

Exploring the Role of Language Aptitude and Motivation in Learning Chinese

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Abstract

This cross-sectional project aims to explore the inner structure of motivation and its correlation with learners' language aptitude and learning outcomes in Chinese with a structural equation model (SEM). Since Chinese (Mandarin) is typologically different from Romance languages in its orthographic and tonal systems, the study will utilize customized aptitude tests for Chinese learners to assess their tonemic and graphemic (orthographical) awareness. A mixed questionnaire will also be used to examine various constructs of motivation in learning Chinese. Theoretically, the model will be the one of the first empirical models that depicts the dynamic interrelationship among language aptitude, motivation and learning outcomes in Chinese. Methodologically, parameters of the model can be reset and readjusted to contribute to language assessment in other foreign languages at IU and beyond. The result of this study will also provide insights into developing teaching strategies to motivate learning and enhance language assessment at different levels.

Project Description

Introduction

Second Language Acquisition (SLA) studies have been focused on how foreign languages are structured and perceived by second language learners, how they are processed and learned (i.e. linguistic patterns, pragmatics and inter-language processing) and how they should be taught (pedagogical implications) in the past 50 years (Gass & Selinker, 1994). However, it has been observed that adult learners would demonstrate great variances in terms of their foreign language learning outcomes despite the fact they were situated in the same classroom setting and exposed to the same instructional materials and methods (Johnson & Newport, 1989). Much of these variances in performance can be attributed to differences in the learner characteristics, among which language aptitude and motivation being the strongest predictors of success (Skehan, 1991). There have been increasing amount of research studies in language aptitude and motivation respectively (Dörnyei, 1994; 2009; Gardner 2001; Ushioda, 2003; Wen, 1997; Yu, 2010; Su, 2015). However, there is still no model that can illustrate the mechanism of motivation in Chinese and link the motivation constructs with language aptitude and learning outcomes, not to mention predicting the trajectory of development in motivation. This study intends to fill in this gap by measuring these aptitude traits in learning Chinese and learners' motivation in correlation with the learning outcomes with customized language aptitude tests and a mixed motivation questionnaire for Chinese learners.

Research Questions

As instructors of Chinese, the investigators are intrigued by the roles of these non-language factors played in the learning and how they correlate with the learning outcomes. In the meantime, the orthographic and tonemic nature of Chinese language calls for particular attention to learners' awareness in these areas. To explore the interrelationship among language aptitude, motivation and learning outcomes in learning Chinese, the research questions are formulated as follows:

1. What constitute learners' motivation at each level of instruction from the 1st year to the 4th year? And how do they differ across levels?
2. Which language aptitude traits (among tonemic awareness and orthographic awareness) are prominent in learners at each level of instruction for the 1st year to the 4th year? And how do they differ across levels?
3. What is the correlation between motivation and learning outcomes at different levels?
4. What is the correlation between language aptitude traits and learning outcomes at different levels?
5. What is the correlation among language aptitude, motivation and learning outcomes at different levels?
6. Is there any causal relation among any of the variables? Does this model have predictive power?

Methodology

Given the dynamic nature of the system between language aptitude, motivation and language proficiency, a single qualitative or quantitative measure will not be enough to describe the whole picture. A mixed method needs to be used to build a longitudinal model to examine the complex interrelationship between these variables and depict the group dynamics. This initial project will be cross-sectional and it will lead to subsequent longitudinal studies. The proposed model consists of three groups of variables: latent variables (aptitude traits and backgrounds), predicting variables (motivation constructs) and outcome variables (language proficiency and performance). One of the key components in this model is a customized set of aptitude tests to measure learners' orthographic awareness, tonemic awareness and short-memory span, developed by the former collaborators at the University of Wisconsin-Madison (Wang & Potter, 2013¹). It consists of three tasks: 1. Tonemic Awareness that targets the tonal sensitivity in learners; 2. Lexical Decision Task that assesses the orthographic sensitivity; 3. N-back that tests the short-term working memory. These tests have been test run at one of the labs in the CeLT. With the support of their staff, these tests can be easily administered in a lab setting within 30 minutes.

A mixed questionnaire will also be used to collect both qualitative and quantitative data on learners' motivation constructs. Other measure may include learners GPA and SAT as independent variables collected through self-reporting. The outcome variables are collected in two categories: standardized proficiency test results (TOCFL² and OPI³) and the academic performance (scores from listening comprehension, speaking, and reading tasks in their midterm and final exam).

