

Original Paper

A Study on the Correlation between English Majors' Critical Thinking Disposition and Performance Outcomes in Peer Review of Translation

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Abstract

This study took 61 English Majors MA as the research participants. Questionnaire data, students' translation drafts, peer feedback and peer scoring were analyzed to reveal the level of students' critical thinking disposition (CTD) and the correlation between their CTD and their performance outcomes in respect of peer feedback quality and peer scoring accuracy. The results show that English majors have a positive medium level CTD. There is a moderate positive correlation between analyticity and peer feedback quality, and a low positive correlation between inquisitiveness and peer feedback quality. A low positive correlation is also detected between truth-seeking and peer feedback quality. In addition, a moderate negative correlation is found between analyticity and peer scoring accuracy. A low negative correlation is detected between cognitive maturity and peer scoring accuracy, and there is a low negative correlation between self-confidence and peer scoring accuracy. In view of this, this study suggests that in future peer review practices, special instructions are required for the dimensions of CTD, in the hope of promoting the efficacy of peer review in learning.

Keywords

Peer review of translation, Critical thinking disposition, Peer feedback quality, Peer scoring accuracy

1. Introduction

“Critical thinking skills” was first translated as “批判性思维能力” in Chinese. However, Wen et al. (2008) argue that this translation distorts the meaning of the original word, because “critical”, from its Greek root, means “conscious thinking using appropriate evaluation criteria to make reasoned judgments”. After some discussion, the word was eventually translated as “思辨能力”. Critical thinking

disposition (CTD) is an important component of critical thinking skills and determines the level of critical thinking ability (Facione, 2011). The concept of CTD was first proposed by the Delphi Project Team in 1990, which refers to an individual's beliefs, values, attitudes and willingness in critical thinking activities (American Philosophical Association, 1990). In other words, CTD refers to the attitudes and habits that people have when making judgments and decisions. It is the basis of thinking and affects the process and outcome of thinking (Wu & Fang, 2021). Positive CTD include truth-seeking, open-mindedness, persistence, etc., which can promote individual and social development through thinking activities; However, the growth of negative critical thinking disposition, such as being stubborn, retreating from difficulties, and following suit, will have a negative impact on the spiritual cultivation and all-round development of individuals.

Peer review of translation can, to a certain extent, help students deepen their application of translation theories and strategies, improve their ability to analyze and solve problems, and strengthen their awareness of correction (Li & Ke, 2013). As an important part of peer review, providing feedback emphasizes the participation of higher-order thinking, which requires students to possess certain CTD and skills (Dunlap & Grabinger, 2003; Nicol & Macfarlane-Dick, 2006; van Popta et al., 2017; Fang et al., 2021). At present, more studies focus on whether peer review can improve students' CTD, but few studies focus on whether there is a correlation between students' CTD as a feedback provider and their performance in mutual evaluation. In view of this, this study takes undergraduates majoring in English as the object of study. Firstly, it investigates the level of students' CTD, and secondly, it explores whether students' CTD is related to their performance as feedback providers in peer review of translation, in order to lay the foundation for the positive interaction between CTD and specific learning behaviors.

2. Literature Review

2.1 Measurement of CTD

In order to understand the characteristics of students' CTD, Facione et al. developed the California Critical Thinking Disposition Inventory (CCTDI) based on the characteristics of CTD proposed by the Delphi Project Group in the United States. The CCTDI consists of 7 dimensions and 75 items, measuring 7 traits of CTD: truth-seeking, open-mindedness, analyticity, systematization ability, critical confidence, inquisitiveness and cognitive maturity (American Philosophical Association, 1990). Peng et al. (2004) attempt to interpret this measure locally from a conceptual equivalent perspective and develop a Chinese Version of the Critical Thinking Disposition Inventory-Chinese version (CTDI-CV). CTDI-CV retains the 7 dimensions of CTD oriented by CCTDI, but the wording of the questionnaire is adjusted, taking into account the Chinese culture's emphasis on modesty and modesty, and adding situational description, so that students can better understand the meaning of the questionnaire. At the same time, CTDI-CV simplifies the scoring procedure, but the score is still consistent with the CCTDI. After repeated verification, CTDI-CV has stable reliability and validity. In this study, CTDI-CV was used to assess the level of students' CTD.

