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DEVELOPING A SOCIOCULTURALLY-APPROPRIATE LANGUAGE LEARNING STRATEGIES QUESTIONNAIRE FOR TAIWANESE UNIVERSITY STUDENTS

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ABSTRACT

Language learning strategies are an important variable in language learning, as they both facilitate learning and make learning more effective. Previous research has categorized and placed language learning strategies into taxonomies. However, despite calls for more socioculturally-appropriate strategy questionnaires, there is a paucity of language learning strategy inventories designed for specific populations. Because culture and cultural variables determine language learning strategy use, this cross-sectional mixed methods study seeks to develop the Taiwanese Inventory of Language Learning Strategies (TILLS). Qualitative data collected from 736 Taiwanese university students was coded, resulting in 45 language learning strategies. These strategies were combined with the indirect strategies from the Strategy Inventory of Language Learning (SILL). A distributed questionnaire resulted in 575 completed surveys that were then used for exploratory factor analysis (EFA). The findings resulted in 46 strategies across eight factors. Implications and limitations of this research are discussed.

Key Words: language learning strategies, EFL students, Taiwanese language learners, mixed methods, exploratory factor analysis, grounded theory

INTRODUCTION

Language learning strategies (LLSs) are "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferrable to new situations" (Oxford, 1990, p. 8). LLSs allow learners to comprehend, store, retrieve, and apply

language information in varying situations, facilitating their learning and making their learning more effective. Language learning strategies are essential for successful language learning, and culture plays an important role in determining which learning strategies are preferred and used. Indeed, Oxford and Gkonou (2018) invoked the image of a tapestry to note that "language and culture are interwoven" (p. 403). Takeuchi (2019) also noted that learning strategy use is "uniquely dependent on the sociocultural contexts in which the learning is situated" (p. 9).

In Taiwan, the English language is officially categorized as a foreign language taught and learned in school, although it does enjoy a status of prestige above other languages such as Japanese and Korean (Su, 2008). English language courses in Taiwan are mandatory from elementary school to university and feature prominently on school admission tests and job applications. Indeed, it was suggested that English be made an official language of Taiwan in 2002 (Liu, 2005). Although that proposal did not pass, it did spur the Taiwanese government to hire more English-speaking teachers with an eye towards improving students' communicative language competence in the English language and introduce more bilingual signs throughout schools, government buildings, and streets to make Taiwan more foreigner-friendly (Kung, 2017).

Bilingual international schools, focused on providing both English- and Chinese-language education, have also sprung up throughout Taiwan. Liu (2005) noted that the number of bilingual kindergartens has increased greatly and employment levels for native English speakers are higher than ever before. Several educational policy changes have also been initiated, although Law (2002) felt that most lacked thorough discussion and consideration before implementation. Thus, Kung (2017) argued that "many educational reforms fail to meet the needs of EFL students in Taiwan's constantly changing society" (p. 3). Indeed, it has given rise to a very much test-driven and test-focused school culture where passing exams, regardless of actual communicative proficiency, is the end goal for most parents and students. It is perhaps telling that this policy reform makes no mention of language learning strategies, despite research being actively undertaken in Taiwan.

Socioculturally-appropriate instrumentation that accurately diagnoses learners' LLS use is therefore vital for informing both teachers and learners. The most frequently-used and well-known instrument is Oxford's (1990) SILL, which has been translated into many languages and used in all forms of research involving the study of LLSs among ESL and

EFL learners. However, there have been some criticisms of the SILL pertaining to its psychometric validity (Dörnyei, 2005), its reliance on frequency of use as a measure (Yamamori et al., 2003), and its applicability to learning contexts outside of which it was born (Gardner et al., 1997; Isemonger, 2016; LoCastro, 1994). Indeed, Cohen (2011) argued that "language learner strategies around the world have not necessarily been in touch with the latest thinking on the topic, and may be using instruments designed two to three decades ago" (p. 47). It has also been argued by Lai (2009) that the SILL may not be able to accurately account for all the strategies being used in Taiwan, denoting the need for "learning strategy questionnaires based on different sociocultural backgrounds [to] be developed to strengthen the validity of data collection instruments in the language learning field" (Huang, 2015, p. 259).

Given this impetus and the particular sociocultural background of Taiwan, it is time for a new strategy inventory to be developed in order to more accurately gauge how Taiwanese learners learn English. Thus, the purpose of the current study was to create a new, socioculturally-appropriate LLS questionnaire for EFL learners in Taiwan.

LITERATURE REVIEW

Definitions of Language Learning Strategies

The earliest definition of language learning strategies is attributed to Gagné (1974), who defined them as "the skills of self-management that the learner acquires, presumably over a period of years, to govern his own processes of attending, learning, and thinking" (p. 4). However, O'Malley and Chamot (1990) defined them as "the special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information" (p. 1) and "special ways of processing information that enhance comprehension, learning, or retention of the information" (p. 1). Griffiths (2008), after examining six essential features of language learning strategies, defined them as "activities consciously chosen by learners for the purpose of regulating their own language learning" (p. 87). Cohen (2011) viewed them as "thoughts and actions, consciously chosen and operationalized by language learners, to assist them in carrying out a multiplicity of tasks from the very onset of learning to the most advanced levels of target-language performance" (p. 7). Language learning strategies, then, can be summarized as behaviors, steps, operations,

methods, procedures, or mental processes used consciously or unconsciously by language learners to assist them in comprehending, storing, remembering, retrieving, and using information in order to facilitate their learning.

