Research Article

Using Inquiry Notebooks to Assess Critical Thinking and Writing Among Chinese English Language Learners

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In 2001, the American Association of State Colleges and Universities partnered with the China Center for International Educational Exchange to offer dual-degree programs in which students earn degrees from "two or more partner institutions in different countries" (Helms, 2014, p. 6). These programs are also described as 1+2+1 or 2+2 programs, which refer to the years students spend in their home and host countries. Since their inception, approximately 4,000 Chinese students have earned degrees through these programs (American Association of State Colleges and Universities, 2020).

While dual-degree programs promote globalization and increase opportunities for institutions, faculty, and students, challenges arise due to differences in courses, language, and culture as well as in methodologies relating to teaching, grading, and evaluation (Helms, 2014). One frequently mentioned challenge for dual-degree seekers is demonstrating critical thinking skills in their written work in American university classrooms. Upon entry to the U.S. partner institution, learners either test into an Intensive English Program, where they focus exclusively on developing English language skills, or matriculate directly into their program of study, bypassing most general education courses focused on developing critical thinking skills.

Critical Thinking and English Learners

The development of 21st-century skills, which include critical thinking, has become increasingly important in English language classrooms, as English is the lingua franca of many nations (Kirkpatrick, 2012; Trilling & Fadel, 2009). However, research suggests that definitions of and expectations for critical thinking vary across disciplines, contexts, and cultures (Brookfield, 2012; Moore, 2013; Yancey, 2015). These variations are reflected in the field of language teaching; while professional organizations promote the integration of critical thinking into language programs, an overarching definition is not specified (Cutshall, 2012).

Cultural Influences on Critical Thinking in China

Asian students have long been depicted as rote learners—a result of their Confucian heritage (Ding & Lin, 2012; Tran, 2012; Zhang & Kim, 2018)—and studies have characterized them as "group oriented, harmony seeking, hierarchical, and non-critical thinking in comparison to their Western counterparts" (Stapleton, 2002, p. 250). While such depictions may be dismissed, to some extent, as stereotypical generalizations, research continues to show that culture and educational systems influence critical thinking. Tan (2017) identified two challenges to critical thinking education: "(1) the social expectation of teachers as knowledge transmitters and (2) a perception of critical thinking as essentially adversarial" (p. 993).

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Numerous studies discussed Chinese students' struggle to demonstrate critical thinking skills in their courses when they study abroad. Commonly cited reasons include differences in academic culture and the way English is taught in China, lack of language proficiency, and social/cultural differences (Duan & Yang, 2016; McNamara, 2018; Xu & Cao, 2017; Yuan, 2011).

The Chinese education system, especially secondary and higher education, is modeled on the Soviet system, with few liberal education schools. Secondary schools are focused on the high-stakes university entrance exam (*gaokao*), which has led to more rote memorization and less discussion and criticism (Duan & Yang, 2016; Gu et al., 2019; Ku & Ho, 2009; Yang, 2013; Yuan, 2011). Critical thinking skills are, however, increasingly recognized as important by instructors in China although they are not often integrated into English language classrooms or coursework (Hu, 2017; Lihonge et al., 2012; Zhang & Kim 2018). When they are integrated, expectations and implementation of their instruction vary. Researchers described the approach to teaching English in China as one that focuses on form rather than function (Lihong et al., 2012; Pei, 2017; Zhang, 2018; Zhang & Kim, 2018). As a result, English proficiency is a crucial factor in learners' ability to demonstrate critical thinking, and undergraduates, with less proficiency, do not possess strong critical thinking skills (Pei, 2017). Moreover, English courses are most often teacher-centered, with model (set) answers emphasized over reflection and with few opportunities for peer engagement (Hu, 2017; Ku & Ho, 2009; Tian & Low, 2011).

Despite the growing body of research into the development of critical thinking skills of Chinese students in China, research into critical thinking development in Chinese English learners planning to earn a degree from a U.S. institution of higher education is limited. Studies tend to emphasize college students and their critical thinking ability in their native language in their home country (Rimiene, 2002; Rodzalan & Saat, 2015). Research into dual-degree seekers is primarily focused on cultural transitions rather than the language needs of students planning to earn a degree from an institution abroad.

