VALIDATION OF THE ORAL INTERACTION STRATEGY SCALE FOR SPEAKERS OF CHINESE AS A FIRST LANGUAGE IN ELEMENTARY SCHOOLS

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Abstract

This study validated the Oral Interaction Strategy Scale (OISS) for speakers of Chinese as a first language in elementary schools. The OISS measures students' perceptions of how frequently they use interaction strategies of Chinese as a first language (L1 Chinese). The study involved two studies. In the first study, among 642 pupils, we identified seven categories of interaction strategies in Chinese communication. In the second study, among another 678 pupils, the seven-dimension structure was confirmed. Besides, a second-order factor of interaction strategies was established and the relative importance of each first-order factor to the second-order factor was also examined. The implications for further studies are discussed.

Keywords: assessment; Chinese as a first language; confirmatory factor analysis; interaction strategy; oral communication

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1. INTRODUCTION

Human beings inherently possess a deep-seeded need to communicate with others; the abler one is to do so, the more rewards one will receive in life (Hargie, 2011). From an early age, children with greater oral communication competence are more likely to both receive attention from teachers and win peer friendship, thereby developing a greater possibility of obtaining better academic achievement (McClelland, Acock & Morrison, 2006). The rewards of successful communication can even continue in life after school. The importance of oral communication competence to pupils' in-school and after-school life has been widely appreciated in Western education systems (Hargie, 2011) and, more recently, in Confucianism-dominated education systems in which *silence* has usually been preferred over *eloquence* (Fang & Faure, 2011). This new focus on oral communication is reflected in Chinese as a first language (L1 Chinese) curriculum and assessment in Hong Kong, Mainland China, and in the Advanced Chinese (as a mother tongue) curriculum in Singapore (Ministry of Education of the People's Republic of China, 2011; Mother Tongue Languages Review Committee, 2011; Zhu, 2010, 2014a, 2016a). It is believed that, through teaching, learning and assessing communicative strategies in classrooms, pupils' oral communication competence can be cultivated and then transferred to learning in other courses (HKSAR Education Bureau, 2014).

In the Hong Kong Special Administration Region, Chinese oral communication competence has been included in the elementary education curriculum as one of the Nine Common Abilities that pupils should master (HKSAR Education Bureau, 2014). This trend is also reflected in the Territory-wide System Assessment (TSA) in Hong Kong (Hong Kong Examinations and Assessment Authority, 2007-2011). The speaking test L1 Chinese assessment for primary students in the TSA includes three parts: telling a story based on a diagram, oral report and group discussion. In the group discussion, three students are given a topic and asked to prepare for one minute and then discuss in a group for three minutes. According to recent TSA results, however, Hong Kong primary students' performance generally does not satisfy the basic standards of the assessment. For instance, they were found unable to clearly express ideas and concepts, to elaborate in content, to respond effectively to others' opinion (Hong Kong Examinations and Assessment Authority, 2007-2011).

It is necessary to have assessment tools to help diagnose the strengths and weaknesses of Hong Kong primary students in using these interaction strategies in the L1 Chinese context, so as to facilitate the field's understanding, teaching and learning of these interaction strategies (Zhu, Liao, Wu & Wo, 2015). Nevertheless, there is a lack of such a scale particularly catering for this need from the field of L1 Chinese assessment.

Given this recent emphasis on communication competence in Chinese language curriculums (Zhu, 2014a) and the appreciated importance of communicative interaction strategies (Pawlak, 2015), it is surprising that research investigating what these interaction strategies are and what indicators may best depict them has been

largely neglected. Compared to the inertness in L1 Chinese assessment research, second language acquisition research focusing on interaction strategies and the availability of quite a few inventories (e.g., Celce-Murcia, Dörnyei & Thurrell, 1995; Dörnyei & Scott, 1997; Kasper & Kellerman, 1997; Nakatani, 2006; Tarone, 1981) possesses a dynamic atmosphere. To develop a list of L1 Chinese interaction strategies, borrowing from second language acquisition studies could be a convenient way, as much research has shown the overlap between first language (L1) and second or foreign language (L2) ability (Cook, 2003; Foucart & Frenck-Mestre, 2011). However, direct transference of these strategies to Confucian L1 Chinese context is deemed insufficient for several reasons. Firstly, although the volume of research in second language acquisition has provided quite a few inventories of these strategies, different inventories focus on different aspects of communication strategies and no single inventory is exhaustive. This makes it necessary to provide an overview of these strategies and provide a customized list appropriate for L1 Chinese context. The second reason relates to the lack of consensus in regard to the definition of particular strategies. In different inventories, strategies with the same label might well refer to different things. For instance, *repairing* in Tarone (1980) refers to reparation of both language forms and meaning, whereas in Bejarano, Levine, Olshtain & Steiner (1997), *repairing* refers only to reparation of language forms. Therefore, a redefined inventory that clearly defines the nuances of these presumably transferrable interaction strategies is indispensable. Moreover, most of these inventories were developed based on intervention studies using the interlocutrice approach. At this juncture, a psychometric study that can examine the construct validity of these L2 interaction strategies would be most insightful. This validation becomes even more important if one intends to transfer these findings in second language acquisition to the L1 Chinese context. In real oral communication, there is a difference between L1 and L2 language proficiency requirements. Therefore, it would be reasonable to expect that interaction strategies used in L1 would be more meaning-focused (Zhu, 2014b) while those used in L2 would be more language form-focused (Færch & Kasper,1984). Similarly, L1 speakers would be more likely to use strategies relevant to advanced thinking skills, such as evaluating and arguing (*Type I strategies* or *target-at-more strategies*), in order to achieve more fluent and in-depth communication (Zhu, 2016b). L2 speakers, on the other hand, would be more likely to focus on language features particular to the target language (e.g., linguistic knowledge and cultural schema; Bachman & Palmer, 2010). Therefore, they would be more likely to reduce their communication expectations and be forced to use strategies relying on lower-level thinking skills such as remembering and repeating (*Type II strategies* or *make-do strategies*), which merely help them "make do" in regard to the basic comprehension involved in oral communication.