2.2 Research on CTD and Peer Review

Most studies focus on CTD itself. Questionnaire survey is used to assess the overall level and development trend of students' CTD, and qualitative methods such as interviews are used to explore the causes and mechanisms of the current situation (Park & Kim, 2009; Zhang, 2021). In recent years, researchers have begun to pay attention to the relationship between CTD and specific learning behaviors and learning outcomes in teaching (Li & Zhang, 2023). In the researches on peer review, most of them explore the CTD effect of peer review through empirical analysis. Lacey (2016) took the classroom teaching of summary writing for English majors as an example to design a classroom training model for undergraduates' critical thinking ability based on peer review. The students said in the interview after the peer review activity that peer review played a positive role in enhancing their CTD. Novakovich (2016) used the blog platform to carry out writing teaching practice among college students. By comparing the experimental group and the control group, he found that peer review based on blog could increase the value of students' critical thinking and reflective ability. Based on the theoretical framework of CTD, Li et al. (2022) adopted an experimental research method to investigate the influence of peer review of English writing on English majors' CTD. The results showed that the CTD of students in the experimental group showed a positive and rising trend with the growth of grade, while the CTD of students in the control group showed a declining trend. peer review can integrate critical thinking into English writing teaching and promote the improvement of students' CTD.

To sum up, there are only a limited number of studies on the relationship between CTD and peer review. Existing studies mainly focus on the influence of peer review on students' CTD, while there is no study on whether there is a correlation between students' CTD and their peer review performance in the process of providing feedback on mutual assessment. In addition, existing studies are generally based on peer review in English writing, and no studies have focused on the interaction between peer review of translation and CTD. Therefore, from the perspective of peer review of translation, it is necessary to explore whether there is a correlation between students' CTD and their performance in peer review as providers of feedback.

3. Research Methods

3.1 Research Questions

This study aims to answer the following three research questions:

- (1) What is the CTD level of English major undergraduates?
- (2) Is there a correlation between students' CTD and their peer feedback quality?
- (3) Is there a correlation between students' CTD and their peer scoring accuracy?

3.2 Participants

This study selected 61 third-year English majors from a college in Jilin Province as the research objects. They were from an intact class of the course "Basis of Translation" taught by the researcher. All the students have been learning English for more than 10 years, so they have a certain basis of translation.

With the exception of 3 students, none of them had participated in peer review activities before.

3.3 Research Tools

The measurement tool adopted in this study is CTDI-CV modified by Peng et al. The scale contains 7 dimensions of truth-seeking, open-mindedness, analyticity, systematization ability, critical confidence, inquisitiveness and cognitive maturity. Each dimension contains 10 items, with a total of 70 items. The scale was calculated using a six-level Likert scale, with 1 indicating “strongly disagree” and 6 indicating “strongly agree”. Scores on each dimension ranged from 10 to 60, with a score below 30 representing negative CTD, a score of 30-40 representing a state of wavering, a score above 40 representing a positive CTD, and a score above 50 indicating a strong CTD. The total score ranges from 70 to 420, with a score below 210 indicating a lack of CTD, 210-280 indicating ambivalence, 280 or more indicating a positive CTD, and 350 or more indicating a strong CTD.

3.4 Research Process

Before peer review, CTDI-CV was used to investigate students' CTD. Peer review activities were carried out in class. First, the students were asked to translate a paragraph of about 150 words from Chinese into English within 30 minutes and submit the drafts. Considering the students' lack of experience in peer review, the researchers trained the students before peer review, introduced the advantages and value of peer review, and demonstrated how to write an effective review using the thinking aloud method. The researchers also discussed the scoring criteria with the students. Then, the researchers randomly assigned each student's translation to three other students for anonymous review. The reviewers had to write feedback using the comments function in Microsoft Word and score the translation according to the scoring criteria. After the peer review, students revised the first draft of their own translation based on the feedback received from their peers, and submitted the second draft.

3.5 Data Collection and Analysis

CTDI-CV scale was distributed online through Questionstar. A total of 61 questionnaires were sent out and 61 were recovered, with a recovery rate of 100%. The Cronbach's Alpha coefficient measured by the questionnaire was 0.88, indicating that it had good reliability and validity and could be used for measurement.

A total of 61 students' first and second drafts of translation, as well as peer comments and scorings were collected in this study. The peer comments were divided into 1417 points according to the sense group. To measure the quality of the peer feedback, the researchers and a research assistant assigned scores to peer feedback according to the evaluation criteria proposed by Gong (2014). For example, if the peer suggested another better translation method, 1 point was assigned; If the translation proposed by the partner is wrong, 0 points is assigned; If the translation proposed by the partner is acceptable, but not as good as the original, 0.5 points is awarded. There is a high degree of confidence between the two graders ($K = 0.82$), and differences of opinion are resolved through discussion.

In this study, deviation in peer scoring was used to measure the accuracy of peer scoring, which was calculated as follows:

Deviation in Peer Scoring = | Peer Scoring - Teacher Scoring | ÷ Teacher Scoring

In peer review, students grade the first drafts of their peers' translations according to the scoring criteria, and the researcher and her assistant grade all the first drafts. The two researchers scored with higher reliability (ICC = 0.83), and the average of these scores was recorded as the teacher's scoring. Finally, the above formula was used to calculate the deviation in peer scoring. The smaller the deviation in peer scoring, the higher the scoring accuracy.

