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ABSTRACT

The underlying factor structure of the Language Learning Strategy Scale (LLSS) (Y. Chen, 2001) was examined to determine its consistency across 2 distinct cultures. Variables that affected students' language learning were also identified. The validation study for the LLSS suggested a three-factor model of functional strategies, deep-processing strategies, and surface-level strategies. This study focused on Taiwanese students learning a foreign language and explored the use of this measure with this population. Participants were 584 first-year college students in Taiwan, studying English, and 288 college students in the United States studying Spanish. The LLSS was translated into Chinese and back-translated to English to ensure the meaning of each item. The exploratory factor analysis suggested a three-factor structure for the test in Taiwan, but confirmatory factor analysis using the U.S. study did not confirm the suggested three-factor model. These results suggest that the instrument may not be used across cultures. The structure of the instrument was different for the two cultures. An appendix contains the English version of the Scale. (Contains 4 tables and 14 references.) (SLD)

A Cross-Cultural Validation Study of the "Language Learning Strategy Scale" and Its Applications

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A Cross-Cultural Validation Study of the "Language Learning Strategy Scale" and Its Applications

Purpose of the Research

The purpose of this study lies in examining the underlying factor structure of the "Language Learning Strategy Scale" (LLSS), to determine its degree of consistency across two distinct cultures. Further comparison of variables that affect students' language learning strategies will also be identified. The typology of language learning strategies (LLSs) is rather inconsistent among researchers in the area of second language acquisition (SLA). Based on the theoretical perspectives of individual researchers, the categories are overlapping and definitions for language learning strategy (LLS) vary. Determined to discover an improved and more consistent categorizing method for LLS, Chen (2001) developed and validated an instrument titled "Language Learning Strategy Scale." The validation study utilized factor analyses in searching for underlying constructs of the strategies. The results indicated a 3-factor model of LLSS, namely, functional strategies, deep-processing strategies, and surface-level strategies.

However, this study exclusively examined Taiwanese students learning English as a foreign language. For one to effectively use this instrument to examine LLSs in a different population for a different second language, a further validation of the instrument would be necessary. Cultural difference may affect students' language learning strategies, consequently resulting in a different factor structure in the LLSS. After careful examination of the cross-cultural comparison, it is anticipated that valuable information regarding the similarities and differences between language learning strategies used by Taiwanese students learning English and American students learning Spanish as foreign languages will surface.

Theoretical Framework

From the perspective of education, researchers confine learning strategies to the domains of cognition and metacognition. Learning strategies are the general approaches or plans of a learner as well as the higher-level clusters of learning tactics that work together to produce a uniform learning outcome (Schmeck, 1988). These higher-level clusters include 1) conceptualizing (e.g. categorizing, comparing, contrasting, hierarchically organizing, abstracting, and networking ideas), 2) personalizing (e.g. self-referencing, generating examples, translating into personal language and images, and linking new information with prior personal experience), and 3) memorizing (repetitive rehearing of information, using mnemonics, and encoding verbatim).

Learning strategies also refer to a learner's behaviors that intend to influence how the learner processes information. During learning, these behaviors control one's cognitive processes, attention, rehearsal, encoding, and retrieval. These are techniques used for selecting information and building internal and external connections (Mayer, 1988).

Furthermore, Entwhistle and Ramsden (1983) distinguished two types of general study

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strategies: deep processing and surface-level strategies. Deep processing strategies include processes such as discriminating important from unimportant information, trying to figure out how new information fits with existing information, and monitoring comprehension. Surface-level strategies include simply practicing over and over, memorizing all the new words, and rehearsing information.

Generally speaking, studies in education show at least one class of learning strategies related to deep processing (or covert cognitive process) and another related to surface processing (overt cognitive process). Although some may include subscales of deep processing and surface processing (Chissom & Iran, 1992), the general concepts of deep and surface processing still hold true. More importantly, results have found that deep processing strategies are significantly and positively related to GPA, an indication of achievement (Kardash & Amlund, 1991; Chossom & Iran, 1992).

Specifically, studies on language learning strategy (LLS) have been conducted to explore the use of LLSs and their implications for students from various cultural backgrounds. Grainger et al. (1997) identified the most and least favored strategies of a variety of ethnic groups and investigated the relationship between ethnicity and language learning strategy preferences. Park (1997) investigated the relationship between language learning strategies and second language proficiency for Korean students of English as a Second Language. Findings indicated that the relationship between strategies and proficiency was linear; strategies were significantly correlated with test scores and cognitive and social strategies were more predictive of scores than other strategies. In a study of Chinese students' approach to learning English, He (1996) examined the historical, cultural, social, pedagogical, and psychological factor affecting Chinese students' language learning styles and attitudes.

Contrasting criteria for categorizing LLSs create a "moving target" syndrome in which a given behavior appears to dart from one category to another, depending on the theoretical or epistemological perspective of researchers. "When so many different criteria are used for categorizing language learning strategies, it is natural that the same strategy is classified differently (Oxford & Cohen, 1992)." Therefore, a typology without strong empirical support may not be helpful in understanding the relation between LLSs and other variables.