As the need for learners to be active critical thinkers intensifies, so does the need to integrate critical thinking into the English language curriculum. This study addresses two related research questions:

1) How do Chinese students participating in a dual-degree program integrate critical thinking into their academic writing?
2) What role does language play in the development of their critical thought?

Materials and Methodology

Participants

Participants were Chinese dual-degree seekers enrolled jointly in Chinese and U.S. partner schools. The Chinese partner (Technical Institute of China) enrolls over 18,000 undergraduates in predominately technical fields (Technical Institute of China website). It is located in southeastern China in an urban community of over 1,000,000 people. The U.S. partner school (Midwest State University) is a public university that enrolls approximately 10,000 undergraduates, approximately 250 of which are international students. The campus is located in a community of 65,000. Known as a liberal education institution, the university

identifies critical thinking as "essential preparation for 21st century careers" (Midwest State University website).

During summer 2019, participants enrolled in "U.S. Multiculturalism for Non-Native Speakers," a four-week course that met daily for four hours for 80 total instructional hours. This content-based English language class focused on "viewing the U.S. through the eyes of multicultural Americans and their experiences in the U.S. society" (Midwest State University catalog). "U.S. Multiculturalism for Non-Native Speakers" is open only to international students who are non-native speakers of English and fulfills university requirements for degree completion at Midwest State University. The course was taught by a faculty member from Midwest State University at the Technical Institute of China campus to expose students to U.S. teaching styles prior to their arrival in the United States. The 21 participants, all finance majors, are described in Table 1.

Table 1 *Descriptive Characteristics of Participants*

	Gender	Years of Undergraduate Study	Semesters in US before Course	Language Proficiency Meets Admission Standards
Group A	Female = 7 Male = 0	2 years = 2 1 year = 5	1 semester = 2 0 semesters = 5	Yes = 4 No = 3
Group B	Female = 4 Male = 3	2 years = 2 1 year = 5	1 semester = 2 (in IEP) 0 semesters = 5	Yes = 3 No = 4
Group C	Female = 2 Male = 5	2 years = 0 1 year = 7	1 semester = 0 0 semesters = 7	Yes = 0 No = 7

Procedures and Instrumentation

The research was approved by the university institutional review board and utilized procedures designed to protect the welfare of the participants. It was also approved by the International Office at the Technical Institute of China. While the cover letter and consent form were written in English, a representative from the Technical Institute of China was available to answer questions in Chinese. Both the institutions and participants were assigned pseudonyms.

Data for the study were collected in the form of an inquiry notebook, where students responded to prompts based on coursework (Wonder, 2020). The inquiry notebook was developed based on a progressive inquiry approach to analyzing metacognitive ability, including language, formation of thought, and structure of ideas (Muukkonen & Lakkala, 2009). Metacognition provides a socio-cultural perspective on critical thinking (Raoofi, 2013) whereas inquiry-based instruction parallels the scientific process in which learners create knowledge by posing questions, analyzing concepts, and proposing solutions to problems (Dostál, 2015).

The use of an inquiry notebook follows the American Association of Colleges and Universities (AAC&U, 2020) definition of critical thinking as a "habit of mind" (Definition section). Modeled after methods researchers use to collect, analyze and synthesize data, the inquiry notebook allows English language learners to develop both their critical thinking and

language proficiency within their Zone of Proximal Development (Wonder, 2020). The Zone of Proximal Development builds upon what a learner can do on their own by integrating scaffolded assistance from peers and the instructor (Vygotsky, 1978). Thirteen inquiry notebook entries were assigned during the course and served as artifact-mediated tools for critical thinking. The prompts were designed to be progressively more complex and ask for increasingly advanced critical thinking. With this approach, learners were given the opportunity to develop writing skills and demonstrate various levels of critical thinking.