Aside from the aforementioned concerns, most inventories of L2 communication strategies are developed based on learners of English as a foreign language, whose culture heritages are usually perceived to be different from L1 Chinese learners in Confucianism-dominated countries or regions such as mainland China and Hong

Kong (Fang & Faure, 2011). Therefore, simply adapting these communication strategies from L2 studies would not be able to cater for the particular need for oral communication in the Confucian context. The purpose of this study is hence to develop and validate an interaction strategy use scale to cater for L1 Chinese speakers in Confucian context. The study draws on findings from L2 oral interaction strategies and insights from L1 Chinese communication research. It is expected that the results of the study can be used as a reference for L1 Chinese oral communication assessment and for the design of classroom teaching and learning in Hong Kong and other regions and countries.

2. LITERATURE REVIEW

2.1 Concept of Interactive Communication Strategy

Defining interactive communication strategies would be a hard task without referring to terminology such as communicative competence, strategic competence and learning strategies. The term *communicative competence* was originally introduced to the field of linguistic studies by Hymes (1972), to refer to "the knowledge and usage of language in the way that is suitable for the communicative situation" (p. 71). Hymes' view of language ability as the function of linguistic and pragmatic knowledge was later expanded by applied linguists Canale and Swain (1980) and Canale (1983). Their contributions involve metacognitive and cognitive strategies that speakers use to compensate for communication when linguistic and pragmatic knowledge break down. Drawing upon Canale and Swain (1980) and Canale (1983), Bachman and Palmer conceptualize these metacognitive and cognitive strategies as strategic competence, together with linguistic and pragmatic components, and formulate the well-regarded language testing model of Communicative Language Ability (Bachman, 1990; Bachman & Palmer, 2010). This communicative competence in regard to language testing, however, is regarded as insufficient in capturing all language behaviors learners encounter within a learning context. In second language acquisition, for instance, this strategic competence is labeled as learning strategies and extended to contain another component of communication strategies (Celce-Murcia et al., 1995).

In the Longman Dictionary of Language Teaching and Applied Linguistics (Richards & Schmidt, 2009), communication strategies are defined as devices that learners apply to overcome communication problems, so as to achieve their intended communication goal. Its singular form, *communication strategy*, first appeared in Selinker (1972) and was then systematically examined in Varadi (1980). Since the 1980s, there has been a flurry of studies investigating communication strategies in second language acquisition research (Ellis, 2008). Alternative definitions of communication strategies have been proposed (Celce-Murcia et al., 1995; Dörnyei & Scott, 1997; Færch & Kasper, 1983a; Kasper, 2009; Tarone, 1981). According to their research, the definitions provided in the aforementioned studies can be categorized

under two competitive approaches: the psycholinguistic view (e.g., Færch & Kasper, 1983a; Littlemore, 2001) and the interactional view (e.g., Tarone, 1980; Williams, Inscoe & Tasker, 1997).

In the psycholinguistic view, communication strategies are "potentially conscious plans for solving what to an individual presents itself as a problem in reaching a particular communicative goal" (Færch & Kasper, 1983b, p. 36). In this approach, communication strategies are perceived as the mental processes that language users engage in to both circumvent communication pitfalls and express the self. However, communication strategies are not only useful for dealing with difficulties in the production of speech; they can also be applied to assist with comprehension (Mali, 2007). In the interactive view, communication strategies are seen as the "mutual attempt of two interlocutors to agree on a meaning in situations where requisite meaning structures do not seem to be shared" (Tarone, 1980, p. 419). Compared with the psycholinguistic view's emphasis on problem solving, the interactive approach focuses more on strategies that can help them improve negotiation of meaning (Long, 1983) and the overall effectiveness of communication (Nakatani & Goh, 2007). Despite their different foci, both approaches are considered useful for defining and identifying a variety of communication strategies (Maleki, 2010). Meanwhile, in categorizing and selecting particular strategies, this study considers the interaction strategies emphasized by the interactive approach to be more appropriate for the L1 context, given the idea that, in the L1 context, language problems are rarely of major concern and attention is usually given instead to message transmission. Given this concern, this study adopts the interactive view of communication strategies and defines interaction strategies as behaviors pupils utilize to make negotiation of meaning between interlocutors and push the commuincation depth by various approaches such as asking or answering questions, expressing agreement or disagreement, reasoning, evaluating, whose function is beyond solving the problem of communication breakdown and negotiation of meaning that existing strategies tend to do. The next section reviews the interaction communication strategies most often contained in taxonomies in the interactive approach.

2.2 Categories of Interactive Communication Strategies

To date, most studies on L2 communication strategies have drawn upon the two aforementioned approaches in categorizing these strategies, with emphasis on one or the other, or a compromise between them (Pawlak, 2009; Yule & Tarone, 1997). As a detailed overview of these taxonomies is out of our scope, the present discussion only highlights strategies under the integrative approach that emphasize negotiation of meaning. These strategies are best exemplified by research projects undertaken by Tarone (1980), Dörnyei & Scott (1997), Bejarano et al. (1997), Naughton (2006), Nakatani (2006), and Celce-Murcia (2008).

Regardless of the hypothesized appropriateness of these strategies for L1 communication (Ellis, 1984), we are aware that the definitions and taxonomies that

encapsulate these strategies are developed from L2 learners. This origin inevitably attaches a fear of the language rather than enhanced communication to the strategies. This concern is exacerbated when the L2 taxonomies are developed for samples in Western culture, which has generally been perceived to be different from Chinese culture, the latter to which the scale is to be applied. A good example justifying this concern relates to *willingness to speak* in conversation, a precondition of oral communication. In the West, the dominant philosophy is well known for its embrace of eloquence, as defined in the Collins dictionary. Taking this into account, the researchers' assumption that speakers should be able to take good care of themselves to talk actively in any conversation has perhaps led to the absence of relevant strategies in L2 research. In L1 communication contexts, such as China, however, willingness to speak may become a serious concern. In contrast to the Western culture that rewards eloquence, the dominant Confucianism in Chinese culture appreciates silence, as expressed in the Chinese idioms *chen mo shi jin* (*silence is gold*) and *yan duo bi shi* (*he who talks errs much*) (Gao & Ting-Toomey, 1998). Therefore, if the purpose of developing the interaction strategy scale is to encourage oral interactive communication, it would be necessary to enlist indicators that can measure speakers' willingness to speak.