In a cross-cultural study, Wong et al. (1996) tested the validity of Biggs's (1987) "Learning Process Questionnaire" (LPQ) and identified three factors (deep, surface, and positioning of achieving). The dimensions of deep and surface approaches to learning received cross-cultural support, while the positioning of achieving dimension varied from culture to culture. In conclusion, the study supported the factors of deep and surface approaches of the LLS scale across different cultural groups.

However, it is not necessary that language learning strategy typology only follow a deep/surface pattern. It is likely that classes of language learning strategies may go beyond a deep-surface distinction. For example, a class of strategies is listed in Oxford's "Strategy Inventory For Language Learning" (SILL), which closely relates to functional practice strategies (Nyikos & Oxford, 1993). Several studies have used SILL and confirmed the validity of this instrument (Oxford, 1986).

Presently, empirical support in the area of language learning strategies using factor

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analysis and related techniques is required, in order to generate conceptualized categories of language learning strategies that can be significantly and consistently related to other language learning variables. Accordingly, the LLSS was developed to include three factors, namely, deep-processing, surface-level, and functional factors.

Method

Participants:

1. A total of 584 freshmen from one private university and two government-funded universities in Taiwan participated in the study.
2. A total of 288 students enrolled in Spanish classes in the Fall 2001 semester at a rural university participated in the study.

Instrument:

The "Language Learning Strategies Scale: For English as a Foreign Language" (LLSS) is a Likert-type scale, including eighteen items in three broad categories. Deep-processing and surface-level strategies were adapted for learning English as a foreign language from Entwhistle and Ramsden's (1983) learning strategies scale, with some new functional items added from SILL (Oxford, 1990).

Procedures:

Taiwan study

The LLSS was translated into Chinese, then back-translated into English to ensure the meanings for each item in both versions were as synonymous as possible. Also a panel of three professionals in English as a second/foreign language reviewed the scale for face validity to ensure agreement on the three subcategories: deep-processing, surface-level, and functional practice.
This survey was completed by 584 college freshmen compiled from three universities in Taiwan.

American study

The LLSS was slightly modified (For Spanish as a Foreign Language) and was administered to a total number of 284 rural American university students.

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Research questions:

This study intends to answer the following research questions:
1. What is the underlying dimensionality of the LLSS in the American study?
2. Is the underlying factor structure consistent over Taiwanese and American groups?
3. Is the instrument consistent within constructs?
4. Are there significant differences in the responses exhibited by different groups?
5. Which demographic variables appear to exert main effects?

Results

The number and nature of dimensions measured by the LLSS were identified through an exploratory factor analysis using Taiwan study data. Factors was extracted using a principal component analysis maximum likelihood method. Exploratory factor analysis was used because the links between the observed and latent variables were uncertain. The exploratory factor analysis suggested a 3-factor model, as the first three factors accounted for fifty-six percent of the total variance. Table 1 shows the factor structure coefficient for each item in the Taiwanese study. After examining the factor pattern matrices for the three factor solution in Table 1, the items were roughly clustered into categories which we have named: deep-processing, surface-level, and functional. Items 5, 6 and 7 loaded on both the functional and deep-processing factors. We reviewed the item and decided to classify these items under the deep-processing factor. Further analyses were performed using this suggested 3-factor model.

Confirmatory factor analysis using data from the American study was performed to examine whether the LLSS's structure was consistent with Taiwanese data. The results did not confirm the suggested 3-factor model (N=288, df=153, X^2=2877.18, RMSEA=0.14, GFI=0.75, AGFI=0.67, NFI=0.71, NNFI=0.70, CFI=0.74, CN=60.16). By carefully examining the items loading on each factor, we found that six items loaded on different factors, than indicated by the suggested model. Table 2 shows the factor structure coefficient for each item in the American study.

Internal consistency reliability was performed to test the correlation among items for each factor. Table 3 shows the internal consistency reliability of the LLSS in each factor for both studies. All of the internal consistency reliabilities were above 0.8 for the functional and deep-processing factors. However, both groups in the surface-processing factor had lower reliability coefficients.

In an attempt to ascertain whether there are significant group differences (main and interaction effects) among background variables (e.g., gender, major, and parents language fluency), MANOVA was conducted. No significant interaction effect was found in the American study (F=.236, df=3, p=.871.) However, there was interaction effect in the Taiwanese study (F=1.513, df= 33 p=0.032). Further analyses, examining each construct, also showed no interaction effect of "gender" by " major" or "gender" by "parent's language fluency," or "major" by "parent's language fluency" across the three factors in the American study, except one. The only interaction effect that exists in the American study is within the functional factor.

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The main effect was found in "parent's language fluency" across the three factors and in "major" on the functional factor only. As in the Taiwanese study, no interaction effect was found across the three factors. There was only one main effect in the "parent's language fluency" factor.