The course was taught face-to-face using authentic materials accessible in China and included readings, videos, and class discussions. The instructional approach aligned with the 6 Principles of Exemplary Teaching of English Learners established by the International TESOL Association (Short et al., 2018). The 6 Principles include "1) Know your learners; 2) Create conditions for language learning; 3) Design high-quality lessons; 4) Adapt lesson plan delivery as needed; 5) Monitor and assess language development; and 6) Engage and communicate within a community of practice" (p. 1). The course was arranged thematically, with learners spending approximately 20 hours engaged with each theme. Language, content, and critical thinking skills were woven throughout the individual lessons and across the thematic units. The instructor introduced vocabulary, modeled concepts, provided opportunities to practice skills and to engage content with peers through small and large group activities, and gave formative and summative feedback. Learners could incorporate classroom discussions and the instructor feedback into future entries.

On the first day of class, the concept of critical thinking was introduced along with the inquiry notebook assignment and rubric. Entries were expected to apply what was learned in each subsequent class to the students' experiences, provide evidence to support claims, and explain the significance of the response. On day two, the course delved more specifically into critical thinking and discussed ways learners might approach a prompt. On day three, examples of entries that exceeded or fell below expectations were compared in class to encourage students to reflect more deeply on prompts. The length of entries was left open as the writing proficiency level across participants varied from Novice High to Advanced (see American Council on the Teaching of Foreign Languages, 2012).

Coding and Analysis

Inquiry Notebooks

Upon completion of the course, participants' inquiry notebook entries were scored individually by each researcher, using the AAC&U Critical Thinking VALUE Rubric (2020). Critical thinking is defined by AAC&U as a "habit of mind characterized by the exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion" (Definition section). This rubric was adopted because of its interdisciplinary nature and its alignment with the liberal education requirements of Midwest State University. Entries were rated according to four performance levels across a multidimensional structure that evaluates the explanation of issues, evidence, influence of context and assumptions, student's position, and conclusions and related outcomes. A score of zero was used for works not meeting minimum expectations. To achieve a performance level, the work must have demonstrated all skills within the dimension at that level. Table 2 provides an overview of the Critical Thinking VALUE Rubric. A detailed rubric is available on the AAC&U website.

Table 2 *Overview of AAC&U Critical Thinking VALUE Rubric*

Elements of Critical Thinking	**General Performance Descriptors**
Explanation of Issues	Critical exploration of issue
Evidence	Use of a variety of source information that is both interpreted and evaluated
Influence of Context and Assumptions	Identification and awareness of assumptions and assertions across contexts
Student's Position (Perspectives/Thesis/Hypothesis)	Presentation of a position that considers multiple perspectives and their limitations
Conclusions and Related Outcomes (Implications and Consequences)	Logical connection of conclusions to a range of information and viewpoints

Inquiry notebook entries were also scored according to a language rubric (Table 3) developed by the researchers to look at communicative ability. Entries were rated on a five-point scale. A score of zero indicated an incomprehensible response while a score of four indicated that word choice and sentence structure were purposeful and presented the writer's voice.

Table 3 *Language Rubric*

4	3	2	1	0
Organization, word choice and sentence structure are purposeful and present the writer's voice.	Organization, word choice and sentence structure enhance content and present the writer's voice.	Organization, word choice and sentence structure do not contribute to or detract from the content.	Organization, word choice and sentence structure may detract from the content. Or Work is mostly plagiarized.	Response is incomprehensible.

Researchers normalized scores for each entry to establish interrater reliability. Holistic scores and subscores were analyzed by student and by question to determine which skills students were able to demonstrate. Participants were ranked by average score, which included both critical thinking and language, to determine common themes, and then divided into three groups (Table 4).

Findings

The most significant finding in this project involved the disconnect between understanding and applying critical thinking. While students demonstrated a comprehension of critical thinking, they were unlikely to explore "issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion" (AAC&U, 2020, Definition section). This disconnect

is consistent with findings from Pei et al. (2017), in which students with less developed writing skills showed less evidence of critical thinking.

