

Psychotypology of Chinese learners of English and its influence on the acquisition of metaphorical expressions: An offline study

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1 INTRODUCTION

Psychotypology, the perceived distance between languages by individual learners, after its definition first appearing in [Jordens & Kellerman \(1981\)](#), has received continuous attention in the field of second language acquisition, particularly on cross-linguistic influence. However, the absence of a reliable quantification of psychotypology and thereafter integration in the systematic research of second language acquisition has created obstacles for further investigation on that factor.

This article mainly aims to propose a new method to quantify psychotypology among individual Chinese learners of English, and also to examine the role of psychotypology in cross-linguistic influence in the process of acquisition of metaphorical expressions in English. Section 2 is a brief review of the concept of psychotypology as well as its proposed impact on cross-linguistic influence in second language acquisition. After that, the main research questions and relevant hypotheses will be listed in Section 3. Section 4 introduces the methodology of the current study, including two possible methods to measure psychotypology among Chinese learners of English, and the acceptability judgement task used to survey the cross-linguistic influence in the acquisition of metaphorical expressions. The result of the measurement of psychotypology as well as the possible influential factors of that will be presented in Section 5. Section 6 will be devoted to the possible link between individual psychotypological difference and cross-linguistic influence on the acquisition of metaphorical expressions by Chinese learners of English. Finally, Section 7 serves as a concluding session.

2 THE DEFINITION OF PSYCHOTYPOLOGY AND ITS IMPACT ON TRANSFER

In a series of studies from late 1970s to mid-1980s, Kellerman and Jordens investigated the phenomenon of “transfer” in second language acquisition as well as the strategies of transfer adopted by second language learners. It should be noted that the phenomenon of transfer is referred to with different terms by different authors at different stages of SLA research, including “cross-linguistic influence” (which is commonly used in current literature), “native language influence” and sometimes “interference”. Despite the variation of terminologies, the definition of transfer

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is rather clear: It is the phenomenon that a second language learner incorporates certain elements of her source language (henceforth L1) in her production and/or comprehension of the target language (henceforth L2).

In the early years of the investigation of cross-linguistic influence, it was once hypothesised that transfer roots in the habit of language use, and learners will transfer all the elements from their L1 to the L2, regardless of the grammaticality of the elements in the L2. In more recent studies, it has been discovered that, in the process of second language acquisition, the learners will selectively make use of the “strategies of transfer” to compensate their lack of particular knowledge of the L2. The strategies are not unlimitedly adopted, but subject to a number of constraints. It suggests that the learners have a good intuition of both L1 and L2 knowledge and are able to choose whether to adopt the transfer strategies in accordance to the environments of acquisition, e.g. the language to be acquired, the content of acquisition, to name a few. [Jordens & Kellerman \(1981\)](#) (see also [Kellerman 1983](#) for details) identify three major constraints: psychotypology of the L1 and the L2; the perception of “markedness” of an element in the L1 system; and the knowledge of L2 possessed by the learner. The current article will particularly focus on psychotypology.

Psychotypology refers to the assumed typological distance between the L1 and the L2 as perceived by the learner. It is usually related to the learners’ understanding of structural similarities and differences between the two languages. The psychotypology generally comes from the learners’ own metalinguistic awareness when she discovers that certain structures of the L2 are similar (or not) to the corresponding structures of the L1. Folk linguistics also contributes to the development of psychotypology; one prominent example is that Dutch speakers generally believe that Dutch and German are closely related and it is easier for Dutch speakers to learn German than to learn other languages. Such belief could encourage the transfer of Dutch structures in the production of German ([Jordens & Kellerman 1981](#)). It should be noted that the psychotypological distance between two languages may, or may not, correspond to actual linguistic typology. Theoretically, it is possible for a learner to reduce the psychotypological distance between two unrelated languages, e.g. Chinese and English, if she successfully perceives that the two languages share some similarities in some aspects.

Psychotypology contributes to the transfer from the L1 to the L2 by providing a valid background for such transfer. If a learner perceives the psychotypological distance between her L1 and an L2 as relatively close, e.g. Dutch-German or Swedish-English, then she is more likely to transfer her L1 knowledge when acquiring the L2. This trend can be seen in the patterns emerged in the learners’ interlanguage. For instance, [Wode \(1978\)](#) discovered that the native speakers of Germanic languages (including Dutch, German, Swedish) will construct sentences with the Verb-Negation word order, which resembles their L1s, when learning English, whereas this feature does not present among the English learners whose L1(s) are other languages than Germanic (e.g. Japanese, see [Milon 1974](#)). [Wode \(1978\)](#) concludes that the appearance of L1-like structures in the L2 production may be triggered by the

close psychotypological distance between English and other Germanic languages perceived by the learners with Germanic L1s.