2.3 The Oral Interaction Strategy Scale (OISS)

This section discusses the oral interaction strategies that L1 Chinese pupils use to exchange ideas in group discussions. Although aware of many other strategies identified in L2 and in Chinese communication research, we only focus on *expressing actively*, *asking for opinions, expressing attitude*, *giving clarification, requesting clarification, correcting errors*, and *non-verbal language* in the L1 context, the effects of which on oral communicative competence are empirically documented (see the Appendix; Zhu, 2014b; Zhu, Liao, Wu & Wo, 2015).

i) *Expressing actively* (e.g., item 4, to avoid a communication breakdown, I speak voluntarily when nobody talks). This strategy means speakers do not fear expressing themselves and are willing to risk errors. With this strategy, the speaker would be ready to talk about whatever comes into their mind. As discussed earlier, the role of willingness to express oneself is usually assumed to take care of itself and so this indicator is rarely found in most L2 communication strategy categories. This feature of oral communication, however, needs to be emphasized in Chinese and in L1 language classrooms in Confucianism-dominated communities, such as Hong Kong. If we are to encourage oral communication among pupils in these areas, we would first need to foster their willingness to speak out; if we are to foster willingness to speak out, we need to cultivate strategies among them to break the golden silence that discourages oral communication (Au & Yeung, 2014; Wang & Torrisi-Steele, 2015).

ii) *Asking for opinions* (e.g., item 7, to avoid a communication breakdown, I ask somebody to talk when nobody talks). The interlocutors would encourage others to express their thoughts or viewpoints so as to in turn ensure that a conversation flow

smoothly with more different ideas. In the L2 learning context, *the follow-up questions* in Naughton (2006) was somewhat related to this strategy. In L1 and L2 research, however, empirical studies are few and it would be interesting to examine this position of the higher level strategy for more in-depth conversation (Zhu, Liao, Wu & Wo, 2015).

iii) *Expressing attitude* (e.g., item 9, I express my agreement by nodding or with speech when I agree with someone's idea). The listeners respond to speakers' opinions or questions, usually including expressions of (dis)agreement, with reasons provided when necessary. In L2 research, it corresponds to responding (to a content-related question asked by a member of the group) in Bejarano et al. (1997). During L1 oral communication, expressing one's agreement or disagreement on a certain view is a common behavior; it is also a manifestation of students' ability in higher level thinking such as challenging and critical thinking (Zhu, 2016a; O'Sullivan, Weir & Saville, 2002).

iv) *Correcting errors* (e.g., item 13, I correct others when I notice a mistake (either ideas or language). E.g., "What you said is not right. It should be..."). The interlocutor's correct others' biased views, providing reasons if necessary, or asking others to correct the biased views themselves. It involves in persuading for interlocutors to accept other's corrections and correct the errors by themselves. In L2 situations, this concept relates to *repair* in Tarone (1980), which originally incorporates correction of both linguistic form and content. It is the second connotation that has been of major interest to interactive viewers of L2 communication strategies. It also falls within our range of interest in L1. Therefore, *correcting errors* in our scale is constrained to the general mechanism speakers apply to modify speech after its production, for the sake of enhanced transmission of intended meaning. The second language acquisition research has differentiated between two types of *correcting errors* (content-relevant): *self-initiated correction* (e.g., Celce-Murcia, 2008) and *other-initiated correction* (e.g., Kurhila, 2001), the latter being most frequently used in traditional classroom interaction (McHoul, 1990). In L1 context, error correction is perceived to focus more on meaning correction, for example, on correcting the interlocutors' views or comments or even proposing the speakers' own suggestions (Zhu, 2016b).

v) *Giving clarification* (e.g., item 17, I provide clarification or explanation when others seem confused about what I said)**.** The interlocutors provide further information, including explaining and giving examples to ensure the interlocutors understand what has previously been said, or to elaborate on the meaning of certain points. In L2, this corresponds to *negotiation of meaning* in Nakatani (2006, 2010) and Naughton (2006), to *interacting strategies* in Celce-Murcia (2008), and to *paraphrasing* and *seeking information or an opinion* in Bejarano et al. (1997). Studies have shown that clarification plays an important role in the negotiation of meaning during L2 conversation (Benson, Fischer, Geluso, & Von Joo, 2013; Nakahama, Tyler & Lier, 2001; Nakatani, 2010; Pica, 1994). In L1, it is quite often that, in order to make one's

own views more convincible, one will give explanations, examples or reasons, but from a non-linguistic perspective (Zhu, 2014b; O'Sullivan, Weir & Saville, 2002).

vi) *Requesting clarification* (e.g., item 22, when I cannot understand what others said, I ask them to speak more clearly, e.g. by slowing the speed down). The interlocutors take in requesting that speakers further explain what they have said or elaborate on the meaning of certain points. This strategy corresponds in L2 inventories to a*ppealing for assistance* in Tarone (1980), *paraphrasing* under the social-interaction strategy in Bejarano et al. (1997), *interacting* in Celce-Murcia (2008), and *requesting clarification* in Naughton (2006). Similar to clarification, requesting clarification has also been found to play an important role in the negotiation of meaning during L2 conversation (Pica, 1996; Nakahama, Tyler & Lier, 2001; Naughton, 2006). The same rule should apply to L1 oral communication: when expression is unclear, the interlocutor will ask the speaker to repeat his/her opinion or idea, to speak more clearly, or to make further explanation.

vii) *Non-verbal language* (e.g., item 25**,** I maintain eye contact while speaking with someone)**.** The interlocutors use non-verbal language including facial expression, gesture, eye contact, and other physical posture, which speakers use to complement what they say or make clearer what they have said (Damico, Wilson, Simmons-Mackie & Tetnowski, 2008). In particular, in situations in which speakers do not share the requisite meaning structure, this strategy may be used to bridge this gap (Rodriguez & Rodríguez, 2014). The importance of non-verbal language in the enhancement of oral communication has been observed in L2 oral communication (Tarone, 1980) and L1 (Hadar, Wenkert-Olenik, Krauss & Soroker, 1998; Morrel-Samuels & Krauss, 1992).