An Evaluation of Critical Thinking: The Critical Thinking VALUE Rubric

Based on the inquiry notebook scores, we were able to divide the participants into three groups according to their performance levels (Table 4). The average score for each group was separated by approximately two points. Across all groups, the strongest subscores came from the explanation of issues, and students struggled the most with expressing a position and including a conclusion; the reasons vary.

Table 4 *Mean Critical Thinking Value Rubric Score of Inquiry Notebooks by Groups*

	Mean Subscore						
	Explanation of Issues	Evidence	Influence of Context and Assumptions	Position	Conclusion	Language	**Mean Score**
Group A	1.79	1.64	1.29	1.00	0.99	2.02	9.44
Group B	1.66	1.36	1.21	0.62	0.77	1.75	7.43
Group C	1.24	0.90	0.96	0.41	0.44	1.64	5.4

The examples presented in this section derive from prompt six, which asked students to explain their understanding of stereotyping and identify specific assumptions or stereotypes from the stories and experiences they encountered in class materials. The prompt targeted two critical thinking skills: understanding and analysis. Responses to this prompt were drawn from an in-class discussion based on assigned readings and videos as well as lectures. The average score for all learners was 8. The following representative entries have not been edited for grammar or clarity.

Group A

The seven highest scorers on average made up Group A. Their scores ranged from high scores of 12 to16 points and low scores of 4 to 5. This group consistently considered the prompts critically by starting to describe the assumptions present in the stereotypes they encountered in their coursework in greater detail than their peers in Groups B and C. Participants occasionally scored a 3 in Explanation by providing a more defined response than their peers in Group B or Group C. More Evidence was provided, but examples were not readily explained or interpreted. While participants started to look at prompts in multiple Contexts, those contexts were likely to come from class or personal experiences rather than outside sources. Not all entries demonstrated taking a Position, but this group was more likely to make an attempt. Positions were commonly simplistic or obvious and/or only began to acknowledge other sides. Conclusions were logically drawn but oversimplified based on the information presented, or no conclusion was drawn at all.

Ivette's response is representative of Group A:

> Stereotype is a conventional or formulaic conception or image. People may have stereotypes on someone who belongs to some groups. Stereotypes may

> from direct or indirect ways such as communication or information of somebody.
>
> A video about 2 Chinese women make comments about a foreign man in Chinese. But the man answered her in Chinese. The woman has stereotypes on the man. She assumed that the man could not speak Chinese. In an article about codeswitching, there is an idea that people will make code-switching when they want to say something in secret. These people who want to make code-switching have made the assumption that other people cannot understand what they say. In some degree, they have stereotypes on other people. In the story, writer's mother was full of knowledge, but she was not good at expressing and often despised by other people in department stores, at banks, and at restaurants. These workers have stereotypes on her because of her bad expression. Asian students are made assumptions that they cannot do well in literature. So they are steered by their teacher away from writing and into math and science. In class, I learned that English has different forms like form and inform. These are both named English. But in the past, I thought informal is wrong expression. This was my stereotype on English.

Ivette showed her understanding of stereotype by explaining the term and applying it to several different scenarios, using examples from multiple course-provided materials as well as her own experiences. In each example, she explained what she viewed the stereotype to be. While Ivette could identify problems caused by stereotyping, the response did not explore the issue in depth or discuss the implications stereotypes have on individuals or society.

Understanding was the dominant skill presented in responses. Participants in this group were more likely to paraphrase or summarize rather than recall facts, and there were more instances of application. Analysis and evaluation were in the emerging stages, and there were occasional attempts at these skills. However, the lack of a position or conclusion tended to make these skills more difficult to identify in a response.

Group B

In Group B, responses started to offer an Evaluation of the problem or issue, but development was not consistent across entries. A range of Evidence was provided from course materials or personal experiences, but it was unlikely to be questioned or evaluated. Interpretation of evidence was rare. Responses were predominately presented in the Context of the course or prompt. Approximately half of each participants' entries did not take a Position. There were attempts at either a Position or a Conclusion, but an entry rarely included both. Conclusions looked more like summary sentences than a reflection evaluating the topic.

