Mental Contrasting as a Technique to Lower Learners' Levels of Anxiety when Completing Communicative Tasks in a Chinese Beginning Classroom

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Mental Contrasting as a Technique to Lower Learners’ Levels of Anxiety When Completing Communicative Tasks in a Chinese Beginning Classroom

Tzu-Hsiang Chien

A thesis submitted to the faculty of Brigham Young University in partial fulfillment of the requirements for the degree of Master of Arts

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ABSTRACT

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Learning a foreign language is stressful. If learners are anxious, they might be less confident and less willing to communicate (MacIntyre, Dörnyei, Clément, & Noels, 1998). Mental Contrasting with Implementation Intentions (MCII) is widely used to improve personal health, career pursuit among others. I introduce mental contrasting techniques to teaching and learning Chinese to see if MCII help learners lower their anxiety level. Foreign Language Classroom Anxiety Scale is implemented to test participants’ self-perceived anxiety. Participants’ cortisol in saliva serve as a manifestation of participants’ anxiety (i.e., stress) levels and as a measure of the changes of their anxiety levels. The results show that MCII can effectively lower participants’ speaking anxiety. Qualitative data also show that participants consider MCII helpful with learning Chinese and lowering anxiety levels.

Keywords: MCII, speaking anxiety, CFL, beginning learners, WOOP
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Chapter 1: Introduction

Learning a second language (L2) can be stressful, especially for beginning-level learners (Gardner, Padric, & Garnet, 1977; Horwitz, Horwitz, & Cope, 1986; Pyun, Kim, Cho, & Lee, 2014). Pyun et al. (2014) research the affects and oral achievement of “truly foreign language” learners and find a negative correlation between learners’ self-confidence and their anxiety levels (Jordon & Walton, 1987, p. 111). The notion of “truly foreign languages” is first mentioned by Jordon and Walton (1987, p. 111) to refer to the East Asian languages, such as Chinese, with different writing systems from English speakers. In the current study, I aim to focus on anxiety and stress levels of beginning learners of Chinese (first year college level Chinese).

Previous studies have found that classroom anxiety is correlated to language learners’ performance (Akkakoson, 2016; Aida, 1994; Ely, 1986; Horwitz et al., 1986; Pyun et al., 2014; Woodrow, 2006;). Ely (1986) finds that language classroom anxiety is a significant predictor of learners’ risk-taking in a language classroom which is related to their performance for the class. Aida (1994) finds that overall classroom anxiety is negatively correlated to learners’ performance at the beginning level. Woodrow’s (2006) research shows a negative correlation between participants’ anxiety levels and their performance on oral International English Language Testing System (IELTS) test. Woodrow also points out that participants’ oral performance is influenced by their anxiety levels both in-class and outside of class. In research by Pyun et al. (2014), the results show that participants with higher self-confidence and lower anxiety have higher grades on oral interviews. Additionally, Pyun et al. find a positive correlation between self-confidence and motivation and a negative correlation between self-confidence and learners’ anxiety levels. In other words, students with higher anxiety might have
lower levels of self-confidence and lower levels of motivation. All in all, anxiety has an influence on learners’ language learning and language performance.

In view of the need for lowering learners’ anxiety levels, some studies have been done to address the problem (Dembo & Seli, 2006; Martirossian & Hartoonian, 2015; Oettingen & Kappes, 2009). Dembo and Seli (2006) point out that self-regulation strategies help students control their thinking, which is related to emotions such as stress and anxiety. Martirossian and Hartoonian (2015) find that self-regulation strategies, such as working hard, have a negative relationship with classroom anxiety: learners who use self-regulation strategies have less anxiety in a language class. Self-regulation refers to “the process of planning, guiding, and monitoring one’s own attention and behavior” (Berk & Winsler, 1995, p. 171). Oettingen and Kappes (2009) propose Mental Contrasting with Implementation Intentions (MCII) to help people achieve their goals, and it has been proven helpful for personal goal-achievements in career, health, and academics. MCII guides people to set a goal, to think about obstacles that they might encounter when pursuing the goal and to come up with a plan to overcome the obstacles to eventually reach the goal. However, MCII has not been used to lower learners’ classroom anxiety as needed. In the present study, I aim to introduce MCII to the field of Chinese language learning and explore if MCII helps beginning-level Chinese learners lower their anxiety level when completing communicative tasks with native speakers (NSs).

Horwitz et al.’s (1986) Foreign Language Classroom Anxiety Scale (FLCAS) is the most well-known and commonly-used questionnaire to measure learners’ classroom anxiety. For example, Dewaele and MacIntyre (2014) use the FLCAS to test learners’ anxiety levels and compare the results with their language classroom enjoyment levels to see if anxiety and enjoyment can both exist in a language classroom. Akkakoson (2016) modified the FLCAS to
the context of teaching English as a foreign language and tested 88 learners’ anxiety levels of learning English in Thailand. However, the usage of the FLCAS can only serve as a self-reported result of learners’ anxiety levels. Viewing the need for an objective and more scientific measurement of learners’ anxiety levels, Dewey, Belnap, and Steffen (2018) collected Arabic learners’ hair cortisol to test the changes of their stress, as a manifestation of their anxiety levels, during study abroad in Jordan. In the present study, I will use the FLCAS and collect learners’ cortisol in saliva to see if learners’ mental anxiety and physiological stress decrease with the help of MCII. In the present study, I regard stress showed by participants’ cortisol as a manifestation of their anxiety levels.
Chapter 2: Literature Review

In the current research, the focuses are foreign language classroom anxiety, cortisol as a manifestation of stress levels, and MCII. In this chapter, previous literature that is related to the focus of the current research is presented and discussed.

Foreign Language Classroom Anxiety

Anxiety has been described as “a subjective feeling of tension, apprehension, nervousness, and worry associated with the arousal of the autonomic nervous system” (Spielberger, 1983, p. 1). However, general anxiety is different from foreign language (FL) classroom anxiety (Dewey, Belnap, & Steffen, 2018). Several studies have been conducted to explore learners’ anxiety level in a language class (e.g., Dewaele & MacIntyre, 2014; Horwitz et al., 1986). Speaking anxiety in a FL classroom has also shown influence on students’ learning and their performance (Akkakoson, 2016; Woodrow, 2006).

Horwitz et al. (1986) developed the Foreign Language Classroom Anxiety Scale (FLCAS) to test Spanish learners’ language learning anxiety. In the questionnaire, Horwitz et al. asked 100 students to read 33 situations, which may cause or increase learners’ anxiety levels, and to respond if they feel like what the situations describe in a FL classroom. Among 100 Spanish learners, 51 students responded that they disagree with the description of “I would not be nervous speaking the foreign language with native speakers,” and 15 students responded that they strongly disagree with the same description (p. 129). Additionally, 41 students disagreed, and 11 students strongly disagreed with the description of “I would probably feel comfortable around NSs of the foreign language.” (p. 130). The results of the FLCAS suggested that students do feel anxious when they talk to NSs of the target language (TL). Woodrow’s (2006) study also supports that talking to NSs outside of the classroom is the main stressor of language learners.
However, testing anxiety via only questionnaire can be biased. Akkakoson (2016) implemented Modified Foreign Language Classroom Anxiety Scale (the MFLCAS) to test if Thai learners felt anxious about learning English. Akkakoson established a criterion for interpreting participants’ FLCAS. In the criteria, a mean from 4.21 to 5.00 indicated the highest anxiety level; a mean from 3.41 to 4.20 indicated high anxiety level; a mean from 2.61 to 3.40 indicated medium anxiety level; a mean from 1.81 to 2.60 indicated low anxiety level; a mean from 1.00 to 1.80 indicated the lowest anxiety level. In Akkakoson’s own research, the mean was 3.03, which was medium anxiety level. Horwitz et al. (1986) established the original FLCAS and tested the anxiety levels of beginning Spanish learners. The mean score that Horwitz et al. got was 2.86, which was also medium anxiety level. However, in Horwitz et al.’s (1986) study, they concluded that “anxious students are common” (p. 131) in a beginning Spanish class. Luo (2013) conducted a study discussing Chinese learners’ anxiety levels. Luo established a questionnaire named Chinese Language Learning Anxiety (CLLA) to test learners’ perceived anxiety. Luo concluded that the participants are not very anxious with a mean score of 2.58 out of 5. If I apply Akkakoson’s (2013) criteria to Luo’s results, the result of Luo’s study also shows that the participants have medium-level anxiety. Based on Akkakoson’s (2016) criteria, all three of the studies that I just discussed show that participants have medium-level anxiety. However, Horwitz et al. (1986) concluded that beginning Spanish learners commonly felt anxious. Luo (2013) claimed that participants were not very anxious. I can see the inconsistency of the self-perceived anxiety. The FLCAS indicates participants self-reflection upon how anxious they are when they learn a foreign language. However, the reality might be different. Participants might think that they do not feel anxious at all, but their bodies are feeling stressed physically. In this case, I need to look at their cortisol levels to decide if they really feel anxious or not.
**Cortisol as a Manifestation of Stress Levels**