The seven categories discussed above are perceived to be essential for pupils in Chinese as L1 communication in Confucianism-dominated cultures such as Hong Kong. The validation of this scale comprises two studies: Study 1 preliminarily examined the reliability and factorial structure of the scale; Study 2, involving another sample, confirmed this factorial structure. Moreover, the second study examined the plausibility of a general factor of interaction strategies and the relative importance of different subscales to the general factor of interaction strategies.

3. METHODS

3.1 Participants

Study 1 involved 642 fifth-grade students from seven elementary schools in Hong Kong. The gender distribution is 317 males, 322 females, and 3 with no gender information available. Study 2 sampled 678 fifth-grade students from other elementary schools in Hong Kong, among them were 363 males and 315 females.

3.2 Instrument

The original Oral Interaction Strategy Scale (OISS) in Study 1 was designed to contain 28 items subsumed under seven subscales, each corresponding to the seven types of interaction strategies summarised above. In the Introduction section of the questionnaire, students were invited to report their opinions regarding their use of different strategies listed in the questionnaire by using a five points Likert scale with values of 1 to 5 points representing *never*, *seldom*, *sometimes*, *usually* and *always*, respectively.

Drawing upon analytical results of Study 1, three items were dropped from the inventory: item 2 (listening before speaking) in the *expressing actively* subscale, item 12 (giving up showing different views if this makes conversation stuck) in the *expressing attitude* subscale, and item 24 (*asking for repetition when hearing something interesting*) in the *requesting clarification* subscale. This ended up with a 25-item inventory for Study 2 (see the Appendix).

3.3 Data Analysis

Primary data analysis involved two approaches: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). In Study 1, EFA with principle axis factoring extraction and oblimin rotation methods was used to explore the factorial structure of the whole scale. In Study 2, the seven-correlated factors structure underlying the OISS (Model 1) was then tested using the CFA approach. To identify the optimal structure for the OISS, two alternative models accounting for the general factor was compared: the eight-dimensional bifactor model (i.e., one general factor and seven domain factors, Model 2) and the eight-dimensional second-order model (i.e., one second-order general factor and seven first-order factors, Model 3). To compute model estimates, the *maximum likelihood estimation with robust standard errors* (MLR) estimator was used for its power in accommodating non-normally distributed data. To assess the overall fit of each CFA model, indices with the suggested cutoff values frequently cited in the literature were used: the TLI (>.95), CFI (>.95), RMSEA (<.05) and SRMR (Hancock & Mueller, 2010). To choose the better-fit model, the chi-square difference test based on log likelihood values and scaling correction factors (Satorra & Bentler, 2001) was applied.

4. RESULTS

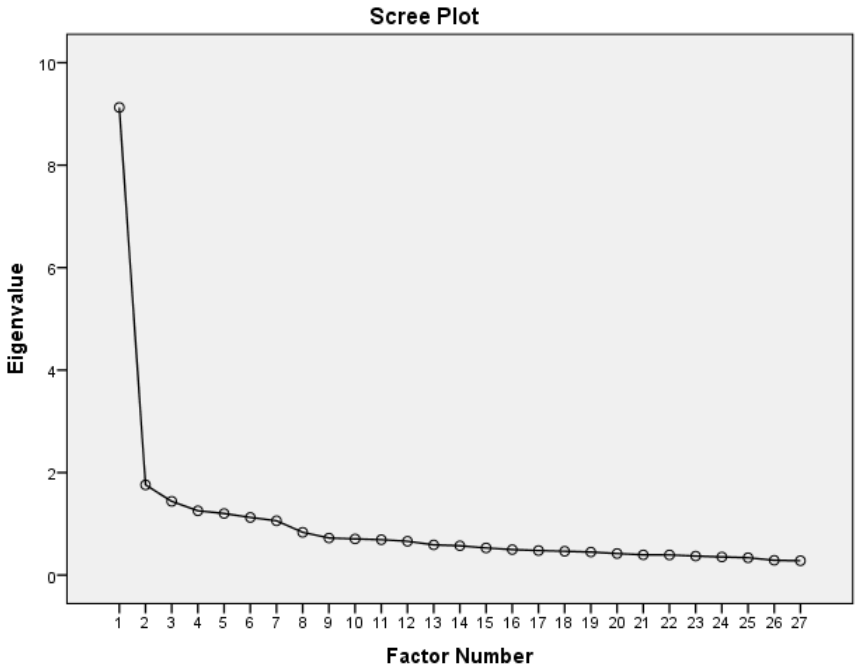
4.1 Study 1: Factor structure and reliability

The factorability of the 28-item OISS was first examined. The Kaiser-Meyer-Olkin measure of sampling adequacy was .93, well above the commonly recommended value of .6. The Bartlett's Test of Sphericity was significant ($\chi^2(351) = 6184.38$, $p < .001$). Finally, the communalities were all above .3, except for item 1, further

confirming that each item shared some common variance with other items. Given these results, factor analysis was deemed appropriate for the 28-item OISS scale.

A first round EFA was then performed. Initial eigenvalues indicated that the first seven factors explained 33.8%, 6.5%, 5.3%, 4.7%, 4.5%, 4.2%, and 3.9% of the variance respectively. The eighth, ninth, and tenth factors all had eigenvalues below one, and each explained less than 3% of the variance. An examination of the scree plot revealed two turns (see Figure 1), one at the second factor and the other at the eighth factor, pointing to the solutions of one or seven factors. Given the substantial loss of information if using the one-factor solution, the seven-factor solution was preferred, as it matched our intended dimensionality of the OISS scale.

Figure 1. Scree plot for the first round EFA.



Examining the item loadings, we found three items marginally loaded on their intended factors: item 2 (*listening to others before speaking*) on *expressing actively* (.26), item 12 (*quitting disagreement if conversation stuck*) on expre*ssing attitude* (.29), and item 24 (*asking for repetition when hearing something interesting*) on *requesting clarification* (.05). Given the statistical information and the ambiguity of these items in regard to the intended factors, these three items were considered inappropriate and removed from further use. Additionally, another two items, item

18 (*self-initiated repetition*) and item 19 (*further explanation*) in the *giving clarification* subscale, were found to be negatively cross-loaded in their unintended factor, *requesting clarification*. As both absolute values were below the cutoff point of .30 (-.25 for item 18 and -.28 for item 19), no modification was made to them. A second round EFA was then performed and the results are presented in Table 1 (for factor loadings) and Table 2 (for factor correlations). The final seven-factor solution accounted for 62.84% of the total variance.