Language Learning Strategy Taxonomies

While O'Malley and Chamot (1990) devised a three-part taxonomy consisting of cognitive, metacognitive, and social/affective strategies, Oxford (1990) provided a more comprehensive and arguably the most well-known classification of learning strategies. The SILL groups LLSs into three direct strategies and three indirect strategies. The direct strategies include: (a) memory strategies used for storing and retrieving information; (b) cognitive strategies for comprehension and production; and (c) compensation strategies for overcoming limitations in knowledge and production of the language. The three indirect strategies include: (a) metacognitive strategies for planning, organizing, focusing, and monitoring learning; (b) affective strategies for controlling motivation and emotions; and (c) social strategies for interacting and cooperating with others in the language. More recently, Oxford (2017) revised her taxonomy to include cognitive, motivational, social, and affective strategies as well as an overarching meta- category for each. She emphasized that strategies are flexible and may take on multiple roles, and "even though we need formal categories and labels to be able to communicate about strategies, we must recognize that strategies have a unique way of squirming out of our most finely crafted labels and categories" (p. 163).

While Oxford's newest taxonomy is more comprehensive and offers the overarching meta strategies as guides for planning and monitoring strategy use, her original 1990 taxonomy has received the most attention in the field of education and is also the most widely used, as it is the theoretical basis for the SILL. While the SILL has been widely used in Taiwan and been shown to be reliable and valid in many studies, it has not been updated in almost 30 years and is no longer current with her newest taxonomy.

Shortcomings of the SILL

Cohen (2011) noted that many researchers "have expressed

skepticism about the construct *strategy* at the theoretical level" (p. 374), questioning whether they exist as psychological constructs, arguing that they are ambiguous, and even turning to the newer concept of *self-regulation*, a process they see as generating strategies. For example, Dörnyei (2005) contrasted the SILL with Pintrich et al.'s (1991) Motivated Strategies for Learning Questionnaire (MSLQ). Both appear similar, but there are important differences. While both use a 1-5 rating scale, the SILL rates strategies based on frequency, from 1 (*never or almost never true of me*) to 5 (*always or almost true of me*), and the MSLQ rates strategies according to behavior, from 1 (*not at all true of me*) to 5 (*very true of me*).

Dörnyei argued that this change in the SILL scale combined with the items of the SILL, which are "specific, each one more or less corresponding to a language learning strategy" (p. 181), renders the questionnaire not psychometrically valid. He noted that the MSLQ items are "general declarations or conditional relations focusing on general and prominent facets of the learning process" (p. 181). He argued that the MSLQ "tap[s] into some general trends and inclinations and can therefore be assumed to be in a linear relationship with corresponding underlying learner traits" (p. 181); this, combined with the rating scales "make[s] the items *cumulative*, which is why scale scores can be computed by pooling all the scale items" (p. 181). However, the SILL "focuses on specific strategic behaviors and the scale descriptors indicate *frequencies* of strategy use" (p. 181). This means the SILL items are behavioral items with no linear relationship between the individual item scores and the total scale scores, e.g., "one can be a generally good memory strategy user while scoring low on some of the items in the memory scale" (p. 182).

Yamamori, Isoda, Hiromori, and Oxford (2003) argued that "because frequency results alone do not explain everything about strategy use, it is necessary to include other indices of learners' behaviors that reflect their decision making. 'The more, the better' is not always the case in strategy use" (p. 384). Dörnyei (2005) also found that the SILL scales

> are not cumulative and computing mean scale scores is psychometrically not justifiable. A high score on the SILL is achieved by a learner using as many different strategies as possible and therefore it is largely the quantity that matters. This is in contradiction with strategy theory, which has indicated clearly that in strategy use it is not necessarily the quantity but the *quality* of the employed

strategies that is important (p. 182).

He summarized that "all this means that although the SILL may be a useful instrument for raising student awareness of L2 learning strategies and for initiating class discussions, its use for research purposes is questionable" (p. 183). This is supported by data from Gardner, Tremblay, and Masgoret (1997), who found that LLS use was negatively correlated with learning achievement, a result which the authors attributed to the SILL: successful learners "may have adopted their own effective strategy [*sic*] and thus do not adopt the wide range of strategies described by the latent variable, Language Learning Strategies" (p. 354), i.e., the SILL.

Amerstorfer (2018) noted that while the SILL has withstood criticism and is still a valid instrument, "some SILL items may be unsuitable for the context or purpose of a study and that statements that relate to modern technology for L2 learning and teaching are lacking" (p. 518). She concluded that these issues can be overcome by adapting the SILL or combining it with other research methods or questionnaires in order to collect more contextually relevant information. That is, "if the SILL is found problematic for a specific purpose or in a certain context, the researcher must choose instruments that are more appropriate. Alternatively, the SILL can be combined with other instruments or adapted accordingly" (p. 504). However, LoCastro (1994) cautioned against using the SILL in differing sociocultural environments because L2 learners may find some of the items inappropriate for their particular language learning situation. In a series of studies with Japanese learners, she found that "participants generally found the SILL inappropriate in that there are no strategies specifically addressing listening as a means to learn" (p. 412). Indeed, this was confirmed by Isemonger (2016), who investigated a Japanese translation of the SILL with confirmatory factor analysis. His results indicated that the hypothesized SILL model should be rejected as the six-factor model did not fit the data generated by 756 Japanese freshmen.

Taking into account the shortcomings above and guided by the particular sociocultural background of Taiwan, it is time for a new strategy inventory—one capable of measuring Taiwanese English language learners' English LLS use—to be developed in order to more accurately gauge what Taiwanese students are doing—or not doing—to learn English. Indeed, Cohen and Macaro (2007) have argued that "we must collect more data on the *quality* of strategy use (p. 279) as opposed to the quantity of

strategy use. Answering the call by researchers for more socioculturally appropriate questionnaires to strengthen the validity of data collection (Huang, 2015; Oxford, 2017), this research seeks to create a quantitative questionnaire derived from qualitative data that contains strategies relevant to Taiwanese EFL learners. The following research questions guided this study:

1. What are the factors underlying Taiwanese university students' EFL learning strategy use?
2. What are the specific items that make up the factors of a well-designed language learning strategy inventory for Taiwanese university students?