According to Hurley (2013), stress is a physical reaction to a stimulus and anxiety is a mental reaction which might be triggered by stress. Most of the research mentioned above talks about learners’ self-reported mental anxiety levels. However, there is not much objective evidence to prove the existence of classroom anxiety other than learners’ self-reflection and questionnaires. Cortisol level serves as a physiological marker of a person’s stress level, a physiological manifestation of anxiety. When people are under anxiety or stress, their cortisol level increases (Russell, Koren, Rieder, & Van Uum, 2012). Cortisol in saliva manifests participants’ anxiety level “at a single point of time,” and it is not as invasive as cortisol in serum (Russell et al., p. 590). In the present study, I use learners’ cortisol in saliva to test their stress level because I want to focus on the point in time when participants are completing communicative tasks. Another reason why I choose to use participants’ cortisol in saliva to test their stress level is that it is relatively non-invasive to a participant’s body. Cortisol in serum, which can be drawn from a person’s blood sample, also provides evidence of participants’ physiological stress. However, drawing participants plasma is more invasive to their bodies (Russell et al., 2012). Additionally, other non-invasive methods such as testing participants’ stress by sweat are too labor-intensive (Marques, Silverman, & Sternberg, 2010). In the present study, I use questionnaires to reveal learners’ self-reported anxiety levels, and also collect learners’ cortisol level in saliva to provide physical evidence of stress levels.

**Mental Contrasting with Implementation Intentions (MCII)**

MCII is a strategy that helps people think about their goals and desired future, the potential obstacles in the ways to achieve the goals, and the potential plans of solutions to the
obstacles (Oettingen & Kappes, 2009). MCII makes the problems people may encounter when pursuing a goal salient so that people can focus on the problems more and try to think of some potential solutions. Additionally, when pursuing a goal, people may encounter some negative feedback (Kappes, Oettingen, & Pak, 2012). In this case, if the negative feedback is related to the person’s goal, MCII helps the person regard the negative feedback as challenges and want to make more effort. Mental contrasting might also help students cope with stress in an L2 learning context.

In 1986, Horwitz et al. developed the well-known Foreign Language Classroom Anxiety Scale (FLCAS) to test beginning-level Spanish second language (L2) learners’ classroom anxiety. Horwitz et al. found that it was common for beginning-level students to feel anxious in a FL class.

Classroom anxiety affected learners’ self-confidence as well as their performance in class. Linguistic self-confidence was related to learners’ self-perceived communicative competence (SPCC) and their anxiety level (MacIntyre, Dörnyei, Clément, & Noels, 1998). Learners with higher anxiety levels would have less self-confidence and would make fewer attempts to communicate in a second language (Clément, Dörnyei, & Noels, 1994). Pynn, Kim, and Cho (2014) found that self-confidence had a positive correlation with motivation and a negative correlation with anxiety, which meant participants who had higher self-confidence might have higher motivation but lower anxiety levels. Additionally, the research found that participants with higher self-confidence and lower anxiety had higher grades on oral interviews. Woodrow (2006) also found a negative relationship between participants’ anxiety level and their performance on oral International English Language Testing System (IELTS) test, which supported the notion that learners’ anxiety influences their oral performance. Additionally, as
mentioned above, learners with higher anxiety levels were apt to have higher enrollment attrition from language classes, which stopped learners from improving their proficiency in a target language and acquiring of the target culture (MacFarlane & Wesche 1995; Wesely, 2010).

Classroom anxiety has a negative influence on learners’ language performance, self-confidence, and motivation. Classroom anxiety also stops learners from continue to learn a FL. In conclusion, anxiety can be a debilitating factor when learning an FL (Akkakoson, 2016; Dewey et al., 2018; Scovel, 1978.) However, most of the studies only estimate learners’ anxiety levels by their self-reporting without an objective and scientific measurement. Dewey et al. (2018) introduce the usage of cortisol collection to test Arabic learners’ social network progress. In the present study, I use the FLCAS to test learners’ self-perceived anxiety. Additionally, I collect participants’ cortisol levels in saliva as a measure to test Chinese beginning learners’ stress levels, which serve as a manifestation of anxiety levels, when they talk to NSs.

I assume that beginning level learners of Chinese will be anxious when they speak with NSs. I use the MCII as a technique to lower learners’ anxiety levels when they speak with unfamiliar NSs. The MCII techniques have been proven conducive to personal health (e.g., Stadler, Oettingen, & Gollwitzer, 2009), interpersonal relationships (e.g., Houssais, Oettingen, & Mayer, 2013), and schoolwork (e.g., Duckworth et al., 2011). However, seldom have studies been done to explore if the MCII techniques help learners to lower their language classroom anxiety. In the present study, I explore if MCII techniques can help learners lower their anxiety when they talk to NSs and further help their confidence and their performance in a language class.

Research Questions
1. To what extent will learners be stressed and anxious when completing communicative tasks with native speakers in terms of the manifestation of learners’ cortisol in saliva and their reflection on Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986)?

2. How will mental contrasting techniques help lower learners’ anxiety and stress levels when completing communicative tasks with native speakers compared to the control groups?
   - How will the cortisol levels, as a manifestation of stress, of learners who use mental contrasting techniques change compared to the control groups?
   - How will the anxiety levels of learners who use mental contrasting techniques change compared to the control groups in terms of the Modified Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986)?

3. How do learners perceive the value of mental contrasting when completing communicative tasks with native speakers?
Chapter 3: Methodology

Participants

The target research participants were beginning learners of Mandarin Chinese. 45 students enrolled in Chinese 101 (first-year Chinese) were invited to participate in the current research, and 40 of the students consented to participate. Students who did not consent to participate still were required to complete all the tasks in the current research because they were part of the course requirement. However, their data were not used for the current research.

There were three sections of Chinese 101 at BYU during Fall Semester 2019. After using an online list randomizer, section 1 was randomly assigned as the treatment group (Treatment Group), Section 3 as control group 1 (Regulation Group), and section 2 as control 2 (Control Group). Students who enrolled in a certain section belonged to the corresponding group. Different sections received different instructions to lower their foreign language anxiety levels as part of class activities (see Research Design).

Research Design

In beginning Chinese classes (CHIN101) at BYU, students in all sections meet with the professor together every Tuesday and Thursday. On Mondays, Wednesdays, and Fridays, students are divided into three sections (Section 1, 2, 3) with the teaching assistants in classes where they do communicative tasks to practice using the content taught by the professor on Tuesdays and Thursdays.

In order to compare the differences among changes in the anxiety and stress levels of students who received different anxiety-reducing instructions, I gave three groups (2 control groups and 1 treatment group) different instructions. Treatment Group (Section 1; TG) received the instructions of both the MCII techniques and self-regulation strategies for dealing with
anxiety and stress by Dembo and Seli (2006) such as self-talk and muscle relaxation. Control group 1 (section 3), Regulation Group (RG), received only self-regulation strategies such as self-talk and muscle relaxation. Control group 2 (section 2), Control Group (CG), received neither MCII techniques nor self-regulation strategies.

The whole research lasted six weeks. In the first, third, and the sixth week, I had five NSs coming to each group and had a 20-minute long oral interview with students based on what they have learned through the semester. Before and after each oral interview with NSs, participants’ saliva samples were collected to serve as an objective evidence of participants’ stress levels. Participants also completed a modified FLCAS at the beginning, in the middle, and at the end of the research process. Additionally, every participant had to turn in a learning journal, which reflected their learning experiences for the past week.

The present study included some in-class activities for the Treatment Group and the Regulation Group. The instruction of the MCII and self-regulation strategies were given after the first oral interview. The TG spent some class time creating and modifying their MCII plans each week, and they also had some time to discuss their application of the MCII with class.

**Procedure**

**Questionnaire**

The questionnaire implemented in the present research was based on Modified Foreign Language Classroom Anxiety Scale (or MFLCAS) (Akkakoson, 2016). The MFLCAS modified Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz et al., 1986) and changed it into a questionnaire that focused more on testing speaking anxiety. See Appendix A.

The FLCAS had been widely used by a great number of studies to test anxiety levels of learners from different first language backgrounds and at different proficiency levels. The
MFLCAS picked out the test items that were related to speaking anxiety, and it focused on the context of learning English as a foreign language. In the present study, I also only used questions that were related to communication apprehension (or speaking anxiety) and discarded questions that were relevant to test anxiety and fear of negative evaluation. That is, only items like “I would not be nervous speaking the foreign language with native speakers” were kept (p. 129). Additionally, the questionnaire was changed to fit the context of Chinese beginning-level participants. For example, “I never feel quite sure of myself when I am speaking in my foreign language class” (p. 129) was changed into “I never feel quite sure of myself when I am speaking in my Chinese class.”

Participants were asked to complete the questions three times during the research process: in the first, third, and the sixth week. The questionnaires were administered via BYU Qualtrics, and the data were stored on the BYU Qualtrics cloud. Students read 17 statements, which were related to speaking anxiety, and rated the circumstances from strongly disagree, disagree, neither agree nor disagree, agree, to strongly agree based on their own experiences and reflection (See Appendix A for the complete questionnaire).