At stage 1: Aptitude tests will be administered at during the middle of Spring semester among participants taking the second half of their 1st year to the 4th year classes of Chinese. The questionnaire on learners' motivation will also be distributed. By the end of the semester, the learning outcomes will be collected from different sources: 1. Learners' scores in the standard proficiency test (TOCFL and OPI, see notes below). 2. Learners' listening, oral and written scores in the performance-based tests from their classes. At stage 2: The same tests and questionnaire will be administered among students doing the summer language programs in SWSEEL⁴ and FCI⁵.

Statistical modeling method (SEM) will be used to analyze the structure of motivation and describe the developing trajectory of processing cues and its interrelations with learning outcomes. Qualitative and quantitative data will be triangulated to validate

¹ Their paper titled "Plasticity in second language learning: the case of mandarin tones" is currently under review.

² TOCFL stands for Test of Chinese as a Foreign Language. It is a standardized Mandarin test administered by Taiwan Ministry of Education. <http://www.tw.org/tocfl/>. Every spring students in the Chinese language program take this test voluntarily with the funding support from the Chicago office of Taipei Economic and Cultural Office.

³ OPI stands for Oral proficiency Interview. It is a widely accepted assessment measure of oral proficiency, developed by the American Council for Teaching Foreign Languages (ACTFL). <https://www.actfl.org/professional-development/assessments-the-actfl-testing-office/oral-proficiency-assessments-including-opi-opic>. The principal investigator is a certified OPI tester. She will be conducting the simulated OPI tests at no cost.

⁴ First year Chinese is offered through SWSEEL during summer.

⁵ The Flagship Chinese Institute offers the second year and the third year Chinese during summer.

the model. The two graduate students listed as the collaborators will do the data collection, sorting and preliminary statistical analysis with SPSS. To assure accuracy of the measurement, they will code the qualitative data independently of each other. The principal investigators will consult with the Indiana Statistical Consulting Center, a free collaborative service offered at IU when modeling with Mplus.

Previous Studies

The learning of a foreign language is a complex process. Language acquisition is not simply learning a set of rules. It is the product of communication and interaction (Dörnyei & Tseng, 2009). The classroom is a dynamic setting in which teachers and the students interact with one another. Both curriculum design and classroom instruction need to address these differences to maximize the learning results. Motivation, learning and instruction form a dynamic system that describes the developing and evolving process of a complex system consisting of interrelated components. The moving trace of each component exerts multiple effects on the whole system and produces nonlinear variations (Thelen & Smith 1994; van Gelder & Port 1995).

Traditionally, motivation has been viewed as equivalent to proficiency. Language teachers would describe their students as motivated if they are engaged in learning and sustain that engagement, without the need for continual encouragement (Crookes & Schmidt, 1991). In recent years, the focus of the interest in motivation research has shifted from a social psychological perspective to a cognitive and dynamically constructive one (Crook & Schmidt 1991, Deci & Ryan, 2002; Dörnyei, 2003, 2009; Gardner 1985; Gardner & Lambert, 1972; Ortega, 2009; Oxford & Shearin, 1994; Ushioda, 2008). Numerous studies have provided evidences through either quantitative or qualitative method(s) to support that motivation is a significant predictor in the success of language learning (Gass & Selinker, 1994). Motivation has been found to correlate with learning expectations, choice of learning strategies, and learning results (Dörnyei, 1994, 2003; Gardner 1985; Ramage, 1990; Tachibana, Matsukawa, & Zhong, 1996; Wen 1997; Noels, 2000; 2003). It is now treated as a multi-facet construct and examined with contextual factors. This is the approach that investigators took in designing this project.

Thanks to the Jiede Empirical Research Grant from Chinese Language Teachers Association (CLTA) in 2012, the mixed questionnaire has been compiled, tested for its validity and adjusted. The principal investigator presented a comprehensive literature on motivation studies on the 11th International Conference on Teaching Chinese as a Foreign Language in 2014. She also presented the results of her pilot study on the 2014 International Conference of Teaching Chinese as a Foreign Language. Both papers were published in the conference proceedings. One of them was revised and published on the *Taiwan Journal of Chinese as a Second Language* in 2015. Since the investigator took a family leave in spring, 2016, the design of the next-stage experiment and the data collection was interrupted. She plans to start collecting the cross-sectional data in spring, 2017. The IRB protocol is under preparation.