METHODOLOGY

This study uses a cross-sectional mixed methods design. This study was done in two stages. In the first stage, a questionnaire derived from qualitative data was created and piloted. In the second stage, the final questionnaire was distributed to learners across Taiwan, and the results were used to perform an EFA, resulting in the creation of the TILLS version 1.0. Table 3.1 outlines the different phases of data collection and the subjects who participated in each phase.

Table 3.1

Outline of Research Phases and Subjects

Stage	Description	Subjects
Phase 1a	Gathering initial qualitative writing prompt data (reading, writing, listening, and speaking strategies)	414 learners (126 males, 288 females) from five universities in southern, central, and northern Taiwan.
Phase 1b	Gathering initial qualitative writing prompt data (grammar strategies)	292 learners (105 males, 187 females) from six universities in southern, central, and northern Taiwan.
Phase 1c	Gathering initial qualitative interview data	30 learners (6 males, 24 females) from three universities in central and northern Taiwan.
Phase 2	Pilot testing survey	58 learners (20 males, 38 females) from a university in central Taiwan.
Phase 3	Gathering finalized survey data	802 learners (301 males, 501 females) from nine universities in southern, central, and northern Taiwan.

Participants

Participants for this study were Taiwanese university students aged 18 and older who were studying or had studied English. In total, data was gathered from 852 voluntary participants from nine private and national universities across Taiwan. Participants were chosen for both convenience and purposive sampling, as instructors who were willing to aid in data collection at each institution were identified and contacted, and the learners at each school were of varying proficiency levels from beginner to advanced and thus should have varying levels of strategy use in addition to using varied strategies. Participants also presented a fair male-to-female ratio and were of varying ages. After screening the data, 802 surveys from 301 males (37.5%) and 501 females (62.5%) from nine universities in southern, central, and northern Taiwan were used for the EFA.

Instruments

The instrument for this study is a questionnaire consisting of Likert-type scale items and several demographic items. The questionnaire was created by eliciting strategies used by students through both qualitative research—writing prompts and interviews—and by borrowing from the SILL. For the writing prompts, learners were asked to write down strategies they use for grammar, vocabulary, reading, writing, speaking, and listening. Learners were given a lead-in of "*I often/usually/always* ___" and asked to circle a frequency before writing in a strategy. Learners were free to write down any strategies they could think of that applied to that language skill. There were two prompts per language skill, but learners were encouraged to write as many or as few as they desired.

Initial writing prompt data used to generate the finalized questionnaire was gathered from 414 learners (126 males, 288 females) from five universities in southern, central, and northern Taiwan. Additional data concerning grammar strategies was collected from an additional 292 learners (105 males, 187 females) from six universities. As Oxford (1990) noted, "learners who are more aware and more advanced seem to use better strategies" (p. 13). Thus, in order to isolate only the strategies used by the best language learners only responses from participants who self-rated themselves as being at an intermediate level or above were utilized in the analysis, resulting in 574 respondents from six universities in Taiwan.

Additionally, a semi-structured interview guide—similar to the writing prompts, with additional follow-up questions concerning where, when, how, and why strategies were used—was used to elicit further data about the learners' strategies. Thirty students (6 males, 24 females), identified as highly proficient by their instructors, from three universities in central and northern Taiwan were interviewed. All interviews were performed in Mandarin, the participants' L1, and audio recorded. These recordings were transcribed and entered into MAXQDA 12 for analysis in order to generate the final questionnaire. A pilot study for the final questionnaire was performed with 58 learners at a private university in central Taiwan. These learners were 20 males and 38 females with an average age of 20.3 years. Every scale item had a mean of above 3.00 (on a 6.00 scale), and the scale had an overall mean of 3.78. Pearson inter-item correlations ranged from -.376 to .884 with an average of $r = .312$. A reliability analysis yielded a Cronbach's α of .967 and a Spearman-Brown

split-half coefficient of .900, both indicating very high reliability. Although several items had overall low correlations with the scale as a whole (Item 5: .150; Item 19: .268; Item 21: .383; Item 27: .301; Item 37: .327; Item 49: .243), given the overall high reliability and that the reliability of the scale would not be improved by their deletion, it was felt that it was best to keep these items in the questionnaire to see the results of the factor analysis. Several minor changes in wording and formatting were made based upon feedback from the pilot study.

Data Collection Procedures

Data collection using the final questionnaire was performed by instructors who volunteered to help by administering the questionnaire to their students. Most respondents finished the questionnaire in 10 minutes, and all respondents finished with 20 minutes. The finished questionnaires were collected intact by the instructors and returned to the first author. Questionnaire data was entered into Microsoft Excel and then imported into SPSS 25 for analysis.

Data Analysis

Qualitative coding.

The qualitative data elicited from both interviews and writing prompts was analyzed using a grounded theory approach (Saldaña, 2013). Strauss and Corbin's (1998) coding system was used to analyze and code the data in MAXQDA 12 using open, axial, and selective coding to identify, cross-compare, and subsume elicited data into core categories of strategies. The coding was performed by the second author. Because interviews and writing prompts elicited primarily direct strategies, the indirect strategies from a Chinese version of the SILL (Liao, 2000) were incorporated into the questionnaire alongside the learner-generated strategies. The combined data creates a better questionnaire capable of collecting good data about Taiwanese language learners' strategies.

Quantitative data analysis.

All quantitative data from the final questionnaire was imported into SPSS 25 for analysis. Several data screening procedures were conducted to eliminate incomplete or otherwise inappropriate responses, and

multiple imputation was performed (Hair, 2014) for missing variables. Finally, with the completed dataset, descriptive statistics were calculated and an EFA was performed in order to delineate the factors underlying Taiwanese students' language learning strategy use.