**Communicative Tasks with Native Speakers**

In the Monday class of the first, third, and the sixth week, I recruited 15 NSs of Chinese to come to class and interview the participants. The NSs were from China, Taiwan, and Hong Kong. Some of the interviewers were heritage speakers from United States and Singapore.

There were three oral interviews throughout the research. In order to avoid the case that participants might get used to talking to the same NSs and lower their anxiety levels, the NSs were divided into three groups and took a turn to interview different sections. The NSs were mainly from China and Taiwan. Since the participants were beginning learners, who could not
really tell who were NSs from China and Taiwan or just advanced Chinese learners, there were five NSs who were from Hong Kong, Singapore, and Los Angeles. In the first oral interview, Native Speaker Group 1 (NSG 1) interviewed the Treatment Group; Native Speaker Group 2 (NSG 2) interviewed the Regulation Group; Native Speaker Group 3 (NSG 3) interviewed the Control Group. For Interview 2, which took place in the third week of the research, NSG 1 interviewed the Control Group, NSG 2 interviewed the Treatment Group, and NSG 3 interviewed the Regulation Group. For the last interview, instructors interviewed the group that they had not interviewed. Please see Table 1 below.

Table 1. *Interview Assignment*

<table>
<thead>
<tr>
<th></th>
<th>1st Interview</th>
<th>2nd Interview</th>
<th>3rd Interview</th>
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<tbody>
<tr>
<td>NSG 1</td>
<td>Treatment Group</td>
<td>Control Group</td>
<td>Regulation Group</td>
</tr>
<tr>
<td>NSG 2</td>
<td>Regulation Group</td>
<td>Treatment Group</td>
<td>Control Group</td>
</tr>
<tr>
<td>NSG 3</td>
<td>Control Group</td>
<td>Regulation Group</td>
<td>Treatment Group</td>
</tr>
</tbody>
</table>

During the interviews, three to four participants were grouped together to talk to one native speaker. The teaching assistants showed a scenario to the class and asked the participants to initiate and continue the conversations. There were four to five scenarios in total in each oral interview. The scenarios were related to what were taught in class. For example, participants were asked to do a role-play as if they were at an opening social party for international students in China, so they had to try to meet people and ask each other for their information such as their name, age, nationalities etc. Each scenario lasted four to five minutes. After finishing one scenario, NSs switched to another group and interviewed a different group of participants. The oral interviewed ended when the time was up (20 minutes) even if they did not finish all the
scenarios. The NSs were trained to be able to ask follow-up questions or continue the conversations if the participants could not.

Additionally, the NSs were asked to grade the participants based on their performance after each scenario. However, the purpose of the grading system was to make the oral interviews more formal, and it had nothing to do with the participants’ course grades. Participants were given a grading sheet with five scenarios. They were numbered one to five under each scenario. The NSs were asked to grade the participants based on their general speaking performance. If a participant got 1, it meant that the participant’s performance was much lower than expectation; if a participant received a 5, it meant that the participant’s performance was much higher than expectation. The evaluation sheet was only a means to make the oral interview serious and to make participants prepare for it in advance. The score did not affect the participants’ grade in the class (see Appendix B).

The first communicative task with NSs was held on the first day of the research before the instructions of self-regulation and MCII were taught. After the first interview, participants would be able to relate their anxiety and stress talking to a native speaker to the use of self-regulation strategies and MCII (see Instructions in class for details). The second and third communicative task with a native speaker took place on the Monday of the third and the sixth week of the research. The interviews were conducted along with the FLCAS questionnaire and the collection of participants’ saliva.

**Self-regulation Strategies**

After the first oral interview with NSs, self-regulation strategies were taught to the Treatment Group and the Regulation Group. That is, the Control Group did not receive any instructions about dealing with anxiety and stress. At the beginning of the presentation,
participants were asked if they ever felt anxious or stressed in a language class: or specifically in Chinese class. Participants were also asked how they dealt with anxiety in their own way. Soon after, self-regulation strategies such as Diaphragmatic breathing (or deep breathing), muscle relaxation, and meditation were taught to the Treatment Group and the Regulation Group. Besides self-regulation strategies, the Treatment Group also received the MCII instruction.

**MCII (WOOP) for the Treatment Group**

Soon after the first oral interview, the Treatment Group received a presentation on self-regulation strategies. Additionally, a MCII presentation was given to the Treatment Group. The presentation included an introduction to MCII, and students were asked to make their own MCII plans (WOOP plans) at the end of the presentation. MCII and WOOP are basically the same. MCII is used in the context of research; WOOP is used for practical classroom pedagogy. Therefore, in the current research, I mainly use MCII; however, WOOP was used when I introduced MCII to the participants. At first, participants were asked to think about the reasons of learning Chinese and how good they wanted their Chinese to be. Participants were also asked to think of a goal of learning Chinese and to imagine the best outcome of reaching the goal. Following the wish and outcome, participants were asked to think of an inner obstacle blocking them from reaching their goals and outcomes. In this part, participants were asked to think about their experiences of undergoing anxiety and stress when talking to NSs in the first interview. Talking to NSs served as a source of participants’ anxiety and obstacle of reaching their goals. Finally, participants were asked to make their own plans to try to reduce their anxiety and stress. An index card was also given to each student so that they could write their plans down and keep them on hand to remember their plans. Starting from the second week of the research, a session of modification of participants’ MCII plans were conducted on Wednesdays for the rest of the
research time. During the sessions of modification, participants could modify their MCII plans if they thought the original plans were not helping them enough to deal with their speaking anxiety. However, those who thought the MCII plans were working well would spend three minutes to think through their plans. During the thinking process, visualizing the outcomes and the obstacles were emphasized. Different groups had different classroom instructions (see Table 2). A “√” mark means that a certain instruction was given to that session; a “✗” mark means that a certain instruction was not given to that session. For example, the Treatment Group received both the self-regulation strategies and the MCII instruction. However, the Control Group did not receive any instruction.

Table 2. Instructions for Different Sections

<table>
<thead>
<tr>
<th></th>
<th>Treatment Group</th>
<th>Regulation Group</th>
<th>Control Group</th>
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<tbody>
<tr>
<td>Self-regulation Strategies</td>
<td>√</td>
<td>√</td>
<td>✗</td>
</tr>
<tr>
<td>Mental Contrasting with Implementation Intentions (MCII)</td>
<td>√</td>
<td>✗</td>
<td>✗</td>
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</table>

**Learning Journals**

On Fridays, WOOP discussions were conducted in a class of the Treatment Group. In the discussions, participants had an opportunity to think about how MCII helped them in the past week. Participants were also encouraged to share their experiences of using MCII during the discussion. Each week, there was a question raised in the discussion leading the participants to
talk about their experiences on MCII. The questions were based on Brown’s (2019) questions; however, the context was changed into dealing with anxiety. Each discussion lasted for 3 to 5 minutes. After the discussions on Fridays, participants were asked to complete a learning journal during the weekend about their Chinese learning experiences, anxiety-dealing progress, and the help of MCII. A topic was assigned for participants to write about in their learning journals, and the topics were the same as the ones discussed in class on Fridays.

For the Regulation Group and the Control Group, participants were asked to complete a learning journal every week as well to talk about their weekly experiences of learning Chinese. They could write about what was difficult for them in a certain week or how it went to talk to NSs. I aimed to see if they had their own way to deal with anxiety and stress without the assistance of MCII.

Cortisol Collection

Along with interviews with NSs and questionnaires, participants’ saliva samples were also collected to test their cortisol, which served as an objective manifestation of participants’ stress level. All the participants’ saliva samples were collected both before and after their interviews with NSs. The saliva samples were collected in the first week, the third week, and the sixth week of the research.

Before the cortisol collections, I took some class time to hold an orientation exploring the procedure. Participants were also instructed to slightly chew on the cotton swabs and to make the cotton swabs completely covered by their saliva. In doing so, participants had sufficient saliva samples for analysis. Participants were instructed to not eat or drink at least 30 minutes before the collections to avoid extremely high cortisol levels.
It takes 12 to 15 minutes for cortisol levels to change. That is, to differentiate the changes of cortisol levels from the oral interviews from other potential factors, the oral interviews need to be at least 12 minutes. Therefore, for the current research, the oral interviews with NSs were 20 minutes. During the interviews, the teaching assistants made sure that participants were involved and trying their best to speak the target language.

Analysis

*Cortisol Levels*

Participants’ cortisol samples were shipped to Kirschbaum’s Lab in Dresden, Germany right after the third oral interview with NSs. The cortisol levels of the pre-tests were compared to the post-tests. The Treatment Group’s cortisol levels were compared to the Regulation Group and the Control Group. The cortisol data were analyzed with the results of participants’ questionnaires.