Kellerman suggests that transfer will be suppressed if the learner believes that the L1 and L2 are not sufficiently related. That assumption has been reflected in several studies concerning either the acquisition of an L3 by bilingual speakers, or comparison between the acquisition of two psychotypologically different L2s by the same L1 speakers. In a series of research conducted by Ringbom (1978), Finnish and Swedish bilinguals were asked to complete a set of tasks in their third language English, which is typologically more related to Swedish than Finnish. Learners tended to transfer the elements of Swedish to English regardless of the proficiency of Swedish, and most of the production errors reflected the influence of Swedish grammar. Finnish does not show an evident transfer effect, nor lead to production errors. Such imbalance of the transfer effect between the two L1s, as is explained by Ringbom (1978) and subsequently by Kellerman (1983), is due to the different psychotypological distances from the two languages to English. Since Finnish is too remote from English in the perception of the learners, the transfer from Finnish to English is suppressed, even if some learners master Finnish better than Swedish. Ringbom's paradigm has been widely used in the research on third language acquisition to show that the validity of transfer varies due to different psychotypological distances between languages. In the study by Jordens & Kellerman (1981), they compare the acceptability of Dutch-based idioms in two groups of Dutch native speakers, one group learning English and the other learning German. When their proficiency of the L2 is relatively low, the learners tend to accept Dutch-based idioms in German (which is psychotypologically closer to Dutch) but reject those in English (which is psychotypologically farther to Dutch). That comparison again indicates that the strategy of transfer varies according to the psychotypological judgment by the learners, and transfer will be suppressed when the learner suspects that the L1 and the L2 are only remotely related.

Some questions still remain in the area of psychotypological influence on transfer. It can be inferred from Kellerman (1983) that psychotypology is not an actual, objective and unified measurement of distance between the L1 and the L2; instead, it is a subjective "belief" held by individual learners, and it can be changed with the development of the learners' metalinguistic awareness as well as information from instruction. Thus, it is possible that different instruction methods will influence the learners' psychotypology. If the instructor explicitly emphasises the similarities (or differences) between the L1 and the L2, it is likely for the learners to change their perception and reduce (or increase) the psychotypological distance. It is probable that different learners of the same L2 who have the same L1 perceive the psychotypological distance between the L1 and the L2 differently. Some learners with shorter psychotypological distance perception might be more willing to transfer from the L1 to the L2, whereas the learners who perceive the psychotypological distance as longer will suppress the transfer. Even in the same linguistic background, due to different individual perception of language distance, it is expected to see different degrees of transfer among groups of learners.

A follow-up assumption is that psychotypology may be not static. The perceived distance between two languages could undergo changes, due to various factors during the process of language acquisition. With the rise of L2 proficiency and thus the increase of L2 knowledge, the learners might discover more similarities shared between the L1 and the L2, or identify more distinctions between the two languages. The former results in the reduction of psychological distance, whereas the latter works in an opposite direction. That may happen between languages that are typologically related, as well as between those that are not related but share some similar linguistic features. [Tsang \(2015\)](#) investigates the impact of acquiring a third language on the perception of the psychotypological distance between the L1 and the L2 among individual learners. She surveyed the difference of the psychotypological distance between Chinese and English between Cantonese-English bilinguals and Cantonese-English learners of French. The results reveal that the experience of L3 acquisition and the proficiency of an L3 can both influence individual's perception of psychotypological distance between the L1 and the L2. Nevertheless, it is not fully clear how individual language experience and the change of it could influence the psychotypological distance, and whether learning two different L3s could influence the psychotypological distance between the L1 and the L2 in different ways.

