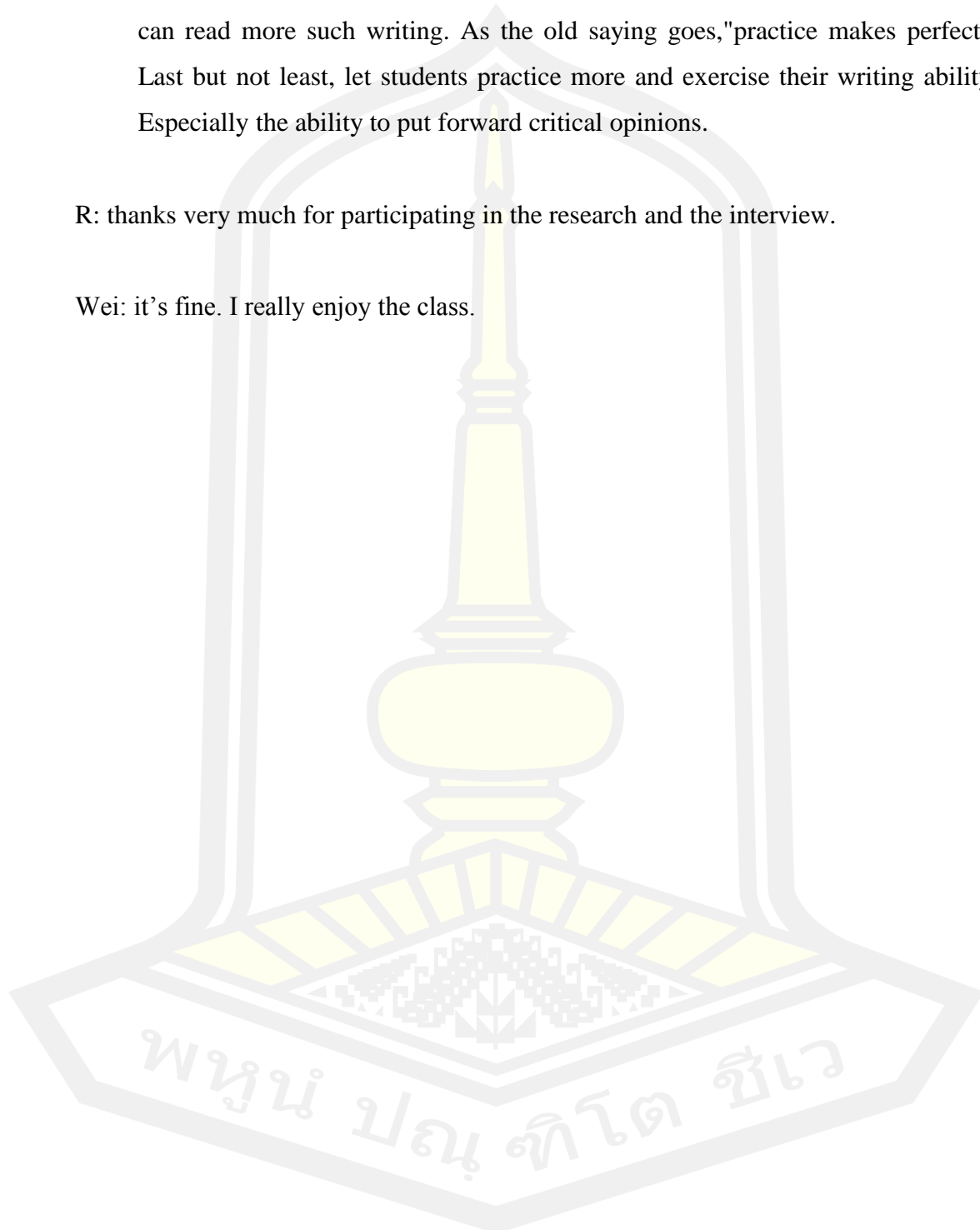


R: Do you have any further suggestions for further improvement of the program?

Wei: And it can provide more model references for critical thinking, so that students can read more such writing. As the old saying goes, "practice makes perfect." Last but not least, let students practice more and exercise their writing ability. Especially the ability to put forward critical opinions.

R: thanks very much for participating in the research and the interview.

Wei: it's fine. I really enjoy the class.





**Appendix J**  
**Examples of bi-weekly task**

พหุบัณฑิต ชีวะ

## Example one

Should the government be responsible for people's education and medical expenses? People are divided on this question. I will analyze the two opinions.

Firstly, if the government let people pay for education and medical care themselves, some poor people can't pay for ~~and care~~ so their education and health care ~~are~~ <sup>is</sup> not guaranteed. Children don't get a good education. And many people suffering from diseases ~~cannot~~ be treated. Thus, the view is no good for poor people. Secondly, the government pays for people's education and health care. There is no doubt that this will increase the burden on the government. And many people don't try to make money to improve their life.

In my opinion, I think the government can be responsible for poor and disable people. The government can improve safeguards for those families. In this way, the pressure on the government is not too great and people's education and medical care can be protected to some extent.



## Example Two

When the children become the target group of advertisement industry, which makes a lot of attention to them.

As is known to us, as parents, they play a significant role in children's life. Usually, they impress a great of care to them. That's why they think that advertisement chooses children to be advertisers is to make them under the pressure. Obviously, children are a group of the benefits of the products from the advertisement, they will not consider the negative aspects of the advertisement itself.

However, ~~everything~~<sup>everything</sup> has two aspects. When the children are being target group, they can obtain knowledge that <sup>they</sup> can not get from other fields. In the process, they can learn different information. It is a good way to improve themselves like social ability and courage.