*Modified Foreign Language Classroom Anxiety Scale*

For data analysis, all the items that were marked “strongly disagree” were transferred into the number 1; “disagree” to 4; “neither disagree nor agree” to 3; “agree” to 2; and “strongly agree” to 1. For example, a student responded “strongly disagree” to item 2: “I start to panic when I have to speak Chinese without preparation in class,” the data would say 1, which meant the student did not feel anxious at all. Additionally, for the items that included negation, the numbers were transferred reversely to avoid double negation. For example, the response “strongly disagree” to item 1: “I never feel quite sure of myself when I am speaking in my Chinese class” would be number 5, which meant the student did not feel anxious at all. The sums of individuals were calculated. I introduced mixed model ANCOVA blocking participants to analyze the changes of participants’ self-reported anxiety with pre-departure level as a covariate.
In the current research, since the data of the six times of cortisol collections came from the same
group of participants, the results would be similar, and it would be hard to take pre-existence
differences into consideration. Therefore, in data analysis, I blocked participants and made them
independent observations, so that the results of the same participants would not affect each other.
Additionally, Tukey-Kramer was introduced as a statistical test to analyze the interaction of
stress and self-reported anxiety among the Treatment Group, the Regulation Group, and the
Control Group. The data of stress came from participants’ cortisol levels; the data of self-
reported anxiety came from the results of the MFLCAS.

*Learning Journals*

The responses that were irrelevant to learning Chinese or the MCII strategy would not be
analyzed but would be considered invalid. The valid responses were read and categorized by
themes. There are nine categories. Six of the categories are positive responses that support MCII
is helpful, and the rest is negative. All results are reported in Chapter Five.
Chapter 4: Results

Research Question 1: To what extent will learners be stressed and anxious when completing communicative tasks with native speakers in terms of the manifestation of learners’ cortisol in saliva and their reflection on the Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986)?

For this research question, the focus is on participants’ questionnaire reports and cortisol levels. The results of the FLCAS show participants’ self-perceived anxiety levels; the data of participants’ cortisol show their stress levels. The mean of the three administrations of the FLCAS is 2.78. In the first questionnaire, the mean is 2.88. In the second questionnaire, the mean goes a little lower to 2.68. In the third questionnaire, the mean raises to 2.78. If I look at the average mean of each group, the Treatment Group has 2.71; the Regulation Group has 2.94; the Control Group has 2.69. See Figure 1 below.

*Figure 1. Mean FLCAS Score Across Three Administrations of Each Group*
Akkakoson (2016) establishes a criterion for interpreting participants’ FLCAS. In the criteria, a mean from 4.21 to 5.00 indicates the highest anxiety level; a mean from 3.41 to 4.20 indicates high anxiety level; a mean from 2.61 to 3.40 indicates medium anxiety level; a mean from 1.81 to 2.60 indicates low anxiety level; a mean from 1.00 to 1.80 indicates the lowest anxiety level. Based on the criteria, participants of the current research show medium anxiety levels in all three times of FLCAS administration. The means of all groups also fall into the medium anxiety range. There are some differences in numbers each time; however, the differences are not statistically significant.

Participants’ cortisol levels indicate how physically stressed they are when they talk to NSs. For the Control Group, participants’ cortisol levels in the pre-test are 12.98 nanomoles per liter (nmol/l) on average, and it drops to 10.86 nmol/l in the post-test, $p = 0.6205$, $t = -1.57$. For the Regulation Group, participants score 17.34 nmol/l on average in the pre-test, and decreases to 16.51 nmol/l in the post-test, $p = 0.9855$, $t = -0.66$. For the Treatment Group, participants’ cortisol level is 14.60 nmol/l in the pre-test; and it drops to 10.62 nmol/l in the post-test, $p = 0.0085$, $t = -3.72$. All in all, participants cortisol levels decrease throughout the process of the current research. However, no significance is shown in the factor of time. The reasons might be because the participants have learned more Chinese during the research process, which makes them more confident and comfortable when they talk to NSs. Once the participants get comfortable, their cortisol levels drop. In conclusion, there is no overall significance shown in the factor of “time,” although participants’ cortisol levels decrease in every group. When I examine individual groups and look at the changes in participants’ cortisol levels between the pre-test and the post-test, I do not see the significance differences between pre- and post- for the Control Group and the Regulation Group. Nevertheless, the change in participants’ cortisol levels in the Treatment
Group between the pre-test and the post-test shows statistical significance. More details are discussed in Chapter Five.

**Research Question 2: How will mental contrasting techniques help lower learners’ anxiety and stress levels when completing communicative tasks with native speakers compared to the control groups?**

To answer this question, I look at participants’ changes in the FLCAS and their cortisol levels. The differences between the three groups are emphasized.

**FLCAS**

During the research process, the FLCAS is administered three times. Participants answer the exact same set of questions regarding their speaking anxiety after their oral interviews with NSs (see Figure 2).

*Figure 2. Mean of FLCAS for Each Group for Each Administration.*
As mentioned, participants’ responses of the FLCAS are transcribed into number one to five based on Akkakoson’s (2016) study. The numbers on the y axis in Figure 2 show participants anxiety levels.

I can see that the Treatment Group starts with the lowest anxiety level and consistently increases a little. In the third questionnaire, the average anxiety level of the Treatment Group is 2.76, which is a little higher than the Control Group. Both the Regulation Group and the Control Group start higher, drop a little in the second questionnaire, and go back up in the third questionnaire. However, as mentioned before, there are no statistically significant differences shown among the questionnaires. There is also no significance shown among the Treatment Group, the Regulation Group, and the Control Group.

**Cortisol**

All three groups show a decrease in terms of participants’ cortisol levels. However, statistically, only the Treatment Group shows statistical significance. In Chapter Three, I mentioned that participants’ cortisol would be collected three times so that the changes of time could be analyzed as a factor. However, in my data analysis, “time” does not show significance. Thus, I drop the factor of time and only present the data of the pre-test and the post-test (see Figure 3).
Comparing the results of the Control Group’s pre-test and post-test, the cortisol levels decrease 2.12 nmol/l; \( p=0.6205, t=-1.57 \). For the Regulation Group, the cortisol levels decrease 0.77 nmol/l; \( p=0.9855, t=-0.66 \). However, by comparing the pre-test and the post-test of the Treatment Group, the result shows that the cortisol levels decrease 3.98; \( p=0.0085, t=-3.72 \). The result reveals that the intervention for the Treatment Group is effective. That is, MCII and self-regulation strategies help learners lower their stress levels. However, self-regulation strategies alone do not help participants lower their stress levels. More details will be discussed in Chapter Five.

**Research Question 3: How do learners perceive the value of mental contrasting when completing communicative tasks with native speakers?**
Participants from all three groups turned in a learning journal every week writing about their learning experiences. However, more prompts were given to the Treatment Group aiming to see if the MCII strategies helps them lower their speaking anxiety.

Another purpose of the learning journals is to keep MCII and participants’ plans in their minds. In the current research, I adopt Brown’s (2019) learning journals questions. The questions are changed to speaking related and to the context of learning Chinese. The learning journal questions are:

Table 3. Learning Journal Questions

<table>
<thead>
<tr>
<th>Week</th>
<th>Learning Journal Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How did WOOP help you learn Chinese last week? How did WOOP help you with your anxiety when you speak Chinese?</td>
</tr>
<tr>
<td>2</td>
<td>What WOOP anxiety goal do you have this week?</td>
</tr>
<tr>
<td>3</td>
<td>What is an outcome you expect from speaking Chinese with natives?</td>
</tr>
<tr>
<td>4</td>
<td>What is an obstacle that stops you from speaking Chinese? Remember, the obstacle needs to be in your control!</td>
</tr>
<tr>
<td>5</td>
<td>What WOOP anxiety goal do you have this week?</td>
</tr>
<tr>
<td>6</td>
<td>How did WOOP help you learn Chinese last week? How did WOOP help you with your anxiety when you speak Chinese?</td>
</tr>
</tbody>
</table>

In this section, I present mostly what participants from the Treatment Group write in their learning journals about their usage and thoughts of MCII. There are six learning journals in total,
and 39 responses received. Among the 39 learning journals, I categorize the responses into 11 groups (see Table 4).

Table 4. Categorization of Participants’ Journal Responses.

<table>
<thead>
<tr>
<th>Item</th>
<th>Categorization</th>
<th>Times of mention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MCII helps participants notice their obstacles and think of a plan to overcome them.</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>MCII helps participants with positive thinking.</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>MCII help participants lower their nervousness and anxiety levels. MCII helps participants relax.</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>MCII increases participants’ confidence.</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Participants apply MCII to other field of learning.</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>MCII keeps learning Chinese in participants’ minds. MCII makes learning Chinese more effective.</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>MCII is not a priority of participant’s learning process.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Participants forget to implement MCII.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>MCII gives participants more pressure.</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Participants do not receive benefit from MCII.</td>
<td>1</td>
</tr>
</tbody>
</table>

**MCII Helps Participants Notice Their Obstacles and Think of a Plan to Overcome Them**

One of the main purposes of MCII is to make participants realize their problems and at the same time be able to think of a plan to overcome the problems. Out of 39 responses, participants mention that MCII helps them realize their problems in learning Chinese and be able to think of a solution to solve the problems 5 times. For example, in journal 1, student A reports:
“It (MCII) helped me to put things in terms of goals that I can accomplish and make plans to overcome obstacles. With this new mindset I am excited for the next experience talking to a native speaker.”