In past studies, the influence of psychotypology has been well-surveyed within the context of European languages, both inside and outside the Indo-European family (see [Jordens & Kellerman 1981](#) for an example of the former case; and [Ringbom 1978](#) for an example of the latter case). In those studies, the learners are in an environment with frequent language contact, and all the languages involved in the investigation are written in Latin Alphabets. What is less investigated is the situation in which learners outside Europe acquire a European language, or vice versa. That includes the native speakers of Eastern Asian languages, such as Chinese (but see [Tsang 2015](#) for an example of Cantonese), Japanese and Korean, who learn English or other Indo-European languages as a second or foreign language. The Eastern Asian languages differ from the Indo-European languages in a number of aspects. Linguistically, they display some features that are absent in Indo-European languages (e.g. analyticity, radical pro-drop, lack of cognates), and the orthographic systems are different as well. Moreover, the Eastern Asian countries are geographically distant from the regions where Indo-European languages are commonly used, which makes the contact between different languages less frequent. The learners of English in those countries are less exposed to Indo-European languages in general, which may lead to a different perception of language distances. The native speakers of Eastern Asian languages might perceive the distance between their L1 and other languages in a different manner, taking other factors into consideration instead of linguistic similarities and typological connections.

3 RESEARCH QUESTIONS AND HYPOTHESES

As a part of an ongoing project on the acquisition of metaphorical expressions by Chinese learners of English, the current article will analyse the potential impact of psychotypology on learners' judgement of metaphorical expressions. All the

research questions and hypotheses, therefore, are based on the fundamental assumption that Chinese learners of English demonstrate the following cross-linguistic influence in the process of acquisition:

- Native speakers of English will accept all the metaphorical expressions available in English and reject all the metaphorical expressions unavailable in English. They will accept the literal meaning and the metaphorical meanings of a same word to a similar degree if both types of meanings are available in English.
- Chinese learners of English will show varied degrees of cross-linguistic influence when they are asked to judge the acceptability of the given metaphorical expressions:
 - The learners will show positive transfer to the metaphorical expressions that are available in both Chinese and English, and accept these expressions;
 - Less proficient learners will show negative transfer to the metaphorical expressions that are available only in Chinese, and accept these expressions to some extent. More proficient learners, on the other hand, will suppress the negative transfer and reject these expressions;
 - Less proficient learners without knowledge of the metaphorical expressions that are available only in English will show negative transfer to them, and reject these expressions. More proficient learners, on the other hand, may have acquired these expressions prior to the investigation and then accept them.
- Further assumptions about the detection of transfer from Chinese to English will be discussed in details in Section 6.

Based on previous literature and the hypotheses above, assumptions are made about the correlation between individual psychotypological perception and cross-linguistic influence on the acquisition of metaphorical expressions, as listed below:

- Learners who have been exposed to more languages will perceive the psychotypological distance between Chinese and English in a different way when compared with their peers with less diverse linguistic experience.
- Learners who perceive English as a close language to Chinese will transfer more knowledge from Chinese to English.
- Learners who show less tendency to transfer knowledge from Chinese to English are more likely to perceive English as a language distant from Chinese.
- Within each proficiency level, learners who have shorter psychotypological distance will show more transfer than their peers. That is, compared with their peers, they are more likely to (1) accept the metaphorical expressions shared between Chinese and English, (2) accept the metaphorical expressions

that are only available in Chinese, and (3) reject the metaphorical expressions that are only available in English.

While other assumptions of transferability by Jordens and Kellerman have also been investigated in the project, the results will not be reported in details here.

4 METHODOLOGY

Participants from five different types of linguistic backgrounds were recruited in the current study, including one English native speaker group (NS) and four Chinese learner groups (intermediate, low advanced, high advanced and overseas; henceforth IN, LA, HA and HO). All the participants in the Chinese learner groups identified themselves as native speakers of Mandarin Chinese and none of them reported that they were born Chinese-English bilingual. The Chinese learner participants were recruited from China and the United Kingdom in order to get samples from varied linguistic backgrounds. The learner participants recruited in China include 24 secondary school students (average age 16:6 years old), 22 non-English major undergraduate and graduate students (average age 21:11 years old) and 22 English and linguistics major undergraduate and graduate students who have received intensive training in English prior to the experiment (average age 23:3 years old). The learner participants recruited in the UK include 18 Chinese overseas students currently studying at various main universities in the UK (average age 24:2 years old), and who have been living in the UK for at least 8 months by the time of the experiment. All the learner participants completed the Oxford Quick Placement Test prior to the main study, and they were put into four proficiency groups according to their performance in the placement test and their overseas experience. The socio-linguistic information of all the learner participants is listed below in Table 1. The NS group includes 24 native speakers of British English; none of them identifies themselves as Chinese-English bilingual, or has received systematic instruction on the Chinese language (any form of language course and self-study included). The learning experience of Chinese is controlled to avoid any influence from the L2 to their L1 on the results.