Personally, as a child, it is a useful way to exercise. The experience what they get from practicing is more important than others.

พหุบัณฑิต ชีวะ

### Example Three

Are environmental problems so big that individuals cannot make any contributions to solving them? Obviously, the answer is absolutely "No". Instead, individuals play an indispensable role in addressing the issues and the reasons are as follows.

First of all, it's undeniable that coping with some major environmental problems such as a global issue requires nations, organizations or companies, but what counts a lot is to rely on the masses. With the participation of the masses, problems can be solved more efficiently. Moreover, government policies need to be fully implemented by the masses, otherwise they will produce very little effect. That is, if the people do not cooperate, they cannot achieve the expected effect. Thirdly, mass participation is conducive to reducing the difficulty of settling problems. Imagine how tough the policy is to run when the masses stand by and even work against the government.

As the saying goes - many hands make light work. (Only when average citizens take certain actions will environmental issues be thoroughly improved.)

In short, though government is more capable than individuals in protecting the environment, the issues cannot be worked out without joint efforts of individual citizens.

## Example Four

Some people believe that intelligent children should be taught separately and given special treatment. However, others don't think so. They think that teaching children of different abilities together benefits all of them.

I am quite convinced that there are more beneficial than harmful to let the children learn together.

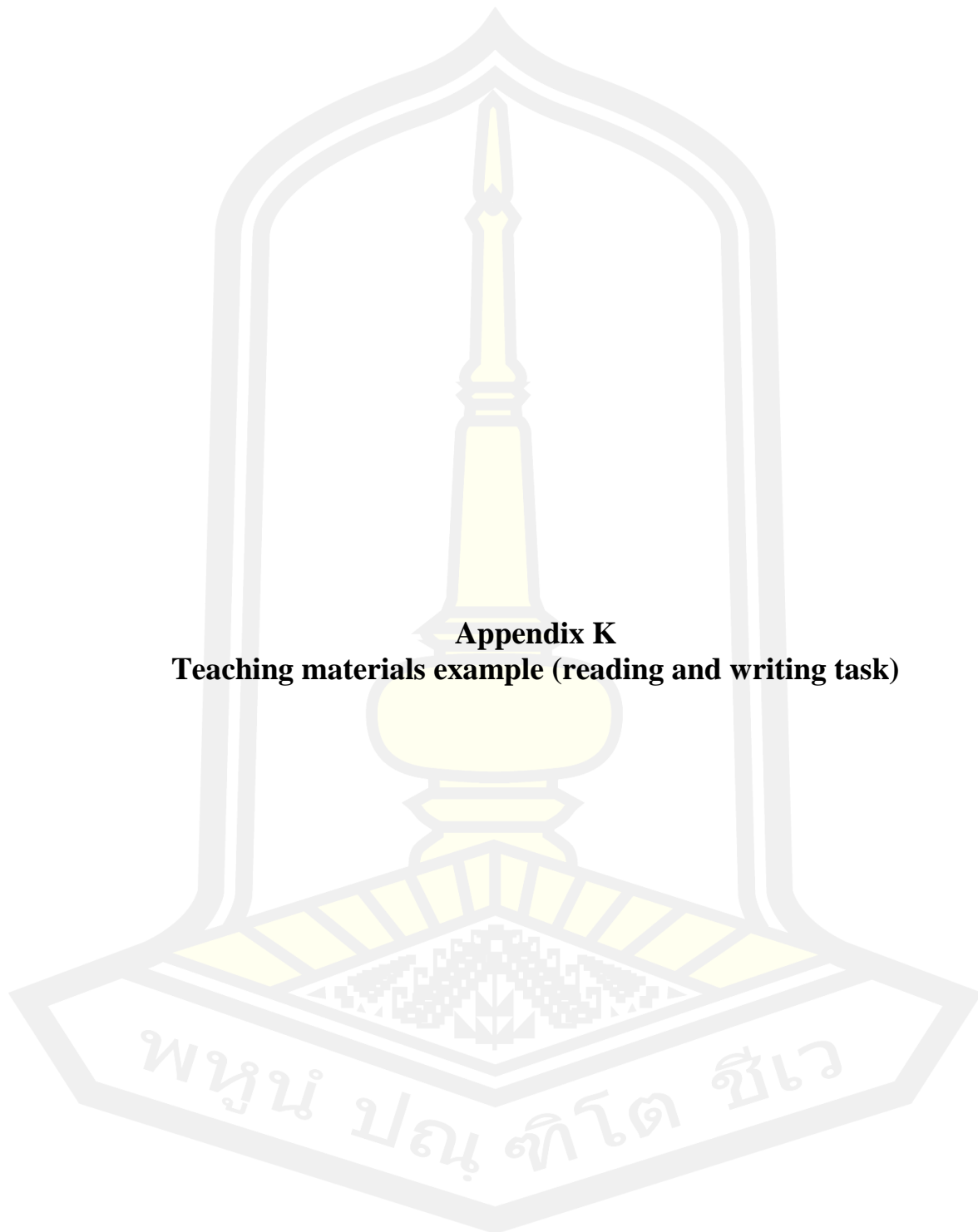
Some children's intelligence develop early and are considered intelligent children by adults. However, some children have later mental development and they are considered by adults to be not smart children. Some schools will place more emphasis on intelligent children than ordinary ones. Intelligent children will have better teachers and better environment. They also get more and better resources. If intelligent children study together with ordinary children, intelligent children will think the lessons are very easy and a waste of their time.