In student A’s case, MCII helps her realize that her Chinese is not perfect, but she can do better by trying to stay positive and keep learning. Student B also reports in his journal 6:

“I feel like WOOP (MCII) helped me first, realize that I was feeling stressed. After realizing that I was stressed and anxious about the dialogues it helped me come up with a plan to better prepare myself for the dialogues and the breathing exercises helped me feel confident and calm in class.”

On Mondays and Fridays, participants memorize and perform a dialogue from the textbook. Student B indicates that MCII helps him overcome his anxiety and stress via preparing better and using the self-regulation strategies. Every Friday, I have a discussion time for sharing how each other use MCII in class. Via the discussions, some participants are able to keep MCII in mind and find MCII helpful. Student C, in her journal 5, reports:

“I don’t really think about the process of WOOP (MCII) much throughout the week, but discussing it helps me to think about places where I want to improve and brainstorm ways to improve them.”

Although Student C is not able to keep using MCII as a habit, she still points out the assistance of MCII in a general aspect.

**MCII Helps Participants With Positive Thinking**

As mentioned before, Student A points out that MCII helps her realize her own problem and think of plans to solve the problems. In the same journals, she mentions:
“I realized that even though my Chinese is imperfect now, the only way to improve it is to put myself out there and do difficult things. The WOOP sheet definitely helped me to rethink the experience and reframe it in a more positive way.”

There are two other participants that acknowledge the effect of MCII of helping them with positive thinking. Student D mentions that she is nervous and scared that she can’t learn Chinese well, but MCII helps her keep learning Chinese. Via MCII, student D is able to continue learning characters, which are a difficult part of Chinese for her to learn. Additionally, by implementing MCII, she, as a heritage learner, is able to communicate with her parents more comfortably at home. In Student D’s journal 6, she reports:

“I think WOOP (MCII) has helped me to keep going even though I get nervous or scared that I can’t learn Chinese. It keeps me focused on my goal to be able to speak comfortably. When I get busy or sidetracked, I am able to remember my WOOP goal and get myself to focus on doing my best a little bit at a time. I think it has helped me come a long way. It has given me an encouragement to keep practicing the characters and helps me to understand mandarin in Pin Yin. It gives me more courage to speak it at home.”

Out of the 39 responses, “positive thinking” is mentioned 3 times.

**MCII Help Participants Lower Their Nervousness and Anxiety Levels. MCII Helps Participants Relax**

In the current research, I aim to implement MCII and see if the techniques help participants lower their anxiety and stress levels of speaking Chinese. There are 8 out of 39 responses mentioning that MCII either help the participants lower their nervousness and anxiety levels or help them relax when speaking Chinese. In learning journal 2, Student B reports:
“I do feel like the WOOP program is working. … (when talking to the NSs) I didn’t feel awkward or nervous at all! I laughed a lot too over a little misunderstanding we had.”

Student A also reports herself being less anxious by implementing MCII in her journal 3. She admits that she gets nervous and anxious when she talks to the NSs of Chinese. In order to overcome this difficulty, she downloads a language exchange application to practice Chinese with more NSs. At first, she gets nervous too; however, she reports:

“using the techniques of breathing and pausing to think that I wrote down on my WOOP sheet I was able to be less nervous.”

Student C also points out that MCII helps her feel more prepared for class and further helps her be less anxious by knowing what to expect and what is going on in class. Additionally, Student E reports his implementation of MCII:

“I studied and studied and studied but I was still super super stressed. I admitted to a friend that I was really stressed, and he said, “Remember your WOOP”. I always forget about my WOOP but this time I remembered, and I did my plan. It worked! It was amazing! My anxiety level dropped drastically! I preformed pretty well and even better than I thought I would.”

At first, Student E did not think about using MCII to deal with his stress issue. However, after listening to his classmate, he is able to implement MCII and receive assistance from it. In Student E’s sixth journal, he uses MCII again, and he found MCII helpful and himself being less anxious. He reports:

“I did my WOOP this week and it was very helpful and reduced the anxiety. … every time I remembered my WOOP I was able to overcome that stress and at least get myself to try my best to fulfill expectations.”
Nevertheless, not all the participants think that MCII helps them reduce their stress or anxiety. Student A, in her fifth journal, reports that MCII does push her to study to reach the goal. However, MCII does not have an impact on her anxiety when she speaks since she doesn’t feel anxious when she speaks. She also says that MCII does not “have a big impact on what actually takes place” when she feels anxious, if ever.

In Student F’s third journal, she also reports:

“For my outcome, I wrote that I want to be confident and comfortable in speaking, reading, and writing. … With this realization, I am actually a lot more confident in my speaking Chinese and I don’t get super nervous or anxious anymore.”

In Student F’s case, MCII not only helps her lower her anxiety but also help her become more confident when she speaks. Some other participants also acknowledge the assistance of MCII on increasing their confidence.

**MCII Increases Participants’ Confidence**

Including Student F, there are eight responses stating that MCII helps them increase their confidence when speaking Chinese. For example, Student B, in his journal 1, reports:

“The WOOP thing really helped me during my dialogue on Friday. … (before the dialogue) I waited a second and took a long deep breath, closed my eyes and then let it out. I felt my heart rate decrease and I felt confident throughout the rest of my performance. It really helped clear my mind. I really liked it and I wish I had known about it sooner (it probably would have helped a lot of my other performances).”

In Student B’s last journal, he points out that MCII helps him feel more comfortable about his Chinese again. Not only Student B, Student G also indicates that MCII has helped her become more confident consecutively. In Student G’s first journal, which is written after the first oral
interview with the NSs, she points out that “the lesson on how we could calm down more when we are nervous to speak in Chinese” (MCII) helps her feel more confident in communicating with NSs. In Student G’s second journal, she reports:

“In doing so (implementing MCII), I have noticed that I am able to hold longer conversations with NSs, which in turn helped me be able to be more confident in starting conversations with other people who know Mandarin and NSs as well. … I have gotten more confident in speaking, writing, and reading the language which makes it so that I feel more willing to study the language since I can see myself improving as time goes on.”

During the process of implementing MCII, Student G has gained more confidence in extended fields of language skills. Student G mentions that she feels more confident about speaking after doing MCII. In Student G’s second journal, she feels more confident in speaking, writing and reading. Additionally, she stresses that she feels more confident in speaking and putting sentences together in her third journal again.

**Participants Apply MCII to Other Field of Learning**

In the current research, I aim to see if MCII helps participants with their speaking anxiety. Some of the participants indicate that MCII has helped them feel less anxious and stressed. Some participants get benefit from MCII and are willing to try MCII to other language learning. For example, Student A admits that she sometimes forgets to review and practice Chinese characters, and she thinks of MCII and is willing to make a plan to work on character learning.
Student B also expresses his willingness to implement MCII to his other class because he has received the assistance of MCII. Student B reports:

“I started implementing the WOOP into my other classes and it has been helping.”

**MCII Keeps Participants Motivated in Learning. MCII Makes Learning Chinese More Effective**

Out of the 39 responses, six responses mention that MCII keeps learning Chinese their higher priority or makes learning Chinese more effective.

In journal number 5, Student C mentions that WOOP helps her remember what her goals of Chinese learning are and how she is attaining them. In her sixth journal, she also tries to implement MCII, and she reports:

“My WOOP plan was to reduce my anxiety speaking Chinese and increase my proficiency by practicing Chinese at home and preparing better for class. This week I did this by reviewing all of the phrases, vocabulary, and grammar we covered in the units for that week. I also spent time listening to dialogues so that I could learn to recognize words being said. This helped me to feel prepared in class and allowed me to better follow what was being said. By knowing what to expect, I didn’t feel as anxious or scared because of not knowing what was going on.”

At first, Student C only mentions that MCII reminds herself of her goals. However, in her next journal, she tries to actually implement MCII in her learning, and she finds that she feels more well-prepared by the effort that she makes.

Some participants report that MCII helps their learning more effective. For example, in Student G’s second journal, she wrote:
“For this week, I have worked on my goal to not procrastinate my studying for the class and to start memorizing dialogue and practice writing sooner. … This has been effective in helping me to increase my vocabulary and to be able to phrase better sentences with the correct grammar.”

Student G states that MCII helps her remember her goals of learning Chinese and be able to make a plan to make her learning more effective.

I presented some positive feedback of participants implementing MCII. However, there are also some negative responses in their journals. For instance, some participants forget to use MCII or do not consider MCII as a priority in their learning process. Some other participants even consider MCII a source of stress or not helpful. I will present the negative feedback below.

**MCII Is Not a Priority of Participant’s Learning Process. Participants Forget to Implement MCII**

In this session, I group two findings together. Some participants report that they forget to implement MCII and also MCII is not their priority of learning Chinese. This statement is mentioned four times in all 39 responses. Student F, in her 5th journal, reports:

“So far, it’s a little hard for me to focus on WOOP because it ends up in the back of my mind while everything else that I need to do for all my other classes take over.”