Significance and Impact

At a fixed time point, the model will demonstrate the interrelationship among all three groups and the covariant relationship between sub items within each group. Since the SEM is both confirmatory and exploratory, it will search for undiscovered non-linear interrelationships between variables such as aptitude, motivation and language proficiency.

The result of this study will provide insights into developing teaching strategies to motivate learning and enhance language assessment at different levels in undergraduate education. It will have direct effect on nearly 300 undergraduate students in the Chinese language program. Our instructors would benefit from knowing what motivates students to learn, what makes them different, how it correlates with the learning results and how it develop at different stages of learning when they revise their lesson plans, design activities, implement effective pedagogical methods and tailor the instruction to meet students' needs in individual classrooms. For example, the customized aptitude tests will help instructors and students identify their strong and weak areas in terms of tonal and orthographic sensitivity. Different from the innate aptitude, these traits can be developed or improved with assistance of instructors. Studies have shown that students are more motivated when instruction is matched to their characteristics (Skehan, 1991). In addition, learning about the correlation among these variables and the learning outcomes will lead to improvement in assessment tools.

At the program level, the data and the model from this study will inform the language coordinator of what to consider when designing the curriculum. They will also add to the knowledge base of SOTL and CITL. Methodologically, parameters of the model can be reset and readjusted to contribute to language assessment in other foreign languages at IU and beyond. This study will also lead to subsequent longitudinal studies. With the longitudinal data sets collected at several time points, models can be consolidated to be a growth curve model and predict the developmental trajectory over time. A SEM with predicting power will greatly contribute to the field of TCSL and SLA, since it will be the one of the first empirical models that depicts the dynamic interrelationship among these variables in Chinese.

This project also serves the following goals in graduate education: 1. Training graduate students to do SLA and SOTL research. 2. Funding their trip to one national conference to share their findings and gain invaluable experience. 3. Providing some financial support to graduate students during. 4. Preparing them for their future career by giving them opportunities to do the data collection, statistical analysis and write-up collaboratively. One graduate student is currently an Associate Instructors in our program and the other was an AI last year. This experience will make them reflect on their teaching and provide insights into pedagogical discussions among their peers.

Dissemination of Data

The study results will be presented at major national conferences in SLA such as Second Language Research Forum (SLRF) and AAAL and the conference for language professionals: ACTFL. The project will yield at least one academic publication. Results will also be presented the SOTL event series.

Budget

I. Project cost:

Research assistants: 20 hours/week for 4 weeks in spring, 2017 (pay rate 15/hour)

20 hours/week for 5 weeks in summer, 2017 (pay rate 15/hour)

SPSS Software 1 license \$100

Total project allowance \$2,800

II. Conference allowance:

Registration: \$80 * 2 students = \$160

1 faculty = \$130

Airfare: \$ 300 * 3 = \$900

Transportation: \$46 *3= \$138

Lodging: \$ 200 (double room for 3 nights) * 3 = \$600

Per diem: \$135 (3 days) * 2 students = \$270

Total conference allowance \$2,198

Total Budget Request \$ 5,000

Note:

1. SPSS software is necessary for graduate students to do basic statistical analyses of the data. The cost listed is a discounted price for a single license offered through IUware. Since it will be too costly to purchase a license of Mplus to do the modeling, the principal investigator will seek help from IU's statistical Consulting Center.
2. The investigators plan to submit the project to the Second Language Research Forum (SLRF) 2017 in May, 2017. If the project is not accepted, it will be submitted it to the AAAL 2017 in August. In any case, the cost would be similar to the above estimate. If the actual expenses exceed the estimate, the priority will be given to graduate students' travel. The principal investigator will seek funding from other travel grants or use her own research account.
3. Lodging rate is estimated at \$200 for three nights/person, assuming the two graduate students will share a double room. And the faculty member might share room with other colleagues as well.
4. Given the budget limit, per diem of \$45/day is only requested for graduate students to cover their meal and incidentals.

Research Plan and Timeline

Project	Time period	Status
Aptitude tests and questionnaires		Completed
IRB approval	Fall, 2016	Under preparation
Stage 1: Recruitment and collection of data (time point 1); initial analysis	Spring, 2017	
Submit abstract to SLRF	May, 2017	
Stage 2: Recruitment and collection of data (time point 2); second analysis	Summer, 2017	
Presentation at SLRF or a comparable conference. Collect feedback for revision	September, 2018	
In-depth analysis combining data from stage 1 & 2; write-up and article submission	Fall, 2018	
Dissemination of results on other professional occasions	Spring, 2019	

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