Conclusion

A valid and reliable instrument is essential to the meaningful interpretation of research findings. The confirmatory factor analysis using the American data did not confirm the model that was suggested using the Taiwanese data. This suggests that the instrument may not be used across cultures. The structure of the instrument was different between the two cultural groups as well. Perhaps items on the instrument were interpreted differently based on the cultural backgrounds of the subjects. For example, item 3 reads: I look for opportunity to speak with others in Spanish. In the Taiwanese study, the structure of the question is similar, except that the word English was substituted for the word Spanish. In Taiwan, learning English as the second language is most popular and increasingly essential for individuals in any discipline. Taiwanese people look for the opportunity to speak English as much as possible. In America, Spanish is one of the second languages that is functional, but not nearly as essential for Americans, when compared with Taiwanese individuals learning English.

The internal consistency reliability coefficient was high in the deep-processing and functional factors for both groups. The items within these two factors appear to be suitable for both groups. On the other hand, the surface-processing factor yielded a low reliability coefficient. This may be contributed to unclearly written items and/or a small number of items within this particular scale. Further study may include adding more items to the surface-processing scale and rephrasing items to suit different cultural backgrounds.

Although this study did not confirm the suggested structure of the LLSS, it did provide information regarding the utility of the LLSS in a different culture. This study revealed that parents' language fluency influences students' learning of a second language. This research also showed that no gender difference exists in second language learning. Students' major field of study in college also did not appear to affect their learning of a second language. The information obtained from this study, concerning language learning strategies from a cross-cultural perspective, displays the potential to increase the instructional effectiveness of educators at all levels in the educational spectrum, as well as increase awareness and understanding of the significance culture plays in our learning experiences.

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Table 1: Factor Structure Coefficient for Each Item in Taiwanese Study

	Component		
	1	2	3
F1	.683	-6.126E-02	4.425E-02
D1	-4.636E-02	.809	-3.468E-02
F2	.671	6.079E-02	-7.776E-02
D2	.369	.370	9.275E-02
D3	.424	.419	-4.270E-02
D4	.484	.392	-3.914E-02
D5	.493	.282	6.886E-03
F3	.773	4.926E-02	5.951E-03
F4	.768	8.265E-03	-6.513E-02
S1	.121	-3.810E-02	.623
S2	.259	-.187	.700
F5	.785	-.335	.141
F6	.694	5.945E-02	-5.152E-02
D6	.170	.474	.222
F7	.538	.218	-7.564E-02
S3	-.168	9.422E-02	.728
S4	-.306	.303	.522
D7	-8.224E-02	.858	1.039E-02

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Table 2: Factor Structure Coefficient for Each Item in American Study

	Component		
	1	2	3
F1	-2.065E-02	.807	2.412E-02
D1	.612	-2.295E-02	.130
F2	.549	.484	-.119
D2	.629	.142	2.317E-02
D3	.765	2.976E-02	-8.374E-03
D4	.729	4.426E-02	6.746E-03
D5	.701	.177	-.151
F3	.507	.499	-.113
F4	6.167E-02	.820	-9.170E-02
S1	.680	-.139	.169
S2	.554	-.263	.320
F5	-5.480E-02	.797	9.792E-02
F6	.156	.469	.280
D6	.329	-.287	.578
F7	-.224	.565	.555
S3	-.230	.238	.734
S4	.177	-3.341E-02	.655
D7	.192	7.662E-02	.591

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Table 3: Internal Consistency Reliability of the LLSS in Each Factor for Both Studies

	Taiwanese N=584	American N=284
	Correlation Coefficient (r)	Correlation Coefficient (r)
Functional	.8424	.8489
Deep- Processing	.8282	.8072
Surface- Level	.5607	.6498

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APPENDIX

Language Learning Strategy Scale: For Spanish as a Foreign Language (MOLLS for SFL, version 2.3)

The following items are descriptions about people learning Spanish. Please indicate how much you think each description applies to you.
5 indicates **Strongly Agree** **4** indicates **Agree** **3** indicates **Neutral**
2 indicates **Disagree** **1** indicates **Strongly Disagree**
Under the following situation, you feel you have had a really successful day in school.

The following are some strategies that you may use for learning Spanish. Please indicate how much you think each description applies to you.

I. Functional Strategies:

1. I often listen to Spanish broadcasting.
3. I look for opportunities to speak with others in Spanish.
8. I find many ways to use Spanish.
9. I read Spanish other than in textbooks.
12. To be familiar with Spanish conversation, I often watch Spanish-speaking movies.
13. I talk to myself in Spanish.
15. I write in a diary and/or take notes in Spanish.

II. Deep-processing Strategies:

2. I analyze sentence structure so I can understand meanings.
4. I often think about my progress in Spanish.
5. I have clear goals about how I am going to study Spanish.
6. I make plans and arrangements to study Spanish.
7. I try to figure out how new things I learn in Spanish fit with what I know.
14. In order to understand the meaning of the sentence, I read it several times.
18. I look for rules in Spanish structure.

III. Surface-level Strategies:

10. I spend a lot of time memorizing and reciting things I learn in Spanish.
11. In order to memorize the sentences, I read them again and again.
16. I take notes word for word without skipping anything.
17. When I come across any new word while I read, I immediately look it up in the dictionary.

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