Depending on participants’ school workload, participants will have different perceptions of MCII. Student F once reports, in her third journal, that MCII helps her feel less anxious. However, when Student F’s life gets busier, she puts MCII away and not uses it consistently.

Additionally, Student H reports similar things in his first, second, and third journal:

“Well, I don’t really remember everything I wrote down for WOOP.”
“For the most part I forgot to use the deep breathing technique when dealing with anxiousness when speaking Chinese.”

“I hope to be able to utilize WOOP to help with speaking anxiety, but I forget to take advantage of it while speaking.”

Although “forgetting to use MCII” is mentioned three times in the current research, they all come from the same participant. Thus, I can say this is just Student H’s personal perception. However, it is worth of mentioning that some participants did not even turn in their journals when the research goes by. Hence, I am not sure if they forget implementing MCII too or just do not want to participate in the project. That being said, Student H might not be the only who does not remember to implement MCII.

**MCII Gives Participants More Pressure**

The mechanism of MCII is to help participants make up a plan to overcome their obstacles. By realizing their own obstacles and how to deal with them, participants can reach the goals and overcome the obstacles. However, the mechanism might not work the same to all the participants. For example, Student F, in her first journal, reports:

“As well as the outcome. Well this one stresses me out a bit because I keep thinking of the outcome I want and not seeing it happen yet.”

Student F is able to think of her wishes and find her motivation to reach the goal. However, expecting and pursuing something that might not happen brings Student F some pressure.

**Participants Do Not Receive Benefit From MCII**

One participant points out that MCII has not benefitted his learning. Student I reports:

“As for my personal thoughts, I don’t see much personal benefit from it. However, I don’t think that that’s WOOP’s fault as much as it is my fault. … I’m content with my
current position and rate of learning in Mandarin Chinese. That means that I don’t see a
need to make many changes to the way I’m approaching learning Mandarin.”

Student I states that he does not get benefit from thinking of his obstacles and trying to make a
plan to overcome it. However, he also admits that the reason why he does not get benefit from
MCII is because he does not consider learning Chinese as his major focus in college. Thus,
Student I does not think he needs to implement MCII and make changes for his Chinese learning.
Chapter 5: Discussion

In this chapter, the results that are presented in Chapter 4 are explained and discussed. Implications and suggestions for future studies are also presented in the following discussion.

Research Question 1: To what extent will learners be stressed and anxious when completing communicative tasks with native speakers in terms of the manifestation of learners’ cortisol in saliva and their reflection of Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986)?

This very research question can be explained from two different perspectives. The first aspect is how anxious the participants think themselves are by the report of the FLCAS; the second aspect is how physically stressed the participants are, which is shown by their cortisol levels.

Reflection on the FLCAS

To determine if participants are anxious or not, I adopted Akkakoson’s (2016) criterion to interpret the results of the participants’ FLCAS. According to Akkakoson, mean scores of the FLCAS between 2.61 to 3.40 are medium anxiety levels. In the current research, every result of the questionnaires falls into the medium anxiety level range. Judging from the data, I might be able to infer that participants of the current research do not have a lot of anxiety regarding speaking Chinese. However, as mentioned before, different studies have subjective interpretations on their data. For example, a research by Horwitz et al. (1986) had a mean score of 2.86, but they concluded that anxiety was common for beginning Spanish learners. Additionally, in Luo’s (2013) research, the mean was 2.85, and Luo concluded that the participants were not very anxious. Therefore, I argue that judging participants’ anxiety levels merely by the reflection on the FLCAS is not consistent and as accurate. In this case, a more
objective and stable measurement is needed, and I introduce to use participants’ salivary cortisol to test their stress levels.

**Cortisol Levels**

Lots of variances affect levels of salivary cortisol. For instance, Miller et al. (2016) found that participants with different age or sex have different levels of salivary cortisol. Additionally, Miller et al. also found that the same participant has different levels of salivary cortisol when I collect their saliva at different times of a day. Table 5 shows Miller et al.’s findings.

*Table 5. Percentile of Participants Levels of Cortisol at 1 Hour After Awakening at 7:00 AM* (Miller et al., 2016).

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex</th>
<th>5th</th>
<th>50th</th>
<th>95th</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>F</td>
<td>2.0</td>
<td>7.2</td>
<td>25.8</td>
</tr>
<tr>
<td>11-20</td>
<td>M</td>
<td>1.8</td>
<td>6.4</td>
<td>22.8</td>
</tr>
<tr>
<td>21-30</td>
<td>F</td>
<td>2.1</td>
<td>7.5</td>
<td>26.7</td>
</tr>
<tr>
<td>21-30</td>
<td>M</td>
<td>2.0</td>
<td>7.1</td>
<td>25.3</td>
</tr>
</tbody>
</table>

In general, females have higher levels of salivary cortisol, and older participants have higher levels of cortisol. However, in the current study, the participants’ ages are close to each other, so this variance is not considered in the research method. Additionally, I run the ANCOVA and find that the differences between genders are not big enough to be significant. Compared to males, female participants’ levels of cortisol are 3.0049 nmol/m higher (P=0.0844). In the current research, different times across the day also is not a factor to affect participants cortisol levels because all the intervention starts at 8 a.m. and ends by 8:30 a.m. Most of the participants wake up an hour before the class, so their time of awakening is similar to each other.
According to Miller et al.’s (2016) study, at 8:00 in the morning, participants’ levels of salivary cortisol can range from around 1.8 nmol/l to 26.7 nmol/l (range: 24.9 nmol/l). Since the mean of the cortisol levels is not provided in Millers et al.’s study, I take the median number into consideration for data analysis and interpretation. In Miller et al.’s research, the median of participants’ cortisol levels is 7.15 nmol/l. Compared to Miller et al.’s results, the median of the cortisol levels of the participants from the current research is 12.59 nmol/l. The results of the current research have a higher level of cortisol than Miller et al.’s results for over 5.44 nmol/l. By comparing the results of the current research to Miller et al.’s results, I can say that participants’ levels of anxiety are higher than typical when they talk to NSs.

In summary, when I compare the results of the FLCAS of the current research to other similar studies, the results show a similar conclusion: participants only have medium levels of anxiety. Participants score similar on the FLCAS compared to other studies. However, when I compare the results of the participants’ cortisol levels with the results of other research, the current research suggests higher levels of stress. Based on this, I know that participants may think that they are not mentally anxious, but they are actually physically stressed with the manifestation of their cortisol levels, which is a more objective criteria of participants' anxiety levels. This conclusion supports the hypothesis earlier: participants' self-reports of their anxiety levels are not as accurate as the cortisol levels of the participants. To support this, when I also calculate the correlation between the FLCAS and the participants cortisol levels, I find the results in Table 6. Comparing the results of the questionnaires and the cortisol levels, I find that the correlation between these two methods of testing participants’ anxiety and stress levels is low and not statistically significant.

Table 6. Correlation Between the FLCAS and Cortisol Levels.
Based on the results, I can say that participants’ self-reports of their anxiety levels do not match their actual stress levels. In the questionnaires, participants get medium-level anxiety, which means they are not too anxious about speaking in class. However, in the results of the participants’ salivary cortisol levels, participants show higher stress. Cortisol levels serve as an objective method to indicate participants’ physical stress levels. Thus, participants do feel more anxious physically than they think they are.

**Research Question 2: How will mental contrasting techniques help lower learners’ anxiety and stress levels when completing communicative tasks with native speakers compared to the control groups?**

In this research question, the goal is to see if MCII helps learners lower their anxiety levels when they talk to NSs of Chinese. Thus, I compare the results among the Treatment Group, the Control Group, and the Regulation Group. Looking at Figure 3 again, I can see the cortisol levels of the Regulation Group starts higher than the other two groups, and it ends up also being the highest among the three groups. For this situation, I can only explain that the participants in the Regulation Groups have higher levels of stress by nature. Statistically, groups with higher numbers usually drop the most because they have more room to drop. However, this is not the case in the current research.

In relation to research question 1, I argue that participants' self-reports of their anxiety levels are not as accurate as the manifestation of their cortisol levels. Hence, in this research
question, I only focus on the participants' cortisol levels, especially on the changes of their cortisol levels.

In general, comparing the post-tests to the pre-tests, all three groups show a decrease on changes in the cortisol levels during interviews. That being said, all three groups feel less anxious as the research proceeds. However, there are several factors that might lead to the decrease of the cortisol levels. For example, during the research process, there are three oral interviews with the NSs. As the research continues, participants keep on learning Chinese along the way, so their language ability might have increased over time. With higher language ability, participants might feel less anxious when they talk to NSs the second time and the third time. Therefore, I cannot determine exactly the reasons why the participants' cortisol increases over the course of their interviews just by looking at their cortisol levels themselves. What I need to focus on is how much the cortisol levels change compared to other groups, which receive different self-regulation strategies.