RESULTS

Data collection resulted in a total of 802 completed surveys from nine private and national universities in southern, central, and northern Taiwan that were returned for analysis. These 802 cases consisted of 301 from males (37.5%) and 501 from females (62.5%). Respondents were aged 18-26 (M = 19.6) and were both English and non-English majors. Respondents were also of varying proficiencies, as can be seen in Table 4.1. In order to narrow the dataset to the best language learners (Oxford, 1990), only those students who identified themselves as of lower-intermediate proficiency and above were selected for the EFA dataset, resulting in 575 cases.

Table 4.1

Respondents' Self-reported Proficiency Level

	N	**%**
Advanced	63	7.9
Intermediate	324	40.4
Lower-intermediate	188	23.4
Beginner	141	17.6
Elementary	86	10.7

Of these 575 surveys, 198 (34.4%) were from males, and 377 (65.6%) were from females. This dataset included 250 freshmen (43.5%), 178 sophomores (31.0%), 81 juniors (14.1%), and 66 seniors (11.5%). This dataset had a Cronbach's α of .969 and a Spearman-Brown coefficient of .904, showing that the data was highly reliable. These surveys produced 45 learner-generated strategies which had a Cronbach's α of .952 and a

Spearman-Brown coefficient of .899. Similarly, the 21 indirect strategies borrowed from the SILL had a Cronbach's α of .938 and a Spearman-Brown coefficient of .899. Means for the 66 items ranged from 2.67 to 5.14 (M = 4.16, SD = 1.26).

Exploratory Factory Analysis

Indirect factors.

Given that the indirect strategies in the instrument were drawn from the SILL (Oxford, 1990) and not generated by the qualitative survey respondents, it was decided to explore and analyze them separately from the learner-generated strategies so that future research could investigate indirect strategies generated by learners. For the EFA, the maximum likelihood method was used with an eigenvalue of 1 and oblique rotation; coefficients were suppressed at the .5 level (Hair, 2014). This resulted in three factors with only one cross-loading, as shown in Tables 4.2-4.5.

Table 4.2

Initial Pattern Matrix for Indirect Strategies

Item	Factor 1	Factor 2	Factor 3
45	.534		
46	.538		
51	.701		
54	.584		
58	.644		
59	.760		
60	.536		
49		.741	
50		.530	
53		.689	
61		.555	.458
63			.646
64			.720
65			.668

The first factor (Table 4.3) includes affective, social, and metacognitive strategies for problem solving: relaxing when afraid, encouraging oneself to use English despite making mistakes, asking for help, noticing mistakes made in English, and figuring out how to be a better learner. Thus, this first factor is labeled Problem-Solving strategies. Although similar to the second factor, no items from this first factor cross-loaded onto the second factor, and the strategies themselves seem to focus more on solving problems in English learning than dealing with one's feelings about learning English.

Table 4.3

Rotated Factor Matrix for Indirect Strategies Factor 1, Problem-Solving Strategies

Item	Loading	Description
45	.534	I try to relax whenever I feel afraid of using English.
46	.538	I encourage myself to speak English even when I am afraid of making a mistake.
51	.701	If I do not understand something in English, I ask the other person to slow down or say it again.
54	.584	I ask for help from English speakers.
58	.644	I notice my English mistakes and use that information to help me do better.
59	.760	I pay attention when someone is speaking English.
60	.536	I try to find out how to be a better learner of English.

The second factor (Table 4.4) has two affective strategies and a social strategy from the SILL. Thus, this factor is labeled Socio-affective strategies. It should be noted that a fourth strategy, item 61, cross-loaded onto this factor at .555. However, that metacognitive strategy did not seem to fit with the other three strategies. Further analysis showed that this fourth strategy had a much higher correlation with the other metacognitive

strategies in factor 3, so it was decided to include this fourth strategy in the third factor rather than throw it out entirely.

Table 4.4

Rotated Factor Matrix for Indirect Strategies Factor 2, Socio-affective Strategies

Item	Loading	Description
49	.741	I write down my feelings in a language learning diary.
50	.530	I talk to someone else about how I feel when I am learning English.
53	.689	I practice English with other students.

The final factor (Table 4.5), which is made up entirely of metacognitive strategies from the SILL, pertains to planning and having goals for learning English. Since the correlation coefficients of Item 61 with Items 63 (.584), 64 (.486), and 65 (.529) were reasonably high, it was decided to move this strategy onto the third factor. This factor is labeled Metacognitive Strategies.

Table 4.5

Rotated Factor Matrix for Indirect Strategies Factor 3, Metacognitive Strategies

Item	Loading	Description
61	.458	I plan my schedule so I will have enough time to study English.
63	.646	I look for opportunities to read as much as possible in English.
64	.720	I have clear goals for improving my English skills.
65	.668	I think about my progress in learning English.

Direct factors.

These strategies, which were generated by respondents, were analyzed with maximum likelihood extraction, an eigenvalue of 1, and oblique rotation. Additionally, coefficients were suppressed below the .4 level (Ford et al., 1986) because some strategies loading at the .4 level were felt to be integral to the strategy factors. The resulting pattern matrix resulted in five factors with no cross-loadings, as can be seen in Tables 4.6-4.11.

Table 4.6

Initial Pattern Matrix for Direct Strategies

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
21	.699						
22	.638						
24	.429						
27	.697						
28	.738						
29	.466						
36	.650						
37	.634						
38	.572						
39	.476						
44	.636						
1		.819					
2		.800					
3		.808					
4		.627					
7		.456					
14		.403					
16		.594					
17		.721					
18		.670					
9			.567				
10			.474				
26			.716				
27			.762				
31			.697				
32			.594				
6				.553			
13				.565			
20				.520			
66				.538			
10					.651		
11					.818		
15					.554		
40						.860	
42						.784	
33							.714
34							.707

The strategies in the first direct factor (Table 4.7) seem to focus on improving English skills, particularly on improving the production of English. Indeed, most would be considered speaking, vocabulary, or writing strategies. This factor was labeled Production Strategies.