Table 1. Factorial analysis results of the modified OISS (Study 1)

		Factor						
		1	2	3	4	5	6	7
1. Expressing actively	Item 1	-.050	-.039	.007	.029	-.042	**.493**	.087
	Item 3	.012	-.042	-.051	-.051	.090	**.707**	-.085
	Item 4	.136	.071	-.035	.006	.178	**.436**	.053
2. Asking for opinions	Item 5	-.107	-.021	.018	.137	**.639**	.021	.053
	Item 6	.045	.008	-.037	.113	**.565**	-.020	.117
	Item 7	.045	-.029	-.046	-.096	**.557**	.038	.001
	Item 8	.182	.061	-.049	.038	**.545**	.152	-.052
3. Expressing attitude	Item 9	.073	.008	-.064	**.736**	.097	-.104	-.002
	Item 10	-.073	-.165	-.020	**.519**	.030	.085	-.006
	Item 11	.172	.097	-.016	**.363**	.034	.193	.151
4. Correcting errors	Item 13	.065	-.025	-.041	.089	.020	.051	**.558**
	Item 14	.160	.118	-.039	.130	-.021	.096	**.617**
	Item 15	-.025	-.122	-.071	-.102	.047	-.004	**.630**
	Item 16	-.054	-.130	-.009	.004	.087	.019	**.546**
5. Giving Clarification	Item 17	**.453**	-.014	-.076	.011	.129	.045	.181
	Item 18	**.577**	-.192	.013	.065	.022	.077	.008
	Item 19	**.466**	.088	-.081	-.043	.181	.055	.250
	Item 20	**.476**	-.227	-.088	.119	.044	-.023	-.002
6. Requesting clarification	Item 21	.009	**-.668**	-.057	.088	-.024	.105	.016
	Item 22	.097	**-.739**	.009	.001	.010	.010	.143
	Item 23	.194	**-.455**	-.088	.071	.092	-.028	.143
7. Non-verbal language	Item 25	.212	-.041	**-.415**	.066	.008	.127	-.009
	Item 26	-.092	-.029	**-.841**	.031	.013	.017	-.026
	Item 27	.064	.061	**-.587**	.127	-.136	.079	.149
	Item 28	-.018	-.025	**-.807**	-.087	.098	-.063	-.005

Table 2. Factor correlation of the EFA with the modified OISI (Study 1)

Factor	1	2	3	4	5	6	7
1. Expressing actively		-.23	-.39	.33	.42	.37	.45
2. Asking for opinions			.29	-.30	-.18	-.21	-.39
3. Expressing attitude				-.32	-.39	-.39	-.47
4. Correcting errors					.29	.32	.35
5. Giving clarification						.43	.42
6. Requesting clarification							.43
7. Non-verbal language							

The reliability of these seven subscales was examined through computing the internal consistency coefficients (see Table 3 for the results). A review of the Cronbach's Alphas of the subscales revealed that all values were above .60, indicating the items within each subscale were consistently measuring their intended factors. Additionally, the overall coefficient of .92 suggests all subscales were consistently measuring the same overall factor of interaction strategies. These reliability indices and those obtained from the factor analysis all point to the quality of the OISS scale in measuring L1 interaction strategies used by the sampled pupils in Hong Kong. It was then decided that the modified 25 items could be used for further validation in the second study.

Table 3. Reliability estimates of the modified OISS (Study 1)

Subscale	Cronbach's Alpha
1. Expressing actively	0.62
2. Asking for opinions	0.74
3. Expressing attitude	0.65
4. Correcting errors	0.78
5. Giving clarification	0.77
6. Requesting clarification	0.79
7. Non-verbal language	0.80
Overall	0.92

4.2 Study 2. Descriptive statistics, reliability and factorial structure

Prior to confirmatory factor analysis, the distribution (i.e., mean, standardized deviation, kurtosis and skewness) and reliability statistics (i.e., Cronbach's Alphas) for items in each subscale were computed (see Table 4 for detailed information). The means of the items ranged from 2.46 (item 28) to 3.95 (item 1) out of a maximum possible value of 5 points. The standardized deviations ranged from 1.00 (item 1) to 1.31 (item 28). The skewness estimates ranged from -0.81 (item 9) to 0.59 (item 28), indicating that the number of participants giving high evaluations and low evaluations for their strategy use were distributed equally. The kurtosis ranged from -0.22 (item 9) to -1.04 (item 4), indicating flat distributions. Besides, all kurtosis and skewedness values were between -2 to +2, suggesting a reasonably normal distribution (Bachman, 2004). However, the Mardia's normalized estimate of multivariate kurtosis was 128.52 with a critical ratio of 45.54. According to Bentler (2005), critical ratios larger than 5.00 are indicative of non-normal distribution. In our study, the critical ratio of 45.54 is suggesting highly non-normal distribution.

With respect to reliability estimates, the overall reliability estimate of the OISS was 0.91. Among the seven estimates at the subscale level, only one was below .70, i.e. *expressing actively* (.62). Given the small number of items (3) within the subscale, the estimate was considered acceptable. All other estimates were .70 or above, ranging from .70 (*expressing attitude*) to .77 (*asking for opinions*). At the item level, no any item within each subscale had a Cronbach's alpha if item deleted higher than the Cronbach's alpha of the subscale. Overall, the whole scale appeared to be a reliable measure both at the subscale and the overall scale levels.