What's more, some intelligent children think they are smarter than ordinary children and they tend to be proud and look down on average kids. In addition, some children will feel inferior if they are taught separately. Some children will slowly give up learning because they think they are not smart. The phenomenon of intelligent children with intelligent children and ordinary children with ordinary children causes children to fail to learn from each other.

<sup>cause sb sth.</sup> In my opinion, ~~sep~~ special education for intelligent

children can do more harm to ordinary children. It should be fair to every child and let them study together.

修改人: 刘佳



**Appendix K**  
**Teaching materials example (reading and writing task)**

### **US-China business: the necessary reinvention of Huawei**

The US has banned the use of Huawei equipment by the federal government, barred American companies from selling to Huawei without an export license, and prohibited the supply of any semiconductors designed or manufactured using US technology or equipment for use in any Huawei gear.

As the restrictions have begun to derail Huawei's traditional business, the group is now in a scramble to try to reinvent itself. The company is turning away from the development and sale of telecommunications network gear and smartphones into areas less dependent on foreign chip supplies — such as cloud services and software for smart cars. Meanwhile, the group is also doubling down on its own research and development in an effort to escape the stranglehold of American sanctions.

#### **Component bottlenecks**

Last week, rotating chair Eric Xu predicted that in the full year, the company will lose up to \$40bn of its \$50bn smartphone business, a slide that analysts estimate will drive the share of the consumer business in Huawei's total revenues from 42 per cent earlier this year to just over 30 per cent. In response to these losses, the first big push has been to strengthen Huawei's software capabilities so that it is less dependent on producing hardware that it will struggle more and more to deliver without access to chip supplies.

The main software-driven business Huawei is rushing to build is cloud services. Some of the functions in a telecoms network traditionally performed by base stations can be transferred to software processes in the cloud with newer technology. Moreover, Huawei is rapidly developing new cloud services, which it offers to companies and government departments.

There are limits on Huawei's cloud business, however. In July, Chinese media reported that the company was considering selling a part of its server business that runs on x86 central processing units after Intel's export license for providing Huawei with that component expired. Servers are indispensable for cloud companies because they are where the hardware data is stored and much of the computing needed for cloud services is performed.



One of the fields where Huawei finds it relatively easy to pick up new business is helping to digitise industries that have been laggards in the adoption of information technology. It is offering telecom, IT and software tools to Chinese companies in sectors such as coal mining and port operations, enabling them to lower costs and enhance security. Driven by these operations, Huawei's enterprise business revenues grew by 23 per cent last year and 18 per cent in the first half of this year.

### **Gear change**

Frustrated in its main markets, Huawei is making some striking bets on new areas. One of the biggest is in electric and autonomous vehicles. Huawei made its first R&D foray into vehicles in 2014, but now the company is drastically cranking up commitment, with plans to form a 5,000-strong R&D team and investment of \$1bn in the segment this year. The company says it will not build cars itself, but its engineers are clearly looking into everything short of that.

A vehicle released by Chinese automaker Beiqi at the Shanghai Auto Show this year featured an entire in-car electronics solution developed by Huawei. For this shift, the company is harnessing strengths built over years in its telecoms hardware business — executives say experience in designing base stations that can withstand extreme weather conditions comes in handy because temperature controls are a key requirement in electric vehicles.