Table 4.7

Rotated Factor Matrix of Direct Strategies Factor 1, Production Strategies

Item	Loading	Description
21	.699	In order to improve my English skills, I speak English with classmates.
22	.638	In order to improve my English skills, I find opportunities to speak English with foreigners.
24	.429	In order to improve my English skills, I find opportunities to use oral practice repeatedly to learn and use English words.
27	.697	In order to improve my English skills, I use word cards to learn English words.
28	.738	In order to improve my English skills, I group new words, such as the part of the word, the root of the word, etc., to learn English words.
29	.466	In order to improve my English skills, I find opportunities to use new vocabulary or phrases in spoken dialogue.
36	.650	In order to increase the opportunities of writing in English, I use English to write letters, cards, emails, or send messages.
37	.634	In order to increase the opportunities of writing in English, I try to use English to write diary, personal notes, journals, etc.
38	.572	In order to improve my English grammar skills, I review or practice English writing.
39	.476	In order to improve my English skills, I find opportunities to use handwriting exercises repeatedly to learn and use English words.
44	.636	I improve my English skills by participating in English activities, such as book clubs, summer camps, English camps, etc.

The strategies in the second direct factor (Table 4.8) all focus on aiding the learners during direct face-to-face communication. Thus, this factor is labeled Face-to-face Communication Strategies.

Table 4.8

Rotated Factor Matrix of Direct Strategies Factor 2, Face-to-face Communication Strategies

Item	Loading	Description
1	.619	In order to help me understand when they speak English, I observe other people's body language, facial expressions, tones, etc.
2	.800	When I cannot understand other people when they speak English, I ask them to speak slowly or repeat themselves.
3	.808	When I cannot understand other people when they speak English, I ask them to use easier words to express themselves.
4	.627	When I cannot understand other people when they speak English, I use the part of the text I can understand to guess they are saying.
7	.456	I try to use keywords to help me understand others when they speak English.
16	.594	In order to help others understand me when I speak English, I use body language, facial expressions, tones, etc.
17	.721	In order to help others understand me when I speak English, I speak slowly or repeat myself.
18	.670	In order to help other people to understand me when I speak English, I use simpler words to express myself.

The strategies in the third direct factor (Table 4.9) deal with using apps and online tools to improve one's English skills or to translate between Chinese and English. It is likely that Item 27 refers more to online dictionaries or apps than paper dictionaries; similarly, Item 32 likely also references translation tools and dictionaries online or on a smartphone

rather than paper dictionaries. Given the nature of these strategies, this factor is labeled Technology Use Strategies.

Table 4.9

Rotated Factor Matrix of Direct Strategies Factor 3, Technology Use Strategies

Item	Loading	Description
9	.567	In order to improve my English grammar skills, I use computer or smartphone grammar apps.
10	.474	I go online to find answers to learn and/or confirm the English grammar.
26	.716	In order to improve my English vocabulary skills, I use computer or smartphone apps to learn English words.
27	.762	I check the paper or online dictionaries to learn English words.
31	.697	In order to improve my English communication and expression skills, I use translating tools or dictionaries.
32	.594	I use translation tools or dictionaries to learn and apply English grammar.

The four strategies in Table 4.10 pertain to listening to music or multimedia broadcasts. An attempt was made to integrate these four strategies with those in Factor 3; however, regardless of extraction or rotation method, these factors consistently loaded onto separate factors, with cross-loadings only appearing in small coefficients. Thus, this factor was deemed to be separate from Technology Use and was labeled Multimedia Use Strategies.

Table 4.10

Rotated Factor Matrix of Direct Strategies Factor 4, Multimedia Use Strategies

Item	Loading	Description
6	.553	In order to improve my English skills, I listen to music or songs.
13	.565	In order to improve my English skills, I watch English TV shows or online videos, such as movies, dramas, news, reports, etc.
20	.520	I try to imitate the speakers' ways or speaking or tones on English TV shows, movies, dramas, online movies or English broadcasts.
66	.538	I apply English I learn from English TV programs, movies, dramas, online videos or English broadcasts.

The final direct factor (Table 4.11) initially looks to be reading strategies. However, Items 10 and 11 pertain more to grammar strategies via reading, are quite similar, and correlate with each other highly at .691. While it may be advisable to reduce the factor to two variables or delete it, it was felt prudent to keep the strategies separate, given their different loadings, and label this factor Grammar and Reading Strategies.

Table 4.11

Rotated Factor Matrix of Direct Strategies Factor 5, Grammar and Reading Strategies

Item	Loading	Description
10	.651	In order to improve my English grammar skills, I read grammar books or articles.
11	.818	I learn and apply English grammar by reading English books or articles.
15	.554	In order to increase the opportunities of reading English, I read paper or online articles, magazines, reports, etc.

DISCUSSION

In reference to research question 1, this study found eight factors underlying Taiwanese university students' EFL learning strategy usage; three of these are indirect strategy factors and five are direct strategy factors.

Indirect Factors

The three indirect strategy factors are made up of strategies borrowed from the SILL (Oxford, 1990); however, these were latent factors that do not correlate one-to-one with the three indirect factors in the SILL. Whereas the SILL was broken up into Social, Affective, and Metacognitive strategies, the current study found support for Problem Solving, Socio-affective, and Metacognitive strategies. The Problem Solving strategies are a mix of affective, social, and metacognitive strategies that help learners to overcome obstacles during communication or learning English. Additionally, the Socio-affective strategies are both affective and social strategies that help students communicate with others and deal with their feelings. Finally, the Metacognitive strategies aid

learners in planning for their learning, setting goals, and evaluating their progress in English.