An acceptability judgement task containing 74 items was distributed to each participant in the experiment; the format of the task is displayed below in Figure 1. 24 items are sentences containing a metaphorical expression. Three types of metaphorical expressions were investigated in the study: metaphorical expressions

¹ The participant (28 years old) stated that she had been in the US for 36 months two years before the experiment (when she was 23). Considered that she has been living in China ever since and does not receive any exposure to native English environment since her return, she was not categorized as an overseas near native participant, but a low advanced participant according to her performance in the QQPT.

² All overseas experiences recorded were at least one year before the experiment. Average length of stay 3.5 months (SD = 3.79, range = 1 to 9 months). Average age of first overseas experience 16.25 years old (SD = 8.10, range = 7 to 24 years old).

³ Average length of stay 32.11 months (SD = 30.62, range = 8 to 108 months). Average age of first overseas experience 20.83 years old (SD = 3.70, range = 15 to 27 years old).

	IN	LA	HA	HO
Average OQPT score	36.81 (3.44)	44.5 (1.79)	52 (2.74)	53.18(4.92)
Average year of English learning	11.86 (2.80)	11.38 (2.32)	12.81(2.42)	15.83(3.59)
Average age of first exposure to English (y:m)	6:2 (2.15)	7:8 (3.13)	8:9 (3.14)	7:9 (2.76)
Average weekly exposure to English (hours)	13.17(17.03)	15.48(13.79)	25 (19.89)	46 (25.50)
English major	0	9	13	0
Standardised English test	0	3	7	15
Overseas experience	0	1 ¹	4 ²	18 ³

Table 1 The socio-linguistic backgrounds of the learner participants. Standard deviations are indicated in brackets.

shared between Chinese and English (MB items), metaphorical expressions available exclusively in Chinese (MS items) and metaphorical expressions available exclusively in English (MT items). Another 24 items were sentences containing the target word from the metaphorical expressions in a literal meaning, and the rest were filler sentences. As shown in Figure 1, the participants were required to rate the acceptability of each stimulus on an 11-point Likert scale of acceptability, provide a correction sentence in the blank when necessary, and then rate how confident they were when they made the judgement on a 5-point Likert scale of confidence. Three native speakers provided individual ratings to the acceptability judgement task prior to the experiment. After the regular adjustments of their results, the intra-test consistency of the metaphorical critical items and the literal counterpart items was calculated via Cronbach's alpha, $\alpha=0.97$, which means that the task was highly consistent internally. To avoid sequencing effect in the experiment, two versions of the list of the test sentences were provided, including two different sequences of the test sentences. Before the data analysis, all the acceptability judgement scores were adjusted to convert the midpoint of the scale as 0. Therefore, a positive acceptability score in the result indicates that the participant accepted the stimulus in the experiment, while a negative score indicates that she rejected the stimulus.

All the learner participants also completed a psychotypological survey in the study. Although the suggestion that psychotypology may influence the transferability of linguistic elements between a pair of source and target languages has

40. My mother said that these books would be food for thought.										
0	1	2	3	4	5	6	7	8	9	10
Not at all confident		Not very confident		Neutral		Confident		Very confident		

41. The mother held a belly of gas because her son failed in the exam.										
0	1	2	3	4	5	6	7	8	9	10
Not at all confident		Not very confident		Neutral		Confident		Very confident		

42. My sister helped me move the books onto the second shelf.										
0	1	2	3	4	5	6	7	8	9	10
Not at all confident		Not very confident		Neutral		Confident		Very confident		

Figure 1 An excerpt of the acceptability judgement task.

been proposed for more than three decades and is still widely discussed today, currently few experimental methods have been created or adopted to quantify the psychotypological distance between various languages by learners. Several ongoing studies on the acquisition of an additional European language by multilinguals who have already mastered several European languages (e.g. Neuser 2016 on the acquisition of English by multilingual speakers of Luxembourgish, German and French; Suhonen 2016 on the acquisition of English by bilingual speakers of Swedish and Finnish) make use of a series of Likert scales to measure the perceived similarity of different linguistic elements of individual learners between several languages, including the perceived similarities of phonetic and phonological, morphological and syntactic, lexical and orthographic features, as well as learners' general impressions. However, this paradigm is not applicable to Chinese learners of English if they are asked to measure the psychotypological distance between Chinese and English, because the lack of multilingual exposure to these participants, especially those residing in China, may create difficulty if they are asked to compare several languages. Therefore, another possible measurement of psychotypological distance between several languages should be developed in the current study in order to (1) include languages that Chinese learners of English are familiar with; and (2) ask the participants to provide a more general impression of psychotypology rather than restrict their impression to the linguistic features of different languages.