Table 4. Distribution and reliability estimates of the final-version OISS (N=678) (Study 2)

	Item	Mean	Standardized Deviation	Skewness	Kurtosis	Cronbach's Alpha if item deleted	Cronbach's Alpha
1. Expressing actively	1	3.27	1.00	-.08	-.29	0.57	0.62
	3	3.08	1.15	.09	-.77	0.39	
	4	3.19	1.25	-.04	-1.04	0.60	
2. Asking for opinions	5	3.27	1.22	-.23	-.91	0.70	0.77
	6	3.15	1.16	-.10	-.81	0.70	
	7	2.70	1.26	.33	-.85	0.73	
	8	2.89	1.26	.14	-.10	0.72	
3. Expressing attitude	9	3.95	1.09	-.80	-.24	0.57	0.70
	10	3.61	1.20	-.50	-.69	0.59	
	11	3.67	1.14	-.46	-.68	0.65	

	Item	Mean	Standard-ized Deviation	Skewness	Kurtosis	Cronbach's Alpha if item deleted	Cronbach's Alpha
4. Correcting errors	13	3.13	1.21	-.03	-.92	0.72	0.76
	14	3.25	1.20	-.12	-.90	0.67	
	15	2.74	1.24	.31	-.81	0.70	
	16	2.73	1.28	.26	-.99	0.74	
5. Giving clarification	17	3.23	1.21	-.16	-.91	0.70	0.76
	18	3.52	1.22	-.42	-.78	0.69	
	19	3.05	1.21	.04	-.94	0.69	
	20	3.75	1.14	-.56	-.64	0.73	
6. Request-ing clarifi-cation	21	3.87	1.15	-.75	-.37	0.65	0.75
	22	3.60	1.18	-.43	-.73	0.67	
	23	3.57	1.14	-.42	-.62	0.69	
7. Non-ver-bal lan-guage	25	3.46	1.17	-.33	-.77	0.75	0.75
	26	2.67	1.28	.39	-.87	0.65	
	27	3.05	1.29	.00	-1.04	0.67	
	28	2.46	1.31	.59	-.76	0.70	
						Overall Cronbach's Alpha	0.91
						Multivariate kurtosis	128.52
						Critical ratio	45.54

To confirm the factorial structure of the OISS found in the EFA in Study 1, a CFA was conducted with the 678 fifth-graders from Study 2. The seven-factor model for the 25-item OISS scale resulted in an unsatisfactory fit: $\chi^2/df = 684.88/268$, $p < .001$, TLI = .92, CFI = .93, RMSEA = .05, and SRMR = .05. Modification indices indicated that the fit would improve if item 20 (*giving clarification if misunderstanding occurs*) was cross-loaded on *requesting clarification*, item 4 was cross loaded on *asking for opinions*, and two pairs of error terms were correlated. These errors corresponded to item 15 with item 16 and item 26 with item 28, respectively. As item 20 very possibly involved the act of *asking the others* (*requesting*), it is perceived to be reasonable to release this loading constraint; item 4 involved intention to *avoid communication breakdown*, the releasing of the loading constraint onto *asking for opinions* would also be reasonable. The plausibility of placing the two pairs of error terms was then examined. Both item 15 and item 16 were under the factor of *correcting errors*. Looking closer, one would find that these two items involved asking others to deal with errors as against dealing with errors by themselves (e.g., item 13 and item 14). As for the suggested error covariance between item 26 and item 28 under the factor *non-verbal language*, both items were indeed about the use of physical trunk to help

communication as against other items that involved the use of facial expressions (e.g., item 25 and item 27). The four modifications were then conducted and the model fit examined. As a result, the seven-factor model (Model 1.2) for the OISS produced good model fit: Satorra-Bentler χ^2/df = 448.676/250, $p < .001$, TLI = .95, CFI = .96, RMSEA = .03 (0.03, 0.04), and SRMR = .04 (see Table 5). Hence, the seven-dimensionality of the OISS could not be rejected.

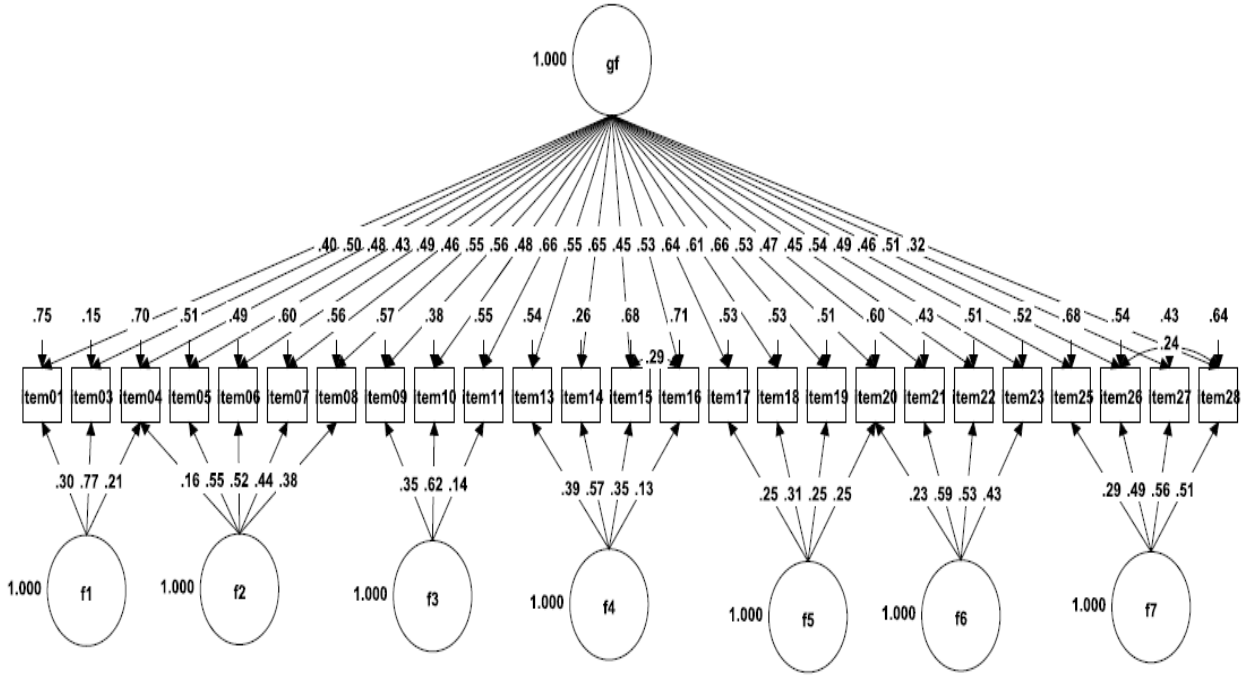
Table 5. Results of CFA model fit statistics

Model[a]	GFI	TLI	RMSEA	SRMR	Satorra-Bentler χ^2	*df*	Correction Factor
Model 1.1	0.94	0.93	0.041 (0.036,0 .046)	0.043	544.36	254	1.226
Model 1.2	0.96	0.95	0.034 (0.027, 0.039)	0.038	448.68	250	1.217
Model 2	0.97	0.96	0.027 (0.022, 0.033)	0.030	371.00	246	1.211
Model 3	0.96	0.95	0.033 (0.028, 0.038)	0.038	455.29	264	1.222
							T^b/df = 78.03/18, $p < .001$

a. Model 1.1 = the seven correlated factors structure; Model 1.2=the seven correlated factors structure (modified); Model 2=the eight-dimensional bifactor model; Model 3=the eight-dimensional second-order model.
b. T = the T statistics.