Barry responded:

> A stereotypeing [*sic*] is a fixed, general, and general view of a certain kind of person or thing. It has a great impact on our social information processing. It has both positive and negative aspects.

> South Korea have already applied for the world heritage site for the Dragon Boat Festival. Now it plans to apply for the world heritage site for the 'Korean medicine'. Some Chinese people are still questioning whether Chinese medicine is pseudoscience.

Irene responded:

> "Stereotyping" is a conventional or formulaic conception or image. It can also be understood as a thought that can be adapted about specific types of individuals or certain ways of doing things. These thoughts or beliefs may or may not accurately reflect reality.
>
> Once we have read/watched a video about codeswitching. In the video the black man wants to find a job, so he as to switch his language to a way like white man. This is stereotyping that people all think the way white people speaking can easier to get a job.

Barry offered some critical elements to his response in suggesting positive and negative impacts. However, the example given did not include an Explanation of the stereotype and left the impact unexplored. Irene's example identified the stereotype but did not suggest impact. Both students provided only one example to support their understanding of the issue.

Responses shifted from remembering to understanding; however, there were still instances where understanding was inaccurate. There were more attempts at analysis and evaluation than Group C offered, but these attempts were simplistic or of poor quality and inconsistently used throughout the inquiry notebook.

Group C

The entries provided by this group were characterized by basic responses that showed an Understanding of the prompt without critical evaluation. If Evidence was provided, it was likely to be a personal example without explanation or evaluation. Experts were not referenced. The responses focused on personal experience or information presented in class. Participants in this group were unlikely to state a Position, address other viewpoints, or draw a Conclusion. If used, conclusions were logically tied to the information presented. However, because the response focused on understanding, it was most often a summary statement.

James responded:

> I think stereotypes are a person's fixed view of something. An example can be a boy doing poorly on an exam because he fears if he does poorly the people will think it is because of his race and where he comes from.

Similarly, Alan stated, "A person's fixed view of something is stereotyping. In Two Minute Spanglish Con Mami, the school bullies taunted she . . . ."

The examples from James and Alan illustrated a basic Explanation of stereotyping. Both used the phrase "a person's fixed view of something," which suggests they used a

translation device or dictionary. James provided an example from personal understanding, and Alan used an example from a class reading. Neither response explained the stereotype. The responses were written in the Context of the prompt, but they were only viewed from one perspective or assumption. Neither student provided a Position or formed a Conclusion. The responses showed an understanding of the concept of stereotyping; however, the problem of stereotyping was not considered critically.

Most responses from this group focused on recalling facts or showing an understanding of declarative knowledge. Participants found an answer to a question but could not consistently rephrase, which lead to copying from the text, an outside source, or the work of their classmates. On the occasion when a participant presented an opinion or made a judgment, it was rarely justified or explained.

Summary

The examples above show the extent to which participants exhibited critical thinking in their inquiry notebooks. There were marked differences in depth of response (Explanation of Issues). While the examples (Evidence) showed an understanding of the term *stereotyping*, those from Group C focused more on identifying a definition of it than on defining it in their own words, as was illustrated by Groups A and B. Moreover, the number of examples (Evidence and Context) and the ability to interpret them as evidence varied across groups.

None of the examples above demonstrated taking a Position or forming a Conclusion.

There were not any holistic scores of 20 in the inquiry notebook entries, although three students had high scores of 15 or 16 on up to four entries. No one scored consistently at this level. Luanne demonstrated the highest-level critical thinking of all the participants:

> . . . and this kind of view tends to be negative and not representative.
>
> People tend to assume that those who speak broken English do not have a good command of English. . . . However, this point of view does not apply to everyone. Many people who speak traditional English are able to understand profound books and have an excellent writing.

Luanne's response was more critical by attempting to analyze the stereotype in relation to identity. She drew a logical Conclusion from the information provided by suggesting implications of stereotyping. While Luanne's response was atypical, it provided an illustration of what one of the strongest responses in this study looked like.