Two possible measurements have been considered in the design of the psychotypology survey, while both of them target general impressions the participants hold on the psychotypological distance and no detailed questions on linguistic elements are mentioned. The first one, which was used in the pilot version of the study, used a ranking order to measure the relative psychotypological distance between Chinese and other languages. The participants were given eleven well-known languages

and asked to rank the distances they perceive between the given languages and Chinese: for instance, if they believe that Japanese is closest to Chinese and Korean is second closest, they could number Japanese “1” and Korean “2”, etc. While the ranking paradigm could reflect participants’ primary judgement of psychotypological distance between Chinese and other languages, it fails to capture the possible differences in distance between different ranks. It is possible that the psychotypological distance between the closest language and the second closest language is significantly larger than the distance between the second and the third, while the ranking paradigm cannot reflect such difference, which makes the results less accurate and reliable.

The second method of measurement, which was used in the current study, was magnitude estimation, a paradigm widely used in psychology studies on perception and grammaticality judgement in syntax. The mechanism of magnitude estimation is to ask participants to estimate the perceived degree of one feature of a target object (e.g. the loudness of sound, the grammaticality of a sentence, etc. See [Bard, Robertson & Sorace 1996](#) for an illustration), using a given example as reference. Such mechanism of the test matches the perceived psychotypological distance between two languages perfectly, because the psychotypological distance is a belief held by individuals rather than a fixed feature of a language pair and it may vary among participants, which are the typical features of psychological perception that can be captured by magnitude estimation. The method is also more accurate than the ranking paradigm regarding the “distance” perceived by participants, because it allows the slight difference between two language pairs that cannot be captured by ordinal data.

The psychotypology survey followed the conventional regulation of magnitude estimation. The survey was created on a survey website, and each of the questions and instructions was displayed on a separate page. At the beginning of the survey, participants were introduced to magnitude estimation by measuring the length of given lines using the reference line as a standard. Then they were instructed to perform similar tasks on languages and “estimate the distance” between Chinese and another language. After two examples and six trial questions, the participants proceeded to the main session, in which they were asked to “measure the distances” between Chinese and eleven languages well-known to Chinese people, including English, Tibetan, Japanese, Korean, Mongolian, Vietnamese, Thai, German, French, Spanish and Arabic. In the whole process of the survey, the participants were not allowed to return to the previous question once they proceeded to the next one, so they could not modify the answer.

The responses of the psychotypology survey were standardised by the standard treatment of magnitude estimation using z-score calculation (see [Siddharthan & Katsos 2010](#) for a standard example). A z-score below 0 indicates that the participant believes that English is relatively close to Chinese among the eleven languages, because the distance between the two languages in her perception is shorter than the average distance of the given languages to Chinese. A positive z-score then indicates that the participant perceives English as a distant language from Chinese compared with other given languages.

5 THE RESULT OF PSYCHOTYPOLOGICAL RATING AND POSSIBLE INFLUENTIAL FACTORS OF PSYCHOTYPOLOGY

After the standardisation process, the psychotypological distance between Chinese and English ranges between -2.25 and 3.01 among the intermediate participants, between -1.30 and 1.72 among the low advanced participants, between -0.92 and 1.48 among the high advanced participants, and between -0.70 and 1.78 among the overseas participants. The perception of psychotypological distance between the two languages seems to be more unified among more proficient participants, while less proficient participants tend to make some radical judgements. The distribution of language distance perception and proficiency levels is demonstrated in Table 6 above. As discussed before, 0 is used as a borderline to classify participants' perception of language distance. Although there seems to be a trend that more proficient learners would like to perceive English as a more distant language from Chinese than their peers at lower levels of proficiency, mixed effect models reveal that there is no significant correlation between English proficiency of the participants and their perception of the psychotypological distance between Chinese and English ($df=3$, Pearson's $\chi^2=0.28$, $p=0.96$). None of the socio-linguistic background factors, including university major, weekly exposure to English, experience of standardised English test or overseas experience, show influence on the perception of psychotypology either.