Nevertheless, the covariances between the error variances are suggestive of a general factor underlying the OISS scale. In order to determine the optimal factorial structure of the scale, the plausibility of two alternative models that accounted for the general factor were compared: the eight dimensional bifactor model (Model 2) and the eight dimensional second-order model (Model 3). The results of model indices are also shown in Table 5. According to the table, the bifactor model (Model 2) produced good fit: Satorra-Bentler corrected χ^2/df = 370.996/246, $p < .001$, TLI = .96, CFI = .97, RMSEA = .027 (0.022, 0.033) and SRMR = .030. The more parsimonious second-order model (Model 3) produced good fit as well: Satorra-Bentler corrected χ^2/df = 455.287/264, $p < .001$, TLI = .95, CFI = .96, RMSEA = .033 (0.028, 0.038) and SRMR = .038. In order to determine whether the parsimony deserves the sacrifice of model fit change, the Satorra-Bentler scaled chi-square difference test (Satorra & Bentler, 2001) was conducted. By examining the increased the Satorra-Bentler scaled chi-square difference, we found that the parsimonious model introduced significant chi-square change (T = 78.03, Δdf = 18, $p < .001$). Therefore, we concluded that Model 2 (the eight-dimensional bifactor model) was the optimal representation of the OISS data (See Figure 2 for the diagram for Model 2).

Figure 2. Diagram of the eight-dimensional bifactor model (standardized).



Abbreviations: gf= the general factor; f1 = expressing actively; f2= asking for opinions; f3= expressing attitude; f4= correcting errors; f5= giving clarification; f6 = requesting clarification; and f7= non-verbal language.

In order to obtain the relative importance of the seven subscales to the general factor, we obtain the relative importance of different subscales within the bifactor model structure. In particular, we formulated seven *n* (*n* = number of items within each subscale) by *2* (the number of factors underlying each subscale: the general factor and the first order factor) matrixes using the factor loadings produced by estimating the bifactor model (Model 2). For each matrix, in the left column were loadings of items on the general factor and in the right column were loadings of items on their first order factor. The eigenvectors of each matrix were then calculated, one representing the ratio of the variance explained by the general factor and the other representing the ratio of the variance explained by the first order factor. Results of ratio calculation are presented in Table 6. As shown, from the largest to the smallest, the ratios of subscale variances explained by the general factor followed the order of *giving clarification* (84.3%), *expressing attitude* (67.7%), *correcting errors* (67.1%), *asking for opinions* (56.1%), *requesting clarification* (53.6%), *expressing actively* (53.3%) and *non-verbal language* (52.7%).

Table 6. The factor loadings matrix of the seven OISS subscales and eigenvectors (ratios)

Subscale	Item	Component		Eigenvectors (Ratio)	
		General factor	First-order Factor	General factor	First-order Factor
1. Expressing actively	1	0.402	0.298	.730 (53.3%)	.684 (46.7%)
	3	0.502	0.770		
	4	0.481	0.209		
2. Asking for opinions	4	0.481	0.159	.749(56.1%)	.663(44.0%)
	5	0.429	0.550		
	6	0.492	0.520		
	7	0.463	0.436		
	8	0.548	0.380		
3. Expressing attitude	9	0.558	0.350	.823(67.7%)	.568(32.3%)
	10	0.478	0.623		
	11	0.659	0.138		
4. Correcting errors	13	0.549	0.394	.819(67.1%)	.574(32.9%)
	14	0.650	0.568		
	15	0.449	0.346		
	16	0.525	0.127		
5. Giving clarification	17	0.640	0.253	.918 (84.3%)	.356 (12.7%)
	18	0.611	0.307		
	19	0.659	0.247		
	20	0.527	0.249		
	20	0.527	0.235		
6. Requesting clarification	21	0.468	0.592	.732(53.6%)	.682(46.5%)
	22	0.454	0.533		
	23	0.544	0.430		

Subscale	Item	Component		Eigenvectors (Ratio)	
		General factor	First-order Factor	General factor	First-order Factor
7. Non-verbal language	25	0.487	0.291	.726(52.7%)	.688(47.3%)
	26	0.461	0.495		
	27	0.505	0.559		
	28	0.321	0.505		

5. DISCUSSION

The aim of this study was to develop and validate a scale with which to measure oral communication interaction strategies used by pupils in L1 Chinese classrooms in Confucian regions such as Hong Kong. We referred L2 communication strategies identified and categorized in the interactive approach (e.g., Bejarano et al., 1997; Celce-Murcia, 2008; Dörnyei & Scott, 1997; Nakatani, 2006; Naughton, 2006; Tarone, 1980) and Chinese communication research (e.g., Gao & Ting-Toomey, 1998). Our analyses should be able to provide sufficient empirical evidence justifying the hypothesized appropriateness of using the OISI to profile the strategic oral communication behaviors of young L1 Chinese learners in Hong Kong primary classrooms, or evidence supporting the construct validity of the scale (Kane, 2006, 2010, 2013).

The results of our factor analysis in Study 1 identified seven categories of interaction strategies: *expressing actively*; *asking for opinions; expressing attitude; correcting errors; giving clarification; requesting clarification;* and *using non-verbal language*. This seven-factor structure was confirmed in a second study. Moreover, there appeared to be a general factor of interaction strategy under the seven previously identified factors. The seven factors were loaded on the g, with magnitudes in the ranking of *expressing attitude* (0.92), *giving clarification* (0.91), *correcting errors* (0.81), *expressing actively* (.76), *asking for opinions* (.73), *using non-verbal language* (.70), and *requesting clarification* (.69).