These results are similar to those of Oxford (1990). However, Oxford delineated between Social and Affective strategies, whereas O'Malley and Chamot (1990) grouped them together, as was seen here in Factor 2, Socio-affective strategies. Factor 1, Problem Solving strategies, are similar to Oxford's Compensation strategies; however, Oxford's strategies were direct strategies, whereas these strategies, while also focusing on compensation, more clearly evolve from a need to solve problems related to using English and are indirect strategies.

These results are different to those found in Wu and Chang (2018), who surveyed Taiwanese high school males and reclassified the SILL indirect strategies into four factors: Social, Affective, and Metacognitive types I and II. While there is some overlap between the results of that study and the current study, most of the strategies in the current study are either not represented in Wu and Chang's study or are spread among their four factors with no clear overlap. It is likely that these factors differ given the populations of the studies.

These results also differ from those of Yang (1999) and Shih and Huang (2020). While two of the metacognitive items (Items 63 & 64) are also found in Yang's Metacognitive strategies, the other two are not. Similarly, Shih and Huang found that Taiwanese university students used five major metacognitive strategies: planning, self-monitoring, self-evaluation, directed attention, and selective attention. While some of the strategies are similar—e.g., planning and self-monitoring strategies—the others, such as directed and selective attention, were not represented in the current study. It may be that those metacognitive strategies are particular to flipped classrooms or the MOOC employed in Shih and Huang's study, both of which are sociocultural contexts much more specific than the more generalized sociocultural context in the current study.

Direct Factors

The five direct factors include learner-generated strategies and are a mix of strategies across the four language skills, vocabulary, and grammar. The first factor, Production strategies, focuses on helping learners to improve their English skills and increasing their vocabulary for better English production. The second factor, Face-to-face Communication strategies, are a mix of listening and speaking strategies that aid learners

in communicating with other speakers in direct or face-to-face communication. These two factors are similar to the Functional Practice strategies found by Yang (1999). While those 15 items were one factor in Yang's study, they are here broken into two factors, and several items have been removed or moved to other factors. While the subjects of both Yang's study and the current study are similar, the difference may be due to the 20-year difference between the studies and the evolution of language learning pedagogy and methodology.

The third factor, Technology Use strategies, has six grammar and vocabulary strategies that pertain to learners using smartphone apps or online tools in order to learn and improve their English. This was differentiated from the fourth factor, Multimedia Use strategies, which has four strategies pertaining to using music and other broadcast media to improve one's English. While these two factors are similar, no extraction or rotation method allowed these strategies to load onto the same factor at any significant level. It may be that Taiwanese learners view music, TV, and other broadcast media as older technology, different from smartphone apps and online tools. Further investigation into these factors with more qualitative data may reveal more detailed differences between these factors.

The fifth factor, Grammar and Reading strategies, contains three strategies for improving one's grammar and reading skills. While two of the strategies in this factor are similar in their wording, their loadings are far enough apart and their correlation to one another is not so high that it warrants merging them into one factor. It may be that this factor is specific to more advanced learners, reading and grammar being more advanced skills for EFL learners.

These results mirror those of Wong and Nunan (2011) who found that more effective learners preferred communicative or analytical learning styles and strategies as opposed to less effective learners, who preferred a more authority-oriented style of learning. Indeed, some of the strategies favored by the more effective learners in that study were similar to strategies found in the current study. Wong and Nunan note that these results show that effective learners are "field independent and active in their approach to learning" (p. 152).

However, these results are quite unique when compared to previous studies done in Taiwan. This is likely because every previous study has employed only the SILL and most did not employ EFA. No other factor analysis of the SILL, adaptation of the SILL, or other language learning

strategy survey questionnaire has found these strategies within factors such as in the present study. Even those that have adapted the SILL for more modern usage (Amerstorfer, 2018) have simply found further support for the SILL taxonomy. In one study seeking to refactor the SILL, Ardasheva and Tretter (2013) adapted it for grade school ESL learners in the USA. This resulted in 28 items for the new SILL-ELL. However, these 28 items were still grouped into the original six SILL factors.

Thus, comparison between these results and previous studies is difficult, as this study is a new formulation of language learning strategies in a specific sociocultural context. That even the strategies incorporated from the SILL resulted in new latent factors lends support to Oxford's (2017) claim that strategies are fluid and may serve different roles depending on the context.

CONCLUSION

This study set out to investigate the English LLSs used by Taiwanese university students. A questionnaire was constructed from qualitative data gathered from 736 Taiwanese university students through both writing prompts and interviews. These data were coded and analyzed through a grounded theory approach and distilled into 45 direct strategies. These were supplemented with the 21 indirect strategies from the SILL (Oxford, 1990). These 66 items were organized and arranged into a questionnaire that was administered to Taiwanese university students at nine private and national schools across Taiwan. While 802 completed and valid surveys were returned, only those that came from intermediate-level students or above (N = 575) were used for the EFA.

The EFA was conducted in two parts. The first EFA on the 21 indirect SILL strategies revealed three latent factors: (1) Problem Solving: seven social, affective, and metacognitive strategies that pertain to solving problems when communicating or learning English; (2) Socio-affective: three affective and social strategies that pertain to communicating about one's feelings when learning English; and (3) Metacognitive: four metacognitive strategies that deal with planning for learning English and evaluating one's progress and goals.

The EFA on the 45 direct learner-generated strategies yielded five distinct factors: (1) Production: 11 speaking, vocabulary, and writing strategies that focus on the improvement of English skills through the production of English; (2) Face-to-face Communication: seven listening,

reading, and speaking strategies that aid learners in communicating with others; (3) Technology Use: six grammar and vocabulary strategies that focus on using apps and online tools to improve grammar, vocabulary, and communication; (4) Multimedia Use: four varied strategies that focus on using music and video to improve one's English; and (5) Grammar and Reading: three strategies that aid learners in improving their grammar and reading skills.