	IN	LA	HA	HO	Total
Close ($z < 0$)	11	12	6	7	36
Distant ($z \geq 0$)	10	14	15	11	50

Table 2 The distribution of psychotypological distance between Chinese and English among different groups of participants.

In order to investigate the possible influential factors of psychotypological distance, the participants were asked to report their linguistic experience. The linguistic experience was sorted into two categories: experience of learning a third language, meaning the experience of systematic, guided language instruction on a language other than Chinese and English (e.g. modern language courses in school or extra-curricular training sessions); and experience of regular language exposure, which means the experience of weekly unguided incidental exposure (e.g. self-learning, watching TV or listening to music, etc). Since all of the participants are Chinese-English late bilinguals, they have already received systematic training in the two languages. A summary of the linguistic experience is shown in Table 3.

Although the linguistic experience of the surveyed participants shows a certain degree of diversity except the basic exposure to Chinese and English, it can be observed that the linguistic experience of Chinese learners of English is relatively restricted. Compared with the participants in recent research on psychotypology, e.g. Bardel & Lindqvist (2006), Leung (2005), the participants in the current survey

	IN	LA	HA	HO	Average
Acquired languages	2.19(0.51)	2.42(0.50)	3.24(1.04)	2.72(0.83)	2.62(0.83)
Languages with regular exposure	2.81(0.75)	3.04(0.92)	4.09(1.34)	3.17(1.10)	3.27(1.13)

Table 3 The average number of acquired languages and languages with regular exposure among different proficiency groups.

receive relatively less exposure to a third language in general, no matter which language it is and in what way they receive the exposure.

The influence of the acquisition of a third language on the perception of psychotypological distance between their L1 and the L2 is less significant than those indicated in previous studies. Particularly, the additional language learning experience did not show any clear effect on the psychotypological distance between Chinese and English. The participants who have acquired a third language formally do not have significant difference when they are asked to evaluate the distance between Chinese and English, regardless of the exact language(s) ($p=0.97$ for the acquisition of an L3). Ten learners reported that they have learned at least two L3s in their study, but their perception of the psychotypological difference does not differ drastically from other participants who have learned fewer than one L3 ($df=1$, Pearson's $\chi^2=0.067$, $p=0.80$).

The language family of the participant's third language does not influence the perception of the psychotypological distance. The participants who have learned Indo-European language(s) such as French, German, Spanish or Latin do not show significantly different perception compared with those who have learned non-Indo-European language(s) such as Japanese, Korean, Malay, Manchu or Hebrew ($p=0.25$). Participants were also asked to report the number of cumulative hours of acquisition of their third languages. Among the participants who have learned an L3, the length of acquisition of a third language does not influence individual psychotypological distance either ($df=1$, Pearson's $\chi^2=0.0125$, $p=0.91$ for an Indo-European L3; $df=1$, Pearson's $\chi^2=0.3169$, $p=0.57$ for a non-Indo-European L3).

However, it is observed that the influence of additional informal linguistic exposure may have a certain degree of impact on the perception of psychotypology, especially when the participants receive regular, informal exposure from a variety of different languages. Twenty participants out of 86 reported that they have received regular weekly exposure from at least four languages, namely Chinese, English, and at least two additional languages. Compared with their peers who receive less varied linguistic exposure, they tend to have a significantly shorter psychotypological distance between Chinese and English ($df=1$, Pearson's $\chi^2=4.00$, $p=0.045$), but the language families of those languages they are exposed to do not influence the result. Furthermore, the influence of additional linguistic exposure is independent from the learners' proficiency of English, university major and the

number of acquired languages. It seems in the current case that although the learners' perception of psychotypological distance between their L1 and L2 may not be significantly influenced by the acquisition of a third language, it might be influenced by regular informal exposure to varied linguistic structures, even if the learners have not received any instruction.