Overall, there was little progress in the development of critical thinking skills over the course of this study. Even with explicit instruction in critical thinking, and coursework intentionally designed to develop critical thinking skills, responses primarily focused on directly addressing the prompt. Scores fluctuated throughout the course and across prompts regardless of level of difficulty.

Writing Features of Inquiry Notebook Entries

Students who showed less evidence of critical thinking also had weaker language skills. There did not appear to be any connection between the medium inviting the response and the critical thinking skills demonstrated by students. The three prompts on which students

scored highest elicited a response based on personal opinions and experiences, a response to an academic article, and a response to a film watched in class.

The examples in this section derive from prompt five. This prompt asked students to share a definition of code-switching from either an in-class presentation or an assigned reading and write a paragraph summary of one section of an assigned text on the topic of code-switching.

Group A

Students in this group almost always correctly interpreted and followed prompts. Their entries were longer and more complex than the other groups. Although students in this group sometimes responded to prompts point-by-point, they tended to provide wholistic responses in the form of organized paragraphs. They consistently summarized and supported their ideas through complex sentences; however, they were less consistent in their use of conclusions to end paragraphs.

> Code switching is the practice of shifting languages you use or the way you express yourself in conversations. Take myself for example, when I talk with classmates, sometimes I speak Chinese with English.
>
> Sometimes people do code-switching when they want to say something in secret. Because this tactic often relies on assumption, it can get on in trouble, as Veronica Rodriguez can attest. She is from Venezuela and can speak Spanish and English fluently, but many times Hispanic people assume she don't speak Spanish. This lead to someone speaking very candidly around her thinking she cannot understand what they are saying. Veronica Rodriguez also speak french fluently. They often comment on some people in French since it was far less likely that someone understand them. One rainy afternoon, she saw a very nice-nice looking so she made some comments in French about how handsome he was. To their surprise, the man answered "Merci" in perfect french. And they were extremely embarrassed and decided they would keep their comments to themselves from then on.

In the entry above, Kama gave a definition of code-switching presented in class and supported it with a personal example. Typical of Group A, she also correctly summarized her assigned portion of the reading in an organized, cohesive paragraph consisting mostly of complex sentences. Her paragraph summary was accurate, objective, independent, and conveyed substantial comprehension of course content through word choices that presented her own voice. Minor mechanical errors did not interfere with her message.

Group B

Although this group usually followed prompts, there were a few instances of misunderstanding or missing an element of a prompt. While there were some wholistic responses, there was a tendency toward point-by-point responses. This group generally wrote complex sentences, which frequently resulted in run-on sentences. These students showed that they could write paragraph responses and demonstrated the ability to organize and support their ideas; however, they did so less frequently than Group A. Group B

responses typically lacked conclusions. While some students from this group struggled to synthesize information, all but one student demonstrated the ability to summarize points. Group B students were moderately successful in summarizing when specifically prompted. Their word choices were usually appropriate and did not detract from the content.

> The code switching is the practice of shifting languages you use or the way you express yourself in your conversation.
>
> In this passage, the author gives two examples to prove that through learning foreign language, we can say something in secret. The first example is Hispanic people speak Spanish around me, but I can unstand. The second example is author made some comments with friends on a handsome man in French, then he understood. They surprised. (Shirley X).

Shirley X gave a definition of code-switching presented in class. The definition was correct although she did not elaborate on the definition or provide a supporting example. Her response was also written in a complete sentence. Her paragraph summary included a topic sentence but no conclusion. While she correctly paraphrased the ideas from the text, the summary was not independent and communicated only a basic understanding of the text. Her sentence structure was less nuanced than those of her peers from Group A. Her word choices did not impede understanding; however, they also did not enhance content or present a clear voice.

Group C

Everyone in this group sometimes misunderstood a prompt or missed elements from a prompt. Responses were nearly always point-by-point, and all students struggled with structure and cohesion if they attempted to write a paragraph. Typical responses were simple sentences, with infrequent complex sentences. Some students in this group had responses that were only sentence fragments or phrases. Although there was an occasional topic sentence or rare conclusion, typical entries showed little or no organization. Correspondingly, support for ideas was very inconsistent. Most of the lowest-scoring writers confused main ideas and summaries and could not write a paragraph summary. Students in this group often struggled with word choice and sentence structure, often leading them to copy words and phrases from course texts.