If I only look at the changes of the cortisol levels between the pre-test and the post-test, the Treatment Group drops 3.98 nmol/l; the Regulation Group drops 0.77 nmol/l; the Control Group drops 2.12 nmol/l. It is hard to draw a conclusion by only looking at these numbers. However, I can still compare the results of the current research with other research and judge if the increase and decrease among groups are huge or not. Miller et al. (2016) do a comprehensive study discussing how cortisol levels are different due to variety of factors such as age, sex, and time of a day. I focus on the data that are close to my samples: 11- to 30-year old males and females, cortisol is collected after an hour of awakening (Please see Table 6 for more information). The range of the changes of the cortisol levels in Miller et al.’s research is 24.9 nmol/l. Based on the data, I argue that 3.96 (15.9%) is high enough to be practically important, if
not statistically significant, which means the effect of MCII is meaningful in real life. However, 2.12 (8.5%) and 0.77 (3%) is not high enough to be even practically important, which means the treatments are not meaningful in real life. Thus, numerically, I conclude that the effect of MCII on the Treatment Group is practically important. However, regulation strategies and no treatment has no practically important effect on the Regulation Group and the Control Group. If I take $p$ value into consideration, I will have more insights on the data. The $p$ value of treatment on the Treatment Group is 0.0085; $p$ value of the Regulation Group is 0.9855; $p$ value of the Control Group is 0.6205. Clearly, I can see only the Treatment Group shows significance. Therefore, I can conclude that MCII, the treatment of the current research, has a strong impact on the Treatment Group. MCII helps participants in the Treatment Group effectively manage and lower their anxiety levels. However, self-regulation strategies do not help participants in the Regulation Group lower their anxiety levels. The Control Group do not receive any special treatment, and the anxiety levels are not lowered.

MCII has been proven effectively useful in helping participants put more effort in test preparation (Duckworth et al., 2010) and other academic performance. Lee, Dewey, Trimble, and Belnap (2018) attempt to implement MCII to help participants have better second language development and social networking when they study abroad in Jordan. Although the results they find are not significant, the study does show that participants have deeper and stronger social networks with locals after they implement MCII. No published research discusses the effect of MCII on language learning and speaking anxiety. The current research aims to fill this gap and find if MCII can help participants lower their anxiety levels when they speak Chinese with NSs. I find that the cortisol levels of the MCII group (Treatment Group) drops significantly, which means MCII does have an impact on lowering participants’ stress levels. Compared to the
Treatment Group, the cortisol levels of the Control Group barely drop. That being said, without any strategies, participants are not able to recognize and deal with their anxiety issues when they speak a foreign language on their own. Compared to the Treatment Group, the cortisol levels of the Regulation Group do not decrease but increase significantly. The result shows that participants cannot deal with their speaking anxiety when they are taught some self-regulation strategies only for once without any follow-up and may never make a challenging but achievable plans to overcome the anxiety issue. In order to better understand the process and thoughts of participants implementing MCII, the participants are asked to complete learning journals regarding their learning experiences with the thought of MCII in mind.

**Research Question 3: How do learners perceive the value of mental contrasting when completing communicative tasks with native speakers?**

This research question aims to find out how participants perceive MCII and if they can consciously apply MCII to help their Chinese learning. In the chapter on Results, several categories are presented. In this chapter, I explain more about each category and compare these results with what other researchers have found.

A primary purpose of MCII is to help participants recognize their problems and make plans to overcome the obstacles. By overcoming the participants’ obstacles, hopefully they can reach their goals. In previous studies, MCII has proven helpful for participants from a variety of backgrounds reaching their goals. For example, Duckworth et al. (2011) finds that MCII helps adolescents to put more time and effort in test preparation. In the current research, I also find that participants, who are willing to implement MCII in their Chinese class, are able to recognize their obstacles of learning and to think of plans to take care of the obstacles and may be putting more time and effort in as well.
Oettingen et al. (2009) point out that MCII helps participants have more goal commitment and feel more energized even under a high-pressure situation. Oettingen et al. find that having feasible goals in mind helps participants be able to find the motivation to make the desired future happen. The current research is in line with Oettingen et al.’s research. Participants are able to commit themselves to learning Chinese and keep learning Chinese in their minds. Some other participants are able to be energized and willing to keep trying to reach the goals. For example, in order to speak Chinese better and less anxiously, Student A decides to download an application to practice more Chinese outside of class. Additionally, realizing her own shortcoming and having the goal that she wants to achieve, Student A finds a chance to do language exchange with a native speaker. Furthermore, MCII helps participants increase their confidence. For example, Student B, Student G, and Student F all state that implementing MCII has helped them gain confidence, which also helps them better talking to NSs.

During the process of implementing MCII, not everything works out perfectly. Some participants struggle during the experiment but are able to keep using MCII to help themselves learn. The result is in line with what Kappes et al.’s (2012) finding: participants tend to make more effort to overcome the negative feedback that they receive if they an relate the negative feedback to their goal-pursuing. For example, Student A was nervous and stressed about the oral interviews with NSs. After implementing MCII, Student A states that MCII has helped her be less anxious and stay positive. Student A also mentions herself being stressed about the oral interviews again in her later journals. However, by remembering what her goals are, Student A is able to reorient herself and decide to put more effort in learning Chinese and preparing for the oral interview.
Additionally, the current research aims to see if MCII helps participants lower their anxiety and stress levels when they speak Chinese, and some participants state that MCII has helped them feel less anxious and more relaxed. In the current research, I even see how MCII helps a participant when he becomes willing to try to implement MCII. Student E, at first, does not put MCII in the front of his mind and forgets to implement it. However, after being reminded by his classmates, Student E is able to think about his plan and really implement MCII. At the end of the research, Student E states that his anxiety level drops drastically. Some other participants also point out how MCII has helped them with anxiety when they talk to NSs. For example, Student F is able to recognize her obstacle and pin a goal for herself to talk more comfortably. Student F states that MCII has helped her with speaking anxiety too.

As mentioned before, Student E’s case is the best example of participants benefitting by being willing to try MCII. However, not all the participants are willing to constantly implement MCII in their learning process. Some possible reasons are presented below. First, learning Chinese is not a priority of participants. Student I reported that he does not get benefit from MCII. However, at the same time, Student I also admits that Chinese is not a priority of his college academic core. During the research process, Student I dose not really involve himself in the implementation of MCII because he does not feel the need to lower his anxiety or changing his Chinese learning habit. In this case, MCII will not work if participants cannot find a desired future to implement MCII. Second, MCII is not a priority of participants’ learning process. In the results, “forgetting to use MCII” is mentioned a few times. Those responses are mainly from the same participant. However, what I cannot omit is that there are some participants who do not even turn in their learning journals, so I do not have a chance to understand their implementation of MCII. What I can conclude is that MCII takes constant recognition to help participants keep
their goals in their minds, so MCII will not work if the participants do not feel like using it or always forget to use it. Third, Oettingen et al. (2009), Duckworth et al. (2011), and Kappes et al. (2012) all mention MCII, indulging and dwelling. Indulging and dwelling are both close to MCII. However, instead of thinking about the current state and present obstacles and making a future plan to overcome the obstacles, indulging focuses more on a possible future without making a feasible plan to deal with problem along the way. Dwelling is focusing excessively on the current state without making any plans to overcome challenges and move toward one’s goal. The studies mentioned above all find that MCII has the best results of helping participants reaching their goals and feel energized compared to indulging and dwelling. In the current research, I do not introduce the techniques of indulging and dwelling. However, if participants do not implement MCII well and fall into indulging or dwelling, the result might be affected. For example, Student F states that MCII gives her more pressure because she feels like she is thinking about an unreachable future. With the correct implementation of MCII, the participants are able to recognize their obstacles and make challenging but feasible plans to reach the goals. Thus, MCII will not work if participants do not use MCII properly.

In total, 39 valid journals are collected. Out of the 39 responses, 32 responses acknowledge the benefits and assistance of MCII, and seven responses mention about forgetting to implement MCII or do not get benefit from it. In conclusion, most of the responses show positive feedback toward MCII, but some responses don’t agree with. Among the journals, the responses that do not mention MCII and participants’ learning are considered invalid responses. In the current research, I only discuss the valid responses.
Chapter 6: Conclusion

Implications

The current research has found that beginning learners of Chinese have at least medium-level anxiety. Learners show medium levels of anxiety in the results of the FLCAS questionnaire, and they show higher degree of anxiety with the manifestation of the salivary cortisol. Most of the previous studies only implement self-perceived instruments, such as FLCAS and other questionnaires, to examine learners’ anxiety levels. However, the results of the current research show that the FLCAS, as a subjective scale of anxiety examination, has low correlation with cortisol levels, an objective manifestation of participants’ stress. That being said, learners might not perceive their own anxiety and stress when they actually feel anxious and stressed. Thus, the current research argues that self-perceived instruments might not be the best and accurate way to detect learners' anxiety levels.