6 THE INFLUENCE OF PSYCHOTYPOLOGY ON THE ACQUISITION OF METAPHORICAL EXPRESSIONS

It has been stated in Section 3 that learners who perceived a shorter psychotypological distance between English and Chinese are likely to transfer more knowledge from Chinese to English than their peers who perceived of the distance as longer, which could be reflected by the score of the stimulus in the acceptability judgement task. Still, further assumptions about the participants' strategies of transfer can be made based on a joint analysis of the acceptability score and the degree of confidence indicated by the learner participants. The fundamental assumption is that the learners can eventually achieve the native-like level by showing a confident native-like performance in the acceptability judgement task. Therefore, when the learner participants provide similar judgements with the native speakers, and they are confident about their judgements at the same time, it indicates that the learners either possess correct relevant knowledge to make the decision without any doubt, or assume that they have acquired the linguistic elements. On the other hand, when the learner participants provide some judgements different from the native speakers, or they lack confidence to justify their judgements, there might be a trace of transfer depending on the exact situation.

Two sets of cutting points were therefore set to categorise the performance of the learner participants. As mentioned before, the cutting point between "acceptance" and "rejection" of a stimulus is 0 after the adjustment of the score. The cutting point between "confident judgement" and "unconfident judgement" on the confidence measurement scale is 3; a confidence rating above 3 (including "confident" and "very confident") indicates that the judgement is made with confidence, while a confidence rating not higher than 3 (including "not confident at all", "not confident" and "neutral") indicates that the participant shows certain degrees of hesitation when she makes the judgement.

The general result of the acceptability judgement task is displayed above as Figure 2. It can be seen that the native speakers (the violet bars) generally accepted the metaphorical expressions shared between Chinese and English (MB items) as well as the metaphorical expressions only available in English (MT items), since both of them are available in English. At the same time, the native group also rejected the metaphorical expressions only available in Chinese (MS items) because those expression do not exist in English. The performance of native speakers can be used as a benchmark to measure the learner participants' knowledge.

Learner participants are expected to accept the MB items to show that they have the knowledge related to these expressions. As shown in Figure 2, all the learners tend to accepted the MB items to different degrees. However, since the expressions

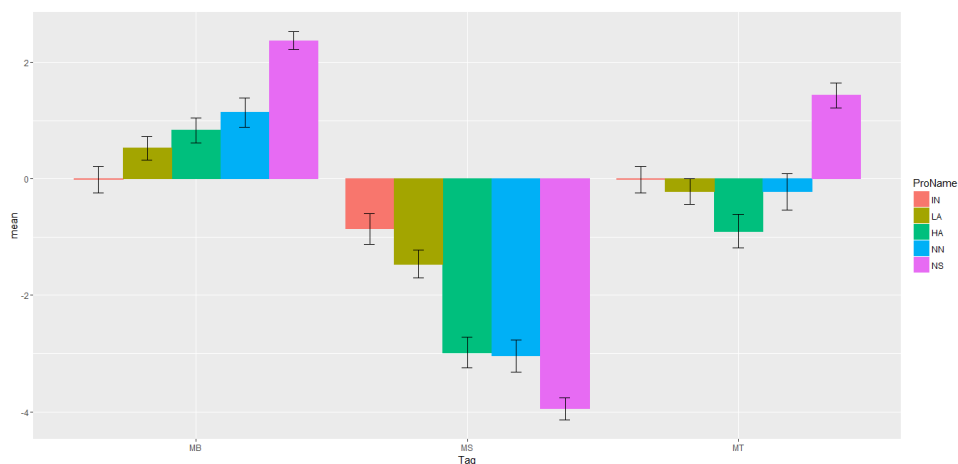


Figure 2 The acceptability score of metaphorical expressions.

are shared between the two languages, and a simple transfer from Chinese to English can also lead to acceptance, a simple analysis of the acceptability score cannot reflect the result of acquisition, and it is important to differentiate the result of acquisition and the result of transfer by adopting the assumption of transfer strategies. If a learner participant accepts an MB item with confidence, it can be assumed that she already acquired the relevant knowledge, or at least she believed herself to possess the knowledge. On the other hand, if she accepts an MB item, but with certain degree of uncertainty, then the acceptance is more likely due to positive transfer from the L1. If a learner shows rejection to the expression, regardless of her confidence level, that could be seen as “transfer blocked”. In that case, the learner seems neither to have prior knowledge of the MB item, nor to allow transfer from Chinese to English.