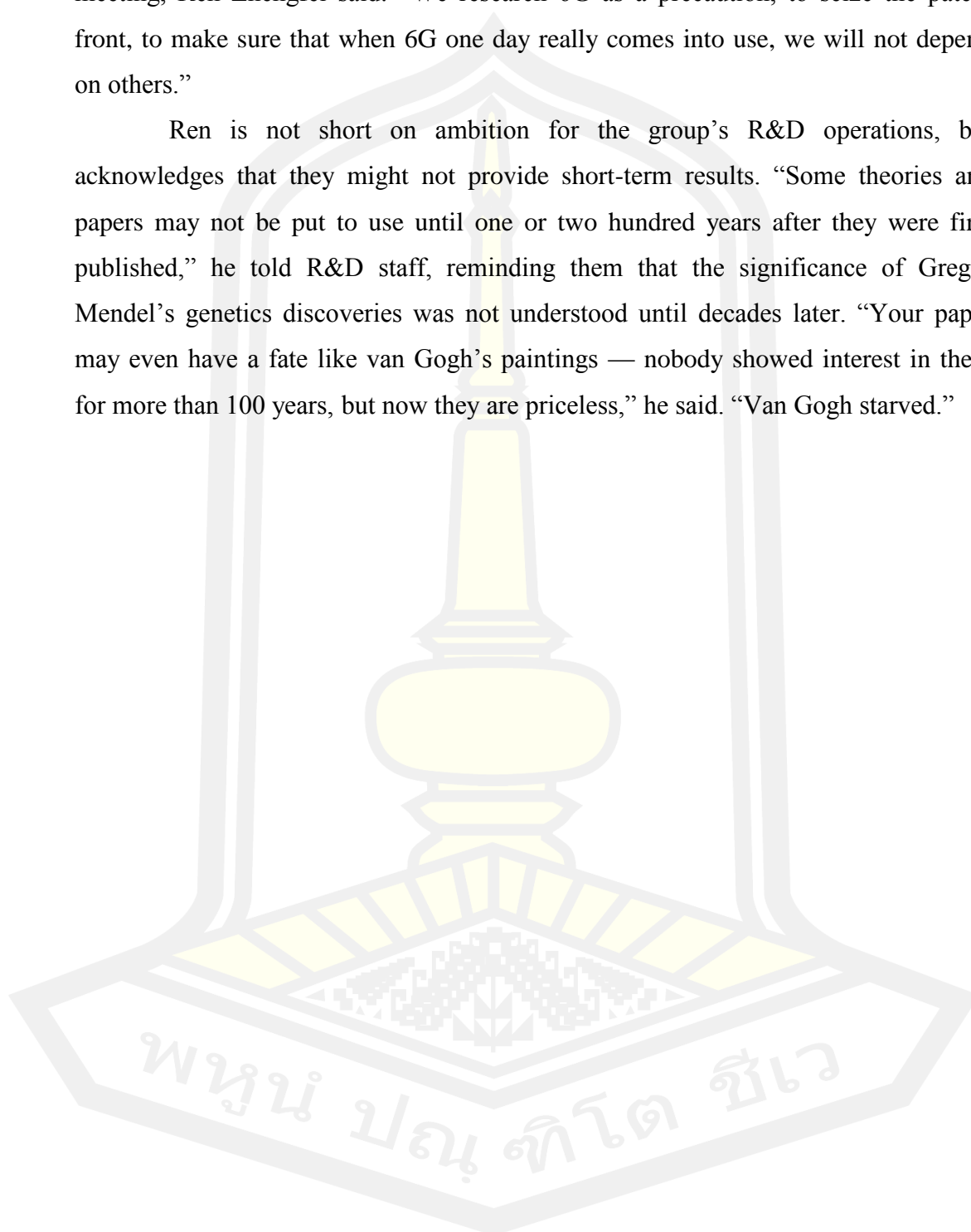
### **'Seize the patent front'**

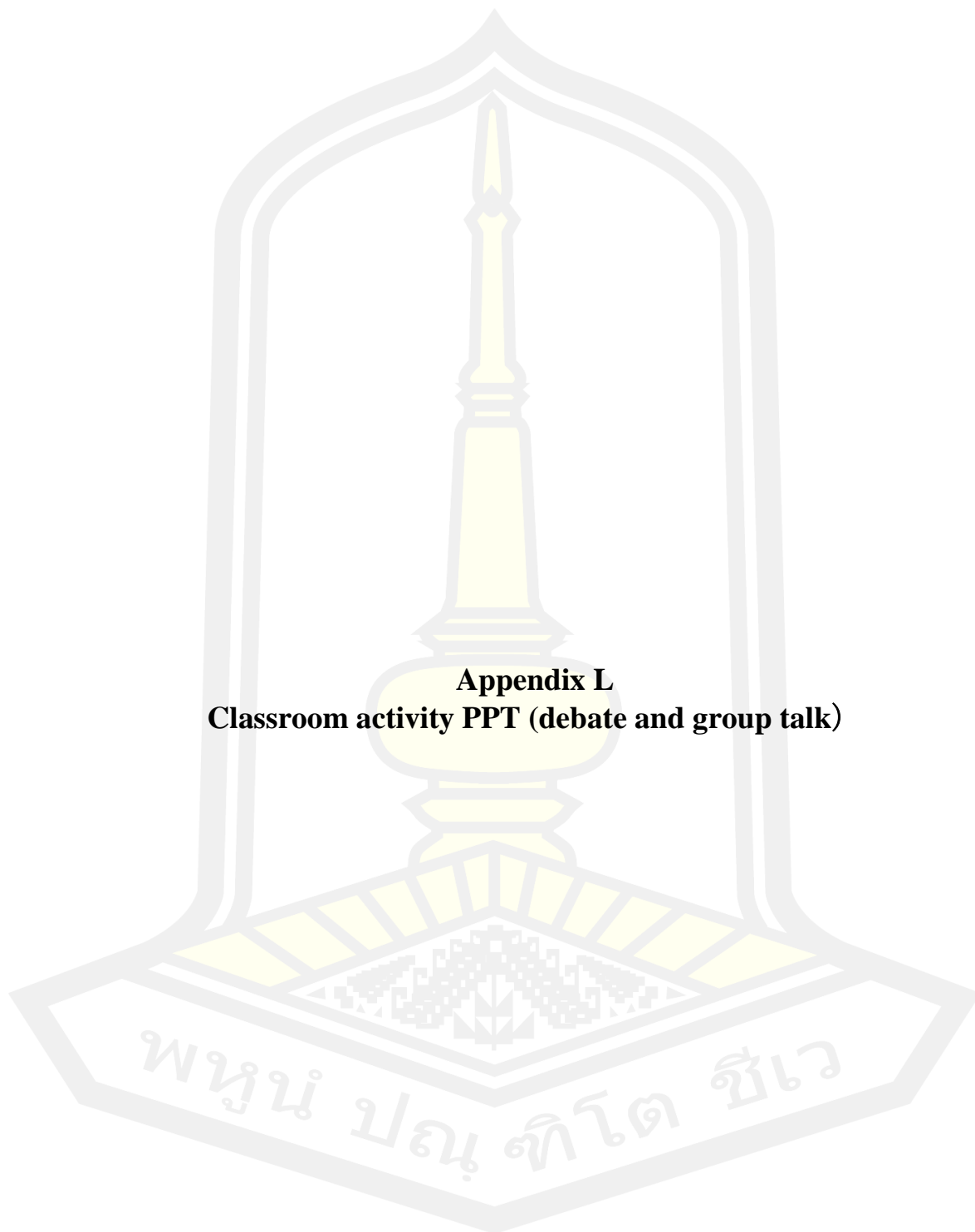
Last year, Huawei invested Rmb141.9bn (\$22bn) in R&D, almost 16 per cent of its revenue. The driver behind this focus on high-end research is the urge to become less dependent on foreign technology — while also laying the groundwork for growing intellectual property royalties.