Additionally, there are some implications for practical language teaching. MCII is a self-regulation strategy that trains learners to be aware of their own goals of learning Chinese and upcoming obstacles and to make a personal plan to overcome the obstacle and fulfill the goals. In the current research, I aim to use MCII to help learners lower their anxiety when they talk to NSs of Chinese. I have a MCII group (Treatment Group) that I train the participants to implement MCII constantly. The Regulation Group is taught to implement other self-regulation strategies such as deep breathing only once at the beginning of the research. The Control Group does not receive any special self-regulatory training, which means that the learners in this group have to deal with their anxiety with their own method. In the current research, the MCII group (Treatment Group) shows significant decrease in the learners’ levels of anxiety. Before the learners implement MCII, they feel more stressed when they talk to the NSs. However, after the
implementation of MCII, learners can better manage their anxiety levels. Therefore, I argue that MCII is a useful strategy to help learners lower their anxiety levels. The current research only implements MCII once a week for six weeks, however, I already see significant effects. If teachers apply MCII to daily class and have the learners being exposed to MCII with a higher frequency, the learners might be able to implement MCII better and have even better results with using MCII. This argument brings out another issue: learners’ motivation of using MCII. Some learners, in the current research, report that MCII or Chinese learning is not important enough for them to make changes that they even forget to implement MCII. In order to help learners be able to utilize MCII better and benefit out of it, instructors/researchers need to motivate learners to learn and use MCII first. Once learners are willing to give MCII a try, there is a higher chance for them to benefit from it. Student E from the current research is the best example of this argument (Please see Results Research Question 3 for more details).

The results show that MCII is able to help learners lower their anxiety levels. MCII, as mentioned before, has been proven useful for goal attainment and pursuing. That being said, MCII can not only be applied to the field of language learning and speaking anxiety but also to a variety of different domains. In the current research, the participants also point out that they are willing to apply MCII to their other classes or other language learning aspects. I argue that MCII might be beneficial to learners’ other aspects of lives. If the learners are willing to step back and think about a plan that leads them to achieve their goals, MCII can be useful in their general academic performance and other life experiences.

**Limitations and Suggestions for Future Studies**

The main limitation of the current research is the collection and use of the qualitative data. The current research only focuses mainly on the learning journals that are written by the
participants of the Treatment Group. There are 15 participants in Treatment Group and six learning journals are to be submitted. That being said, the qualitative data should have close to 90 journals to analyze. However, at the end of the research, I only collected 39 valid learning journals for analysis. It would be better if the current research can have more valid qualitative responses to strengthen the generalization and validity of the research. Additionally, from those who did turn in their learning journals, some of the content overlaps frequently. For example, “forgetting to implement MCII” is mentioned four times in the journals. These four journals are all from the same participant. Those who are really involved in implementing MCII have been consistently using MCII and give feedback about their perception of it. That being said, the same group of participants provides the same type of feedback. Participants who are highly involved give positive feedback; however, participants who forget to participate keep on doing so, too. In this case, the validity and degree of generalization of the current research might be lowered.

Although all the qualitative data that I have is important and valuable, I look forward to hearing more different opinions from the participants. Participating in the current research should be based on participants’ willingness. However, if I can try to motivate participants more and increase their willingness to turn in their learning journals, the data collection can be more comprehensive. Thus, for the future study to build stronger validity and generalization, researchers can work on the collaboration of researchers and teachers and motivating participants to be willing to submit their learning journals.

Sampling of the current research could have been more comprehensive too. In the current research, I only focus on beginning learners’ speaking anxiety. Learners of different proficiency levels might have different levels of anxiety. My results show that MCII can help beginning learners of Chinese lower their speaking anxiety. Future studies could focus on the effect of
MCII on learners of different proficiency levels. Additionally, future studies could explore if MCII is effective to lower other types of anxiety of learners. Horwitz et al. (1986) categorized three main types of language anxiety: test anxiety, communication apprehension (speaking anxiety), and fear of negative feedback. However, I only looked into participants’ speaking anxiety. To increase the generalization and the effect of MCII, studies on different types of anxiety are needed.

**Conclusion**

Learning a second language can be stressful. Previous studies have shown that anxiety has an effect on language learning. For example, Dewey et al. (2018) found that higher classroom anxiety caused lower OPI score, which meant classroom anxiety predicted learners’ language gain. Cho (2018) also found a negative correlation between learners’ anxiety and their successful performance. That being said, learners with higher language learning anxiety might perform worse because of the anxiety. Pyun’s (2014) study even implied that learners with higher anxiety would have lower self-confidence and motivation to learn. Additionally, according to MacIntyre et al. (1998), anxiety, motivation and confidence are all some factors that affect learners’ willingness to communicate. All in all, anxiety and stress take a significant role in learners’ learning process.

Because of the importance of language learning anxiety, it draws lots of researchers’ attention to investigate the effect of learning anxiety in the field of second language learning. Most of the studies are able to find the sources of learners’ anxiety. For example, Akkakoson (2016) reported that lack of L2 vocabulary is a major source of learners’ anxiety, and Liu (2007) suggested that the teacher demeanor and actions could relate to anxiety levels. Additionally, Liu mentioned that learners are aware that they need to work hard and make themselves exposed
more in L2 environment to lower their anxiety. However, Liu’s data also indicated that few learners even thought about strategies to cope with their anxiety.

In the current research, I applied MCII to lower learners’ anxiety levels in the context of learning Chinese as a foreign language in a beginning Chinese class. The results also show that the anxiety levels of the MCII group decrease significantly, which means that MCII is proven an effective strategy to lower learners’ anxiety. As mentioned above, if the teacher can apply the MCII strategies into the class and keep it a habit in the class, MCII will help students learn in a low-anxiety environment. For example, the teacher can start by spending five minutes before class starts telling students how MCII can help them learn better and how they can make their own plans. After that, the teacher can spend some class time in each class period reminding the students how they can apply MCII on their own when they feel anxious. Learners might need some time to adjust and be familiar with the whole MCII (WOOP) implementation. However, as long as the teacher can be patient and assist learners to make their own WOOP plans and constantly think about the plan and the challenging but feasible desired future, learners’ anxiety can be lowered, and learning can be more effective.

The significance of the current research is to support the hypothesis that MCII, serving as a useful and interactive technique, can help learners be aware of their learning obstacles and come up with compatible plans to solve the problems. Previous studies emphasize learning environment and learners’ personal effort. However, learning environment and effort are both constructs that are difficult to measure and abstract. Liu’s (2007) research also proves that learners are not able to consistently remember and address their obstacles. However, MCII helps learners consistently be aware of their issues and address them with individual plans. MCII is a
more concrete and realistic strategy to lower learners’ anxiety, and it is also a more interactive method that involve learners’ in their own learning.
References


Appendix A

Questionnaire

This questionnaire aims to understand learners’ learning in Chinese 101 class. Please read the following statements and choose the best description of your feeling from Strongly Disagree, Disagree, Agree and Strongly Agree. This questionnaire will be anonymous and will NOT affect your grades or academic performances at all.

*SD: Strongly Disagree; D: Disagree; N: Neither Disagree nor Disagree; A: Agree; SA: Strongly Agree

1. I never feel quite sure of myself when I am speaking in my Chinese class.
   SD D N A SA

2. I start to panic when I have to speak Chinese without preparation in class.
   SD D N A SA

3. I would not be nervous speaking Chinese with native speakers.
   SD D N A SA

4. Even if I am well prepared for Chinese class, I feel anxious about it.
   SD D N A SA

5. I feel confident when I speak in my Chinese class.
   SD D N A SA

6. I always feel that the other students speak Chinese better than I do.
   SD D N A SA

7. I feel very self-conscious about speaking Chinese in front of other students.
   SD D N A SA

8. I get nervous and confused when I am speaking in my Chinese class.
9. I am afraid that the other students will laugh at me when I speak Chinese.

10. I don’t worry about making mistakes in my Chinese class.

11. I tremble when I know that I’m going to be called on in my Chinese class.

12. It frightens me when I don’t understand what the teacher is saying in Chinese.

13. I start to panic when I have to speak without preparation in my Chinese class.

14. I don’t understand why some people get so upset over Chinese classes.

15. I get upset when I don't understand what the teacher is correcting.

16. I can feel my heart pounding when I'm going to be called on in Chinese class.

17. I get nervous when the language teacher asks questions which I haven't prepared in advance.

Thanks for your patience and response. This is the end of the questionnaire.
Appendix B

Chinese 101 Oral Interview Evaluation Sheet

Name:______________

Scenario 1

Student’s overall Chinese proficiency on this topic:
5  4  3  2  1

Scenario 2

Student’s overall Chinese proficiency on this topic:
5  4  3  2  1

Scenario 3

Student’s overall Chinese proficiency on this topic:
5  4  3  2  1

Scenario 4

Student’s overall Chinese proficiency on this topic:
5  4  3  2  1

Scenario 5

Student’s overall Chinese proficiency on this topic:
5  4  3  2  1
<table>
<thead>
<tr>
<th>Task</th>
<th>Action</th>
<th>Reason</th>
<th>Outcome</th>
<th>Wish</th>
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**Woop**

*Woop helps people do the things they really want to do.*

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**Appendix C**