An interesting finding relates to the salience of the factor *expressing actively.* As discussed in the literature, in contrast to the acquiesced importance of willingness to speak publically in Western culture, *expressing actively* is not encouraged as much in Confucianism-dominated Chinese oral communication (Gao & Ting-Toomey, 1998). However, this does not necessarily correctly reflect today's Chinese communication in any given situation. In particular, given the colonial history of Hong Kong and the most recent rise of mainland China as an international figure, specific conditions of Chinese communication in Hong Kong as well as in mainland China have been facing a paradox between the Chinese and the Western traditions (Fang & Faure, 2011). In other words, while staying silent when necessary is still a well-appreciated act-of-code, knowing when and how to speak actively is gradually winning popularity, even within L1 Chinese speakers. The ways in which our findings show *speaking actively*

functioning as a salient first order factor exactly reflect this paradox in today's Chinese oral communication.

Another anticipated outcome of our study is the salience of the six interaction strategy factors that we referred to L2 research for L1 Chinese oral communication. Before our study, discussions regarding the transferability of L2 communication strategies to L1 contexts remain merely hypothetical (Chamot & O'Malley, 1994; Ellis, 1984). The validated OISS in the present study provides a tool with which to compare interaction strategy use in different language contexts. Furthermore, the verification of the bifactor structure of interaction strategy and the ratios of subscale variances explained by the general factor produces diagnostic information on the relative importance of these strategy categories to the construction of interaction strategy as a whole. Our study shows that some subscales (namely, gi*ving clarification*, *expressing attitude*, and *correcting errors*) play relatively more important roles in formulating the general factor of interaction strategy than the others (namely, *asking for opinions, requesting clarification, expressing actively* and *non-verbal langauge*). Perhaps due to methodological limitations, previous studies of L2 communication strategies rarely address the issue of the relative importance of different categories of interaction strategy. This is surprising, as an awareness of some important strategies would help teachers and learners deploy major resources to emphasized types of interaction strategies.

A direct comparison of this study's results to the L2 literature is unavailable. The message conveyed is important to our understanding of the transferability of these interaction strategies from L2 to L1 contexts. It suggests that a strategy important in L2 does not necessarily remain as important when transferred to an L1 context; vice versa, an unimportant strategy in L2 may switch to a more salient position when transferred to L1 oral communication (e.g., *expressing attitude*).

6. STRENGTHS, LIMITATIONS AND IMPLICATIONS

Through the validation of the OISS, our study has made the first step in identifying interaction strategies used in L1 Chinese oral communication for primary students in Hong Kong, a context that is dominated by the Confucian culture but also heavily favored by the Western Plutonian culture. By mainly drawing upon common categories identified in L2 communication strategy research, our study is the first to provide empirical evidence verifying the assumed transferability of these strategies to L1 Chinese oral communication in Confucian-relevant cultural contexts. Furthermore, our inclusion of the factor *expressing actively* adds to the scale a culture-customized flavor. These aforementioned two features make our study a starting point for later attempts to further expand this category for L1 Chinese oral communication for the same or other graders in Hong Kong, mainland China, and perhaps Singapore, or for L1 oral communication in Confucian-relevant cultural contexts such as Korea and Japan. Now that we know the importance of different interaction strategy categories to the overall concept of interaction strategy, it will be difficult to ignore these

strategies (especially type I strategies and culture-specific strategies) in future interaction strategy research.

Our study, however, has some limitations. Firstly, given our focus on elementary classroom communication, we have only included a few new categories of culture-specific interaction strategy in our scale. It is highly possible that there are many other types of similar or more important strategies in L1 Chinese professional context. Future research may explore in this direction. Secondly, our findings are based only on self-report of L1 Chinese learners from Hong Kong fifth-grade in elementary schools. Therefore, the direct generalizability of this scale to L1 Chinese learners in other grades in Hong Kong or to L1 learners in other language and cultural contexts is cautioned. It is necessary to conduct further research into the oral interaction strategies used by learners on different difficulty levels of oral interaction tasks. Nonetheless, we believe that our findings capture the major features of interaction strategies used by Chinese-speaking pupils during their classroom-based L1 Chinese oral communication. In order to increase our understanding of interaction strategies within a broader scope, future studies may explore and compare how this scale will perform with L1 learners of other languages in other cultural contexts; they may also explore how this scale perform with learners from other cultures who are learning Chinese as the second or foreign language.

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APPENDIX

The oral interaction strategy inventory (the validated version)

	Item	Content
1. Expressing actively	1	When communicating with others, I express my thoughts as soon as possible.
	3	I express my thoughts before others speak.
	4	To avoid a communication breakdown, I speak voluntarily when nobody talks.
2. Asking for opinions	5	When I have nothing to say, I ask others to talk.
	6	I ask others to talk when I want to know their thoughts.
	7	To avoid a communication breakdown, I ask somebody to talk when nobody talks.
	8	I invite others to express their thoughts.
3. Expressing attitude	9	I express my agreement by nodding or with speech when I agree with someone's idea.
	10	I express my disagreement by shaking my head or express when I disagree with someone's idea.
	11	I state the reasons why I agree or disagree if needed.
4. Correcting errors	13	I correct others when I notice a mistake (either ideas or language). E.g., "What you said is not right. It should be..."
	14	I state the reasons when correcting others' errors.
	15	When I find that what others said is wrong, I ask them to correct the errors.
	16	I ask others to state reasons if they are not willing to correct their own errors.
5. Giving clarification	17	I provide clarification or explanation when others seem confused about what I said.
	18	If others do not get what I said, I repeat main part of it with speed, stress, or pause changed.
	19	When others say something, I make further clarification or explanation.
	20	If others misunderstand what I said, I make further clarification or explanation. E.g., "I did not mean this. I actually mean..."
6. Requesting clarification	21	When I am unsure to understand correctly what others said, I ask them to repeat it.
	22	When I cannot understand what others said, I ask them to speak more clearly, e.g. by slowing the speed down.
	23	When I do not understand what others have said, I ask them to provide further information or make explanations. E.g., "I did not understand what you said very well. Could you talk about it more clearly?"
7. Non-verbal language	25	I maintain eye contact while speaking with someone.
	26	I use gestures to help express myself when I speak with someone.
	27	I use facial expression to help express myself when I speak with someone.
	28	I use posture to help express myself when I speak with someone.