Already in 5G, Huawei is one of the most significant owners of patents, forcing rival network gear makers such as Ericsson or Nokia to make certain payments to Huawei even if the Chinese company is excluded from 5G contracts in many western countries.

Exhorting research staff to seek global technology leadership at the August meeting, Ren Zhengfei said: “We research 6G as a precaution, to seize the patent front, to make sure that when 6G one day really comes into use, we will not depend on others.”

Ren is not short on ambition for the group’s R&D operations, but acknowledges that they might not provide short-term results. “Some theories and papers may not be put to use until one or two hundred years after they were first published,” he told R&D staff, reminding them that the significance of Gregor Mendel’s genetics discoveries was not understood until decades later. “Your paper may even have a fate like van Gogh’s paintings — nobody showed interest in them for more than 100 years, but now they are priceless,” he said. “Van Gogh starved.”






**Appendix L**  
**Classroom activity PPT (debate and group talk)**

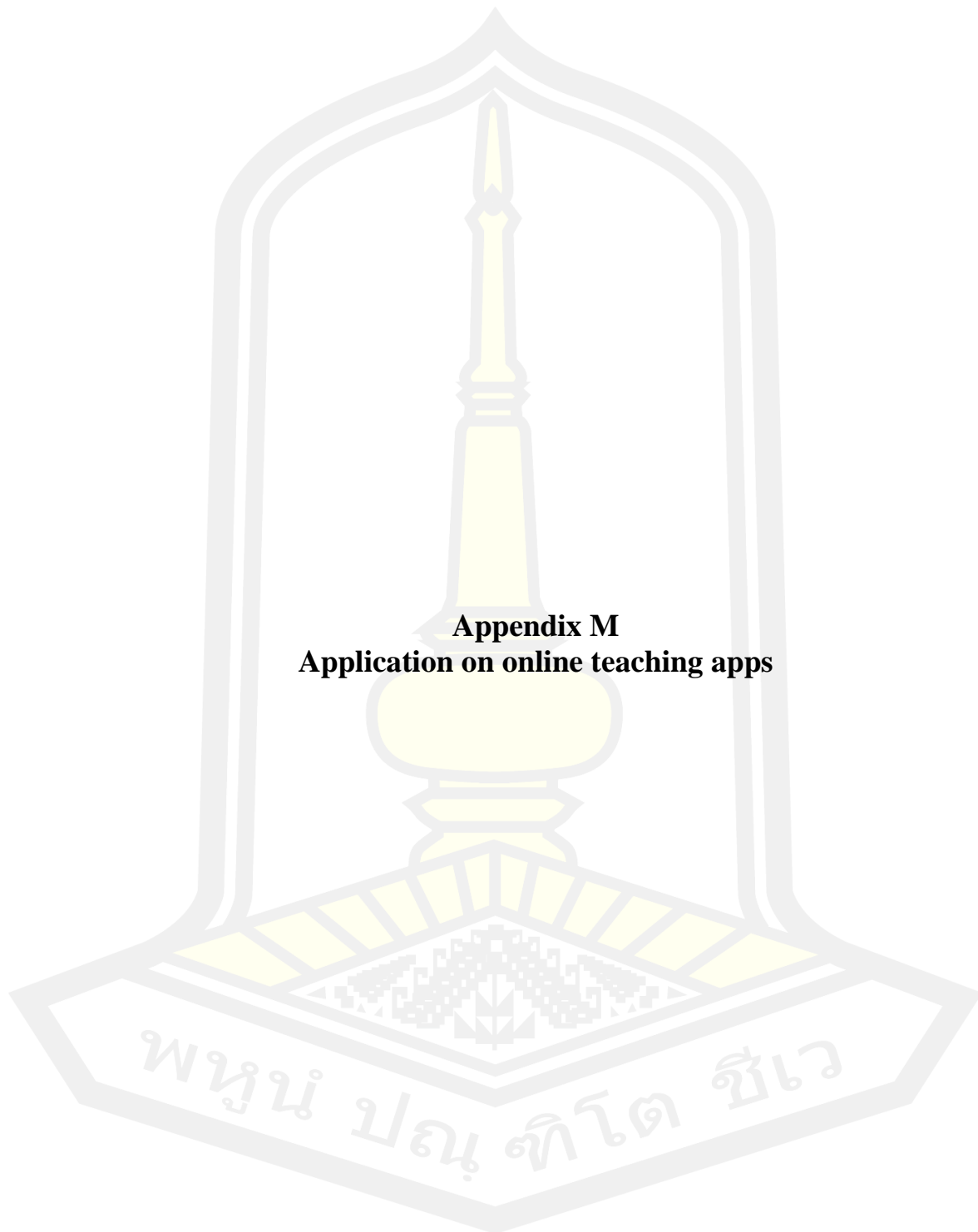