SPSS26.0 was used to conduct descriptive statistics and correlation analysis on the data. Since the data did not meet the normal distribution, Spearman correlation test was used to investigate whether there was a correlation between students' CTD and the quality and accuracy of their comments and scorings. It should be noted that since there is an inverse relationship between the deviation in peer scoring and the scoring accuracy, if there is a negative correlation between the CTD and the scoring accuracy, it means that the more positive the CTD, the higher the scoring accuracy.

4. Study Results and Discussion

4.1 Level of Students' CTD

The results of the questionnaire show that the CTD of English majors is generally positive ($M = 325.35$, $SD = 31.17$). According to CTDI-CV, among the 61 students surveyed, 73.8% have positive CTD, 14.8% of the total students have strong CTD, 26.2% of the students show contradictory state, and there are no students without CTD (Table 1). This is basically consistent with Wen (2012) research results, that is, English majors on the whole show a positive CTD, and their scores are at a medium level.

Table 1. Overall Score of CTD

M		SD		
325.35		31.17		
No CTD (< 210 points)		Ambivalent state (210-280 points)	Positive CTD (> 280 points)	Strong CTD (> 350 points)
Number	0	16	45	9
Percentage	0%	26.2%	73.8%	14.8%

Table 2 shows the average scores of the 7 dimensions of CTD. The average scores of the students in the six dimensions of truth-seeking, open-mindedness, analyticity, systematization ability, inquisitiveness and cognitive maturity were all above 40 points, showing a positive CTD, but a contradictory state in the critical confidence. Among the seven CTD, the highest score was inquisitiveness (45.23 points), indicating that English majors have strong curiosity and desire to acquire new information, which is a very important trait for college students. The average score of open-mindedness was 44.80, indicating that students are tolerant to various ideas, cultures and opinions, with little personal prejudice, and can face

and solve various problems with an open mind. The average score of analyticity is almost the same as that of open mind, indicating that students can analyze, identify and deal with problems with reasonable evidence. In fourth place is cognitive maturity ($M = 43.92$), which means that students are able to make prudent judgments, have their own principles and methods of thinking about problems, and are not easily swayed by other voices. Although the score for truth-seeking is not high, it is still in the positive range, indicating that students have a certain truth-seeking attitude and are able to explore the reasons, principles and connections behind things. The final positive trait was systematization ability, which was close to the critical value ($M = 40.51$), indicating that most students were able to approach problems purposefully and in a planned way, but the trait was not very obvious. Of the seven dimensions of CTD, the only one that showed fluctuation was critical confidence ($M = 38.07$). This dimension measured whether students were confident in their rational analysis ability. The average score of this dimension is not high, indicating that students lack confidence in thinking and decision-making through analysis and reasoning in the process of exploring problems and pursuing the truth, and do not have a high evaluation of their critical thinking ability.

Table 2 The Scores of Each Dimension of CTD

	N	M	SD
Truth-seeking	61	41.93	7.93
Open-mindedness	61	44.80	7.11
Analyticity	61	44.33	6.71
Systematization Ability	61	40.51	6.87
Critical Confidence	61	38.07	6.96
Inquisitiveness	61	45.23	8.27
Cognitive Maturity	61	43.92	6.96

4.2 Correlation between CTD and Peer Feedback Quality

In this study, the feedback provided by students was divided into 1417 items according to the sense group, and each sense group was assigned a value according to the correctness of the feedback, so as to represent the quality of the comments provided by students as feedback providers. Spearman correlation analysis was used to test whether there was a correlation between students' CTD and peer feedback quality.

Table 3. Correlation Analysis between CTD and Peer Feedback Quality

Dimension of CTD	Peer Feedback Quality	
Truth-seeking	Correlation Coefficient	0.276 *
	Sig. (2 tail)	0.050
Analyticity	Correlation Coefficient	0.435 * *

	Sig. (2 tail)	0.001
Inquisitiveness	Correlation coefficient	0.315 *
	Sig. (2 tail)	0.024
Open-mindedness	Correlation Coefficient	0.191
	Sig. (2 tail)	0.179
Systematization ability	Correlation Coefficient	0.094
	Sig. (2 tail)	0.510
Critical Confidence	Correlation Coefficient	0.127
	Sig. (2 tail)	0.374
Cognitive Maturity	Correlation Coefficient	0.141
	Sig. (2 tail)	0.324

Note. * indicates correlation at the 0.05 level; ** means correlated at 0.01 level.