Link's entry is representative of the work of Group C:

> the practice of changing between languages when you are speaking J.M. who code-switch with her coworkers constantly. From French to English. some concepts just don't translate. Many people code switch to fit in.

Link's definition expressed a partial definition of code-switching from an example in class. It captured the idea that people code-switch between languages but missed the idea of people also code-switching between dialects. He wrote sentence fragments and simple sentences to summarize his section of the assigned text. Typical of Group C writers, his summary was disorganized and not written in a paragraph format. His two complete

sentences correctly expressed two ideas from the reading, but they were also copied directly from sentences in the text.

Copying and Fact Finding

Students most often copied when there were fact-finding or defining prompts, yet students had higher scores when they did not copy. All students, except Luanne, plagiarized or copied in at least one entry. Group A had a total of 14 instances across six prompts. Group B had a total of 20 instances across seven prompts. Group C had a total of 28 instances across nine prompts. The most commonly copied prompts were Prompt 2 (12 instances) and Prompt 12 (17 instances). Prompt 2 asked learners to analyze a reading and apply the content while prompt 12 asked them to analyze the lyrics of a song. In these prompts, students stopped at fact-finding and defining and did not extend their entries to analyze the content. The prevalence of plagiarism across levels may be indicative of the cultural value of copying in Chinese culture (Hu et al., 2018). However, as there were more instances of plagiarism in prompts from Group C, some of the instances of copying may be due to language ability. Group C students were likely to lack appropriate vocabulary and struggle with paraphrasing.

Summary

The examples from the inquiry notebooks demonstrate the range of students' writing abilities. Students were moderately successful in writing a definition of *code-switching*; however, there was a stark difference in their abilities to compose paragraph summaries. Although all groups struggled to include a concluding sentence, Group A consistently wrote organized paragraphs with topic sentences and supported their ideas with a variety of sentence types. While nearly everyone in Group B was able to write coherent paragraphs, they did so less consistently than Group A and had a tendency to use run-on sentences when forming complex sentences in their responses. Group B was also more likely to provide point-by-point responses. Group C nearly always wrote point-by-point responses and struggled with both paragraph structure and cohesion. Although instructions and instructor feedback emphasized writing complete sentences and paragraphs, writers in Group C most often featured only sentence fragments. In the work of these participants, there was a marked connection between language proficiency and ability to demonstrate critical thought. This is consistent with McCall (2016), who noted that "it is important to recognize that there is a language proficiency threshold below which the production of meaningful written text is unlikely if not impossible" (p. 5).

Pedagogical Implications

The findings illustrate that participants struggled to demonstrate critical thinking skills in their written work and suggest language proficiency plays a role. In the case of dual-degree programs, English learners at the college level need to acquire language skills in tandem with critical thinking skills, as there are implications for their long-term success. Composition courses, often required for graduation, can play a pivotal role in developing both language proficiency and critical thinking. Providing explicit instruction of critical thinking skills, modeling critical thinking across disciplines, and teaching techniques to mitigate plagiarism can help English learners from across cultures.

Including Explicit Instruction of Critical Thinking Skills

Studies have found that explicit training in critical thinking skills contributes to the development of critical thinking and improves language proficiency (Dwyer et al., 2015; Lihong et al., 2012; Miri & Azisi, 2018; Wang & Seepo, 2017; Zhang, 2018). However, language proficiency and effectiveness of instruction influence how skill sets advance (Altay & Saracalogul, 2017; McCall, 2016; Miri & Azizi, 2018; Petek, 2018; Rimiene, 2002). Providing direct instruction of relevant critical thinking terms, analyzing examples of their usage, and including these terms explicitly in prompts can help learners understand the elements of critical thought and apply them to their written work. Scaffolded instruction can guide learners through the metacognitive processes involved with developing both language and critical thinking proficiency as well as engage students in the language of critical thinking (Abegglen et al., 2016; McCall, 2016). While U.S. models for academic writing instruction often focus on group discussion and peer review, Chinese students often prefer direct instruction (Yuan, 2011). Lastly, assessment of critical thinking skills in addition to language skills holds learners accountable for their work. Learners benefit from applying rubrics to assignment examples as they learn how to differentiate effective uses of critical thinking.