# 2V2 DEBATE

## Are on-line friends real friends?



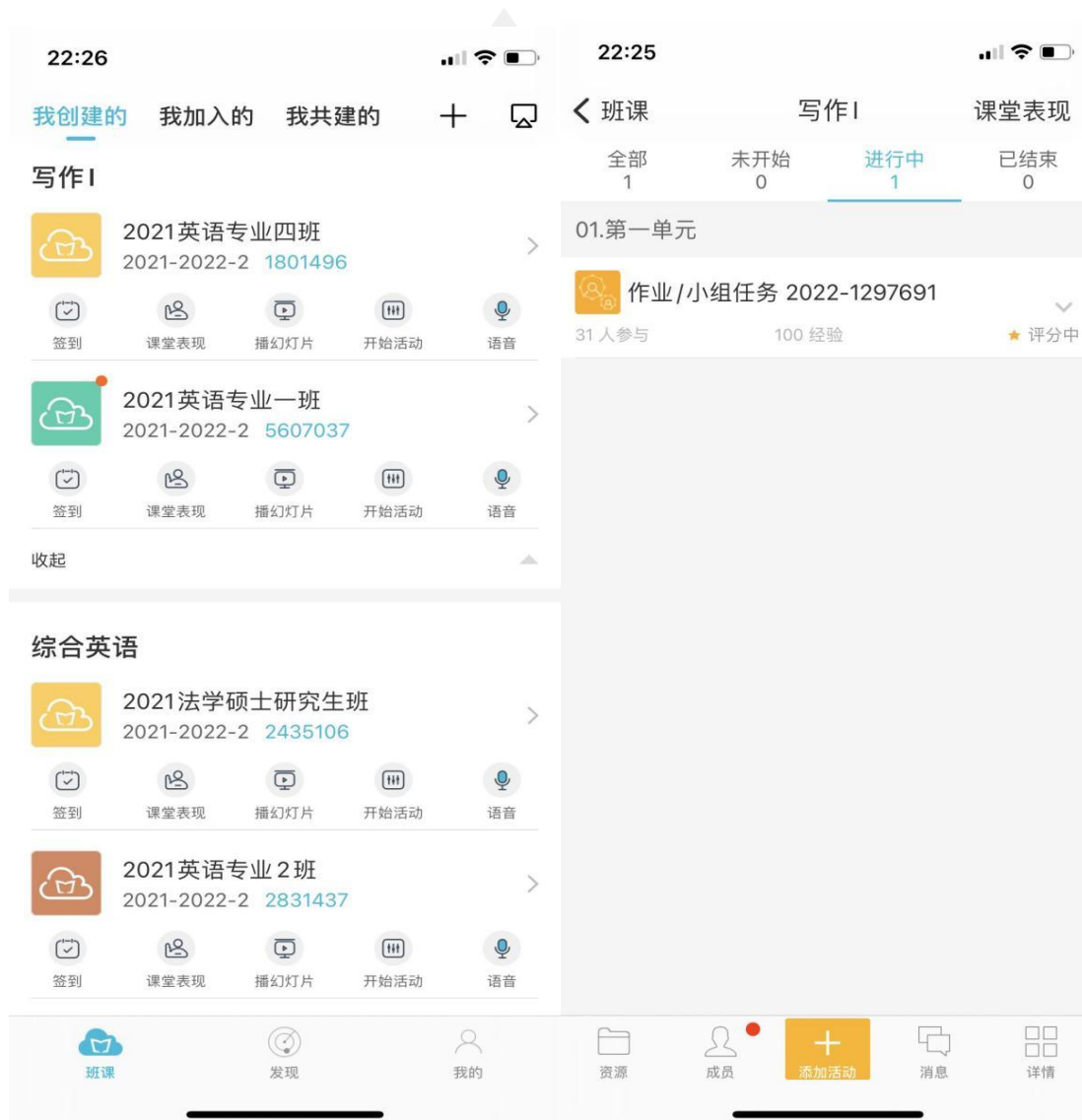
### Methods of Communication

 <p><u>letter</u></p>	 <p><u>e-mail</u></p>	
 <p><u>face-to-face</u></p>	 <p><u>Social network</u></p>	 <p><u>cell phone</u></p>



**Appendix M**  
**Application on online teaching apps**

### Example from the Yun Banke leaning app



22:24
22:25

< 写作I 作业结果列表

全部 (31) 时间 ▾ 由先到后 批量评分

杨全丽 (202105010114)

共 1 个附件

4 月 18 日 15:38 提交

开始评分后学生将不能修改作业, 你可以 [允许修改](#)

90分 老师评分	尚无评分 组间互评	尚无评分 组内互评	0 评论
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< 写作I 作业结果列表

曹蝶 (202105010102)

共 2 个附件

4 月 18 日 20:11 提交

开始评分后学生将不能修改作业, 你可以 [允许修改](#)

87分 老师评分	尚无评分 组间互评	尚无评分 组内互评	0 评论
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杨其 (202105010101)

英语一班杨其  
202105010101

共 1 个附件

4 月 18 日 19:52 提交

开始评分后学生将不能修改作业, 你可以 [允许修改](#)

90分 老师评分	尚无评分 组间互评	尚无评分 组内互评	0 评论
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杨洋 (202105010103)

共 2 个附件

4 月 18 日 20:12 提交

开始评分后学生将不能修改作业, 你可以 [允许修改](#)

91分 老师评分	尚无评分 组间互评	尚无评分 组内互评	0 评论
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王林 (202105010104)

共 1 个附件

郑英 (202105010110)