These eight factors and their 46 strategies have been organized into the TILLS version 1.0, (Appendix A). This questionnaire can be used with Taiwanese university students either in place of or along with the SILL. This study concludes with a discussion of the pedagogical implications and limitations of the current study and recommendations for future research.

IMPLICATIONS

The major findings of the study hold both theoretical and pedagogical implications. The findings of the EFA and its eight factors provide a dynamic view of how different strategies emerge and how similar strategies may be used in different ways or serve different roles based on the particular sociocultural context of a language learning situation (Oxford, 2017). The findings show that the factors cut across different language skills. These findings clearly indicate that strategy factors are not necessarily skill-dependent or tied to specific areas of language learning.

EFL teachers should be aware of their learners' strategy use regardless of the questionnaire(s) used. Because strategy use is rooted in and based on a learner's culture (Bedell & Oxford, 1996; Donato & McCormick, 1994), those teaching classes of mixed-nationality students must understand that a more generalized questionnaire like the SILL will likely provide better, although more general results. Similarly, those teaching monocultural classrooms should use the SILL with caution as it was not created for the specific sociocultural context in which they teach. Taiwanese EFL teachers, particularly those at the university level, are encouraged to use the TILLS alongside the SILL or other instruments, as they will provide different strategies and factors as well as allow those teachers to see the different roles that similar strategies may play in the Taiwanese educational context.

LIMITATIONS

There are some limitations in this study. The first limitation is that primarily only direct strategies were gathered during the qualitative data collection phase, thus necessitating the inclusion of the indirect strategies from the SILL. Future research may revisit this limitation, formulating questions that elicit both direct and indirect strategies, perhaps with guidance from those strategies in the SILL that were already used, but also employing purposeful qualitative methodologies to gather novel data. Such research could transform the TILLS into a survey that could stand on its own and would not necessarily need to complement the SILL or other questionnaires.

Another limitation is that it is still a self-report questionnaire and is therefore limited to assuming that respondents are answering honestly. Cohen (2011) notes that respondents may be answering the survey questions according to how they *think* they should behave rather than answering according to how they *actually* behave. The authors feel that they have done their best to mitigate this by basing the questionnaire on qualitative data in order to more accurately reflect strategies used by the population.

RECOMMENDATIONS FOR FUTURE RESEARCH

The findings of this study indicate several areas for future research: (1) follow-up studies to verify or modify the factor structure of the TILLS, (2) more studies both inside and outside Taiwan to discover latent variables and learning strategies, (3) more studies both inside and outside Taiwan to formulate new learning strategy scales, and (4) more studies to examine other factors that impact learners' learning strategies.

First, the factor structure of the TILLS is quite preliminary, with several strategies and three strategy factors coming from the SILL. Future research should expand the scope of the qualitative data collection in order to collect learners' indirect strategies and integrate them with the learner-generated direct strategies. However, the current TILLS model is quite unique and different from previous studies which have only performed factor analysis on previously established instruments. It provides a fresh look at the strategies used by Taiwanese university students and how they relate to one another in the sociocultural context of Taiwanese universities. However, the complexity and dynamicity of learning strategies and

sociocultural contexts involved in EFL learning can never be comprehensively presented in a model; therefore, future research is needed to fine-tune the current model to best fit the population. Additionally, future research should also use confirmatory factor analysis to verify the TILLS model and ensure its validity and reliability.

To reach this goal, more studies are needed to discover latent factors and learning strategies among different populations in varying sociocultural contexts. Researchers in Taiwan are recommended to continue performing research into language learning strategies with Taiwanese students. Future research in Taiwan should also gather more data in order to delineate the different strategies and strategy factors used by learners of different proficiencies. It is likely that each particular sociocultural milieu lends itself to particular strategies. In the current study, only intermediate-proficiency students and above were used to create the TILLS; while beginner and elementary students may not have many strategies or use them proficiently, there are likely still some strategies present that help them advance beyond their current proficiency level. This should be addressed in order to find out how instructors of these students can best aid their students' progress.

Regardless of instrument, future research should continue to explore Taiwanese learners' English LLSs. While future researchers may not wish to perform factor analysis, they can continue to examine the details of what strategies are used when, why, and how. All information about strategy use helps us as researchers and instructors to modify our pedagogies in order to better teach Taiwanese learners. Outside of Taiwan, researchers and instructors are encouraged to begin data collection and analysis to create more survey instruments. Some work in this area has already begun, e.g., Isemonger (2019). While this is important research, it is even more important for researchers to create their own instruments.

While the SILL can continue to serve as a general purpose questionnaire, new questionnaires based on new sociocultural contexts should be devised (Huang, 2015). Alongside the TILLS, we may soon see the creation of other language learning strategy questionnaires for EFL/ESL learners around the globe. Future studies can create new forms of existing instruments or create new instruments based on qualitative data (Oxford, 2017; Takeuchi, 2019). It is hoped that the current study provides the impetus for further qualitative-based work in other contexts.

Finally, future research should examine other variables that impact learners' LLSs. Cohen (2010) noted that motivation is key to determining

how efficiently language learners learn an L2, and previous research has shown that learning strategies are linked to motivation (Khamkhien, 2010; Lan & Oxford, 2003; MacIntyre & Noels, 1996; Oxford & Nyikos, 1989). Autonomy has also been linked to LLSs and motivation (Chang & Geary, 2015; Chen & Pan, 2015; Chiang, 2012; Scharle & Szabó, 2000), and Littlewood (1997) has noted that learning strategies are one way in which autonomy in language learning is demonstrated. As such, future research should examine the role of motivation, autonomy, and other factors that impact learning strategy use.

CONCLUDING REMARKS

Future questionnaires and instruments based on rich, contextual information from learners in particular situations and working on particular tasks, opens up LLS research to a new realm of possible data elicitation and specialized questionnaires that can provide teachers and learners insights into strategy use in particular contexts. Quantitative and qualitative methodologies both have their place in research, and they obtain different measures of learners'—and teachers'—LLS use. They can also be employed in varied contexts to gather richer data and deeper insights into learning strategy employment.