Improving Transfer across Disciplines

English language classes in American universities are inherently interdisciplinary, and cultural, linguistic, and disciplinary backgrounds of learners vary greatly. As discussed earlier, several studies suggest there are cultural and disciplinary differences in critical thinking (Brookfield, 2012; Moore, 2013; Yancey, 2015). These differences can lead to a "misinterpretation of intent" and a misapplication of skills (Abegglen et al., 2016). While language, audience, and evidence are common characteristics of critical thinking, expectations vary (Yancey, 2015). In English language classes, learners can analyze written work that illustrates explicit and implicit use of critical thinking, effective organization of ideas, and acceptable types of evidence. Linking writing with critical thinking in this way can help prepare learners to perform discipline-specific coursework as well as negotiate cross-disciplinary variations of critical thinking that may otherwise be more challenging. Critical thinking ability develops over time and requires a shift in both dispositions and performance (Ku & Ho, 2009).

Mitigating Plagiarism

Paraphrasing is a notoriously difficult task for language learners, as it requires a command of vocabulary and sentence structure. Consistent with Keck's (2016) findings that novice writers were more likely to plagiarize in their academic writing, nearly all of the participants in this study plagiarized in their inquiry notebook responses, and they were most likely to copy when prompted to define a term or provide factual information. As concepts of plagiarism vary across cultures (Hu & Lei, 2012), this topic should be integrated into English language courses to prepare students for academic expectations in the United States. Students new to U.S. universities will need to understand and identify plagiarism in American English, recognize and adapt to citation expectations, and learn how to look at their own writing through the eyes of a reader. Reviewing and practicing paraphrasing, summarizing, and citing can help students learn how to differentiate between their own ideas or reactions and those of others. Reading the work of others and conducting research are both important parts of university life in the United States. Introducing the importance

of independent thinking and intellectual property rights can help students learn the value of these ideas. Emphasizing that professors value independent thinking even more when it draws upon research into the ideas of others, and also explaining how documentation shows evidence of this, may help motivate students to use citations in their work.

Conclusions and Limitations

This study evaluated the ability of Chinese students to integrate critical thinking and writing in the target language of English. The study examined work completed by students in their home country of China but taught by an American English language instructor. The relationship established by the partner institutions provided an incentive for participants to improve their English language proficiency prior to enrolling in courses in the United States. However, students were allowed to enroll in the course prior to demonstrating language proficiency, resulting in a wider range of language ability than would typically be in the course.

Future studies could take several approaches to further understand the integration of critical thinking into written work. While this study looked specifically at Chinese English language learners enrolled in dual-degree programs, other studies could extend the participant pool to include a more diverse population of learners and target a more homogenous linguistic proficiency sample. Future studies might also examine lengthier writing pieces or study critical thinking development over a longer duration or within the learners' academic discipline after language proficiency requirements have been met. Additionally, researchers might aim to differentiate between variables such as culture, language, and writing craft to target specific influences on the development of critical thinking in English learners' work. While differences in language proficiency can be identified, other variables to consider include time spent developing each entry or focusing on a single written piece with multiple revisions. Lastly, a comparative study of first-language and target-language pieces may help identify additional nuances in the development of critical thinking among language learners.

This study highlights the complexity of critical thinking development among English language learners. When consideration is given to the language proficiency of the learner, the amount of time required to develop critical thinking, and the cultural and disciplinary differences in critical thinking, the entries illustrate the role language programs need to play in developing critical thinking and suggest what faculty may be able to expect from dual-degree students with the language proficiency to enter their majors.

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