共 2 个附件

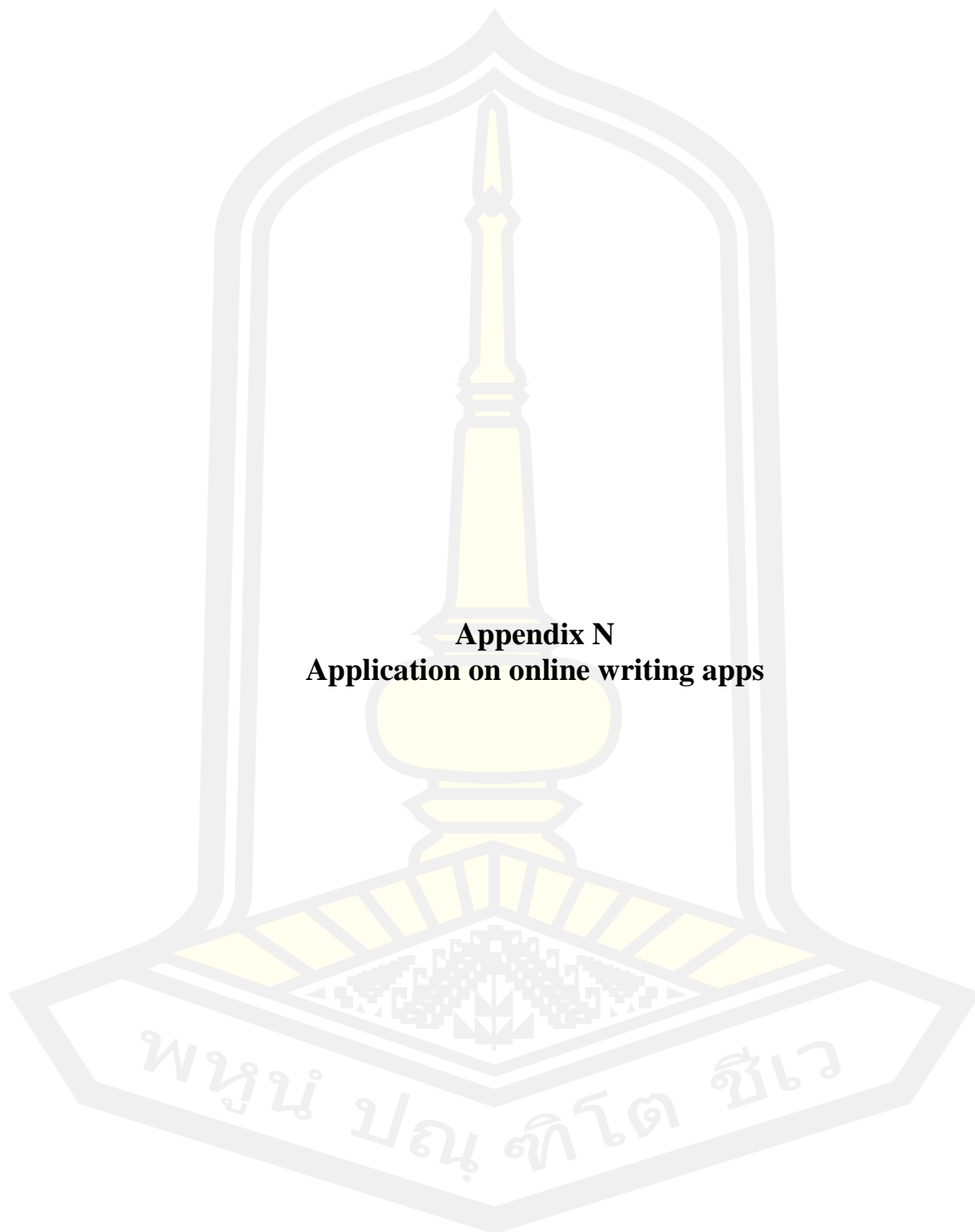
4 月 18 日 21:59 提交

开始评分后学生将不能修改作业, 你可以 [允许修改](#)

87分 老师评分	尚无评分 组间互评	尚无评分 组内互评	0 评论
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[历史](#)





**Appendix N**  
**Application on online writing apps**



### One Example of the writing task online (PiGai Wang app)

The image displays two screenshots from the PiGai Wang app. The left screenshot shows a list of writing tasks, and the right screenshot shows a student list for a specific activity.

**Left Screenshot: Writing Tasks**

- [2713456] 作文题目**  
"Some people believe that your personality doesn't change over time. To what extent do you agree with this idea? Give specific examples to support your opinion."  
作文 47人 100分 详情 >
- [2243756] 【批改网杯】 My View on Internet Influencers**  
已截止  
With the development of the Internet industry, nowadays in China, more and more young people dream to be successful Internet influencers (网红) like Li Jiaqi, Li Ziqi.  
活动 26人 100分 详情 >
- [2022619] [热点]越来越多人转向在线教育课程**  
已截止  
1、为什么会会出现这种现象  
3、为什么  
作文 26人 100分 详情 >
- [1554756] 【2020年6月四级预测】 which one is more important, diploma or competence**  
已截止  
Directions: For this part, you are allowed 30 minutes to write an

**Right Screenshot: Student List (2243756)**

共26位学生答题, 截止于: 2020-11-20 23:59:00

Score	Name	Activity
90.5	唐小梅	201905010220 2019级英语2班 第2243756号 活动
90	陈多	201905010208 2 第2243756号 活动
85	张秋冬	201905010217 2019级英语二班 第2243756号 活动
89	冉光艳	201905010209 英语二班 第2243756号 活动
80	贺旺	201905010206 2019级英语2班 第2243756号 活动
93	毛林娟	201905010219 2019级英语2班 第2243756号 活动
73	陈纤纤	201905010205 英语二班 第2243756号 活动
91.5	杨洋	201905010228 英语2班 第2243756号 活动
90.5	丁丽元	201905010222 2 第2243756号 活动
86.5	文修霞	201905010221 英语二班 第2243756号 活动
93.5	国正芳	201905010229 英语2班 Do You Want to Be An Inte...
84	谢玥	

พหุ มปัญญา เทคโนโลยี ชีวะ

22:41

< 返回唐小梅 2019级英语2班 201905010220

我的作业 隐藏

Currently, Internet influencers increasingly has been highly argued, owing the fact that the effects that Internet celebrities have taken to society. A variety of characters have been dreaming of being an Internet celebrity, nevertheless, I do not tend to be a public influencer.