It is clear that after 30 years of research, the LLS field is ready to move on from generalized strategy questionnaires towards more contextually situated and socioculturally appropriate measures. Rich qualitative data based on particular sociocultural contexts should form the basis of future language learning strategy research and can also provide the foundation for future quantitative research, satisfying researchers favoring both methodological backgrounds while also resulting in mixed-methods analysis and triangulation that provides more accurate insights into language learning strategy use.

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APPENDIX

Appendix A. The TILLS version 1.0

Please read each question carefully and answer honestly. There are no right or wrong answers to this questionnaire. This is not a test. We want you to respond to the questionnaire as accurately as possible, reflecting your own attitudes and behaviors. Use the scale below to answer the questions. If you think a statement is very true of you, circle 6; if a statement is not at all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 6 that best describes you. Please answer all questions.

1 2 3 4 5 6
not at all true of me very true of me

Item	Description	Scale
1.	I try to relax whenever I feel afraid of using English.	1 2 3 4 5 6
2.	I encourage myself to speak English even when I am afraid of making mistakes.	1 2 3 4 5 6
3.	If I do not understand something in English, I ask the other person to slow down or say it again.	1 2 3 4 5 6
4.	I ask for help from English speakers.	1 2 3 4 5 6
5.	I notice my English mistakes and use that information to help me do better.	1 2 3 4 5 6
6.	I pay attention when someone is speaking English.	1 2 3 4 5 6
7.	I try to find out how to be a better learner of English.	1 2 3 4 5 6
8.	I write down my feelings in a language learning diary.	1 2 3 4 5 6
9.	I talk to someone else about how I feel when I am learning English.	1 2 3 4 5 6
10.	I practice English with other students.	1 2 3 4 5 6
11.	I plan my schedule so I will have enough time to study English.	1 2 3 4 5 6

12.	I look for opportunities to read as much as possible in English.	1 2 3 4 5 6
13.	I have clear goals for improving my English skills.	1 2 3 4 5 6
14.	I think about my progress in learning English.	1 2 3 4 5 6
15.	In order to improve my English skills, I speak English with classmates.	1 2 3 4 5 6
16.	In order to improve my English skills, I find opportunities to speak English with foreigners.	1 2 3 4 5 6
17.	In order to improve my English skills, I find opportunities to use oral practice repeatedly to learn and use English words.	1 2 3 4 5 6
18.	In order to improve my English skills, I use word cards to learn English words.	1 2 3 4 5 6
19.	In order to improve my English skills, I group new words, such as the part of the words, the root of the words, etc. to learn English words.	1 2 3 4 5 6
20.	In order to improve my English skills, I find opportunities to use new vocabulary or phrases in spoken dialogue.	1 2 3 4 5 6
21.	In order to increase the opportunities of writing in English, I use English to write letters, cards, emails, or send messages.	1 2 3 4 5 6
22.	In order to increase the opportunities of writing in English, I try to use English to write diary, personal notes, journals, etc.	1 2 3 4 5 6
23.	In order to improve my English grammar skills, I review or practice English writing.	1 2 3 4 5 6
24.	In order to improve my English vocabulary skills, I find opportunities to use handwriting exercises repeatedly to learn and use English words.	1 2 3 4 5 6
25.	I improve my English skills by participating in English activities, such as book clubs, summer camps, English camps, etc.	1 2 3 4 5 6
26.	In order to help me understand when they	1 2 3 4 5 6

	speak English, I observe other people's body language, facial expressions, tones, etc.,	
27.	When I cannot understand other people when they speak English, I ask them to speak slowly or repeat themselves.	1 2 3 4 5 6
28.	When I cannot understand other people when they speak English, I ask them to use easier words to express themselves.	1 2 3 4 5 6
29.	When I cannot understand other people when they speak English, I use the part of the text I can understand to guess they are saying.	1 2 3 4 5 6
30.	I try to use keywords to help me understand others when they speak English.	1 2 3 4 5 6
31.	In order to help others understand me when I speak English, I use body language, facial expressions, tones, etc.,	1 2 3 4 5 6
32.	In order to help others to understand me when I speak English, I speak slowly or repeat myself.	1 2 3 4 5 6
33.	In order to help others understand me when I speak English, I use simpler words to express myself.	1 2 3 4 5 6
34.	In order to improve my English grammar skills, I use computer or smartphone grammar apps.	1 2 3 4 5 6
35.	I go online to find answers to learn and/or confirm the English grammar.	1 2 3 4 5 6
36.	In order to improve my English vocabulary skills, I use computer or smartphone apps to learn English words.	1 2 3 4 5 6
37.	I check the paper or online dictionaries to learn English words.	1 2 3 4 5 6
38.	In order to improve my English communication and expression skills, I use translating tools or dictionaries.	1 2 3 4 5 6
39.	I use translation tools or dictionaries to learn and apply English grammar.	1 2 3 4 5 6

40.	In order to improve my English skills, I listen to music or songs.	1 2 3 4 5 6
41.	In order to improve my English skills, I watch English TV shows or online videos, such as movies, dramas, news, reports, etc.	1 2 3 4 5 6
42.	I try to imitate the speakers' ways of speaking or tones on English TV shows, movies, dramas, online movies or English broadcasts.	1 2 3 4 5 6
43	I apply English I learn from English TV programs, movies, dramas, online videos or English broadcasts.	1 2 3 4 5 6
44.	In order to improve my English grammar skills, I read grammar books or articles.	1 2 3 4 5 6
45.	I learn and apply English grammar by reading English books or articles.	1 2 3 4 5 6
46.	In order to increase the opportunities of reading English, I read paper or online articles, magazines, reports, etc.	1 2 3 4 5 6