As shown in Table 3, from all dimensions of CTD, students' analytical ability showed a moderate positive correlation with the quality of comments ($r = 0.435$), while their desire for knowledge, truth-seeking and peer feedback quality showed a weak positive correlation ($r = 0.315$; $r = 0.276$), and there was no significant correlation between the other dimensions and the quality of comments. The process of writing feedback is a process of constructive active input and logical analysis. Students need to find out the coherent context of the original text, analyze the coherent mode of the translated text, find out the advantages and disadvantages of the translated text, analyze the reasons for the existence of problems and express their own opinions. This process is a test of whether students have a good cognitive system and analytical ability. Students with high analytical ability will find more problems in the mutual review, and they can persuade their peers to adopt their own suggestions through explanations. In addition, in order to evaluate the accuracy of their peers' translations and ensure the appropriateness of their own comments, students need to find and refer to various online and offline resources to participate in rational speculation, which also requires students to have a certain thirst for knowledge and truth seeking to some extent, otherwise the content of the comments will only stay on the surface and will not be challenging for speculation.

4.3 Correlation between CTD and Peer Scoring Accuracy

In this study, the deviation in peer scoring is used to represent the scoring accuracy of students in peer evaluation. The lower the deviation in peer scoring value, the higher the scoring accuracy. Spearman correlation analysis showed (see Table 4) that students' analyticity had a moderate negative correlation with scoring accuracy ($r = -0.447$), while cognitive maturity, critical confidence and scoring accuracy had a weak negative correlation ($r = -0.381$, $r = -0.273$). Students should have good analytical and evaluative skills when marking their peers' translations. Students with high scores in the dimension of analytical ability are more able to accurately understand the scoring criteria, have translation aesthetics, have habits such as integrated analysis, reasoning and judgment, and can make reasonable evaluation and

interpretation of the translation quality of their peers through screening and diagnosis. In addition, students who are cognitively mature tend to make intelligent decisions. They think carefully, weigh carefully, and make conscious judgments before making decisions, and therefore make more reasonable decisions. Speculative confidence is the confidence a person shows in the process of thinking, analyzing, and judging. It is not only a belief in one's own ability, but also a firm belief and determination in the thinking process. Students with strong critical confidence are more inclined to believe in their own judgment ability, and rarely hesitate to make decisions. Driven by self-confidence, students are more adept at making rational judgments on their peers' translations.

Table 4. Correlation Analysis between CTD and Peer Scoring Accuracy

Dimension of CTD	Peer Scoring Accuracy	
Truth-seeking	Correlation Coefficient	0.161
	Sig. (2 tail)	0.258
Analyticity	Correlation Coefficient	0.447 * *
	Sig. (2 tail)	0.006
Inquisitiveness	Correlation Coefficient	0.041
	Sig. (2 tail)	0.774
Open-mindedness	Correlation Coefficient	0.073
	Sig. (2 tail)	0.612
Systematization Ability	Correlation Coefficient	0.087
	Sig. (2 tail)	0.554
Critical Confidence	Correlation Coefficient	0.273 *
	Sig. (2 tail)	0.050
Cognitive Maturity	Correlation Coefficient	0.381 *
	Sig. (2 tail)	0.036

Note. * indicates correlation at the 0.05 level; ** means correlated at 0.01 level.

5. Summary

English major undergraduates generally show a positive CTD, which is in the middle level. Among the 7 sub-dimensions of CTD, 6 dimensions are positive, and students only show a wavering state in the critical confidence. But students scored low on truth-seeking and systematization ability, which required attention. In the correlation analysis between CTD and peer feedback quality, students' analytical ability is moderately positive correlated with peer feedback quality, while truth-seeking and inquisitiveness are weakly positive correlated with peer feedback quality. In addition, students' analyticity had a moderate negative correlation with their scoring accuracy, and their critical confidence and cognitive maturity had a weak negative correlation with their scoring accuracy.

In general, peer review of English translation is based on a positive interdependent scenario (Johnson & Johnson, 2005), in which students work in groups as “scaffolding” for each other, and ultimately improve their translation ability through complex meaning negotiation and higher-order thinking context. In the process of evaluating peer translation, students need to exert their CTD to ensure that the evaluation and feedback provided are effective, so as to promote the benign operation of peer review activities. Therefore, it is necessary to carry out targeted intervention in CTD, attach great importance to the catalyst effect of CTD on peer review, and strive to cultivate students’ CTD, improve their analytical ability and cognitive maturity, improve their desire for knowledge and adherence to the truth, and enhance their critical confidence. In the future teaching practice, the two-way interactive relationship between peer review and CTD in the development and change deserves further attention.

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