On the one hand, Internet social media stars mostly confide in charming and gorgeous appearance to attract fans, which always deceives their followers, therefore, it is more likely to ignore the internal morality. From my perspective, what most crucial trait is not external beauty but internal charm. It seems to be the major reason why I do not dream about being an Internet celebrity. On the other hand, it is highly required that Internet influencers should be all round, distinctive, easygoing and so forth. On the contrary, I tend to be introverted as well as not good at communicating.

Most importantly, Internet celebrities should shoulder the obligation of sharing morally sound values and outlook in the world and life. Instead, a large number of Internet celebrity is exerting a detrimental part in society. To name only a few, Feng, as the originator of the Internet celebrity, the majority of people argue that she is famous for weird appearance. Virtually, she pretended herself as versatile, perfect and so on. despite ordinary appearance to cheat other people. What is worse, it is her that has induced numerous people to use marketing methods so as to deceive others, achieving personal benefits, which has violated the Socialist Values. It indeed left me negative impact.

查看要求      怎么写

22:40

< 返回唐小梅 2019级英语2班 201905010220

To conclude, I might not become a good model of Internet celebrity to spread everything positive as well as it is hard for me to talk about my daily life with someone whom you maybe not acquaint with. Thus, I do not intend to be an Internet influencer.

作业总评

作者词汇基础扎实，拼写也很棒；作者句法很棒，合理使用了复杂句；采用了恰当的衔接手法，层次清晰。 修改

按句点评

1.1 Currently, Internet influencers increasingly has been highly argued, owing the fact that the effects that Internet celebrities have taken to society. 点评

- ⊗ [句子错误] 请检查has, 确认主谓一致。 报错
- ⊙ [句子警示] 疑似句子不完整, 请检查。 报错
- ⊙ [冠词警示] 冠词缺失, 请检查taken to society. >>chart 报错
- ⓘ [学习提示] 易混词汇: consequence, result, effect, outcome 均含“结果”之意。 报错

---

1.2 A variety of characters have been dreaming of being an Internet celebrity, nevertheless, I do not tend to be a public influencer. 点评

- ⊙ [连词警示] 检查句子中的连词是否缺失。 报错
- ⓘ [学习提示] character表示“特征, 性格”。注意与characte

查看要求      怎么写



22:40

< 返回唐小梅 2019级英语2班 201905010220

mostly confide in charming and gorgeous appearance to attract fans, which always deceives the ir followers, therefore, it is more likely to ignore the internal morality. [点评](#)

④ [学习提示] 易混词汇: believe, trust, **confide**, rely 均含有“相信, 信任”之意。 [报错](#)

---

2.2 From my perspective, what most crucial trait is not external beauty but internal charm. [点评](#)

④ [学习提示] 易混词汇: **external**, exterior, outer, outside, outward 均可表示“外部的”之意。 [报错](#)

---

2.3 It seems to be the major reason why I do not dream about being an Internet celebrity. [点评](#)

④ [推荐表达] cause/factor/contributor/trigger与**reason**意思相近, 可参考学习。 [报错](#)

④ [学习提示] 易混词汇: appear, look, **seem** 均有“看起来, 好像是”之意。 [报错](#)

---

2.4 On the other hand, it is highly required that Internet influencers should be all round, distinctive, easygoing and so forth. [点评](#)

④ [学习提示] 易混词汇: forwards, **forth**, onwards 均含有“向前”之意。 [报错](#)

✔ [闪光短语] and so forth的意思是等等, 诸如此类, 是经典短语。 [报错](#)

22:41

< 返回唐小梅 2019级英语2班 201905010220

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3.1 Most importantly, Internet celebrities should shoulder the obligation of sharing morally sound values and outlook in the world and life. [点评](#)

④ [学习提示] 易混词汇: share, participate 均含有“分享, 分担”之意。 [报错](#)

---

3.2 Instead, a large number of Internet celebrity is exerting a detrimental part in society. [点评](#)

④ [学习提示] 易混词汇: big, **large**, great, grand 均含“大的”之意。 [报错](#)

---

3.3 To name only a few, Feng, as the originator of the Internet celebrity, the majority of people argue that she is famous for weird appearance. [点评](#)

④ [学习提示] 易混词汇: little, **few**, several 均含“少量的”之意。 [报错](#)

④ [推荐表达] just/merely/barely/singly/solely/rarely与**only**意思相近, 可参考学习。 [报错](#)

④ [推荐表达] individuals/characters/folks/citizen/the public与**people**意思相近, 可参考学习。 [报错](#)

---

3.4 Virtually, she pretended herself as versatile, perfect and so on. [点评](#)

④ [拓展辨析] 查看**virtually**和**practically**的区别。 [报错](#)

 查看要求

 怎么写

 查看要求

 怎么写



## BIOGRAPHY

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<b>Research output</b>	2021 Ya, L. (2021). Critical reflection on critical thinking and TEM tests of English major students' performance. Journal of Green Learning, 1(1), 17-21. 2022 Ya, L., Prasart, N. (2022). Cultivating Critical Thinking Skills among English Major Students of Ethnic Minority Universities in China. Neuro Quantology, 20(8), 7898-7905.

พหุบัณฑิต ชีวะ