Similar to the native speakers, learner participants generally rejected the MS items, but divergence could still be observed between individual participants. Particularly, intermediate and low advanced participants show significantly less rejection to the MS items compared with the native speakers ($df=1$, Pearson’s $\chi^2=33.25$, $p<0.001$ for IN participants; $df=1$, Pearson’s $\chi^2=31.92$, $p<0.001$ for LA participants). If a learner rejects the MS item with confidence, it can be assumed that she already acquired that expression, or to be more precise, the impossibility of that expression. In this situation, since there is no corresponding metaphorical expression in English, it is not possible for a learner to transfer her knowledge to a target. The identification of cross-linguistic influence in this situation, therefore, is to find the judgements showing “transfer to somewhere”. Thus, any types of acceptance of an MS item by a learner participant could indicate trace of cross-linguistic influence, no matter how confident the learner indicates she is. Transfer blocked in this situation includes rejection to the given MS item with relatively low confidence level, because it seems that the learner has yet acquired the impossibility of the expression but has the instinct that it is not possible in the L2.

The result of the MT items is more complicated. Learners at different levels of proficiency tended to reject MT items, which is clearly opposite to the native speakers. Except for the intermediate group, all groups of learners showed significant rejection to the MT items compared with the native speakers (df=1, Pearson's $\chi^2=17.34$, $p=0.60$ for IN participants; df=1, Pearson's $\chi^2=18.17$, $p=0.02$ for LA participants; df=1, Pearson's $\chi^2=15.90$, $p=0.008$ for HA participants; df=1, Pearson's $\chi^2=22.13$, $p=0.03$ for HO participants). Since the MT items are available in English exclusively, acceptance with confidence made by a learner can be an indicator of acquisition. On the contrary, any type of rejection, either with or without confidence, should be seen as the sign of L1 influence, because it suggests that a learner rejects an L2 expression that is not available in her L1, which is "transferring something to the L2", although the transferred element is blank. One may argue that a learner might be too careful to accept these expressions, but she must hold some reasons to believe that the expressions do not exist when she rejects the expressions, which are ultimately based on her knowledge of L1. Finally, any acceptance to MT item with relatively low confidence level could be seen as transfer blocked. A summary of the assumptions on the transfer strategies adopted by the learner participants is listed below in Table 4. Cells in light grey mark out the situations where learners are assumed to adopt transfer strategies, and cells in dark grey mark out the situations where transfer is likely to be blocked.

MB items		
	Confident	Unconfident
Acceptance	Expression acquired	Possible positive transfer
Rejection	Transfer blocked	
MS items		
	Confident	Unconfident
Acceptance	Possible negative transfer	
Rejection	Expression acquired	Transfer blocked
MT items		
	Confident	Unconfident
Acceptance	Expression acquired	Transfer blocked
Rejection	Possible negative transfer	

Table 4 The assumption of transfer strategies of the learner participants based on the acceptability score and the confidence rating.

To examine whether learners with shorter psychological distance would show greater acceptance to the MB and MS item and greater rejection to the MT items, mixed effect models have been constructed to examine whether the AJT scores of

metaphorical expressions could be interpreted as a function in which the individual psychotypological distance is a fixed factor. The effect of psychotypological distance was computed within each proficiency group to avoid the influence of English proficiency. It was observed that the influence of psychotypological distance was not significant on the AJT scores of any metaphorical conditions in any groups of learner participants, as no significant difference of the AJT scores was correlated with the psychotypological distance between Chinese and English by individual participants. It seems that the individual perception of psychotypological distance does not linearly influence learners' judgements of metaphorical expressions, no matter which level of proficiency they are at and which category of metaphorical expressions they rate.

However, certain degree of influence of psychotypology might appear when the difference of psychotypological distance was examined under the assumptions of transfer discussed earlier this section. At this stage, a Mann-Whitney test was applied to the z-scores of psychotypological distances that are linked to the instances of possible transfer and those of transfer blocked. A significant difference was observed when the intermediate and low advanced learners provided judgements to the MT items. The psychotypological distance of the intermediate participants who blocked possible transfer of their L1 knowledge when judging the MT items was significantly longer than that of those who showed possible transfer ($W=1105.5$, $p=0.042$), and a similar effect was also observed in the low advanced group ($W=1411.5$, $p=0.006$). This effect on the MT items was not observed in the high advanced and overseas groups. Other than that, no significant influence of psychotypological distance was observed in other metaphorical conditions by the learner groups.

To summarise, the participants who perceived English as a language close to Chinese did present more cross-linguistic influence from their L1 on the L2 than their peers who believed that English was remote from Chinese, but the result was more complicated than the primary assumption. The participants with shorter psychotypological distance did not show higher degree of acceptance to the expressions that are available in the L1 (namely MB and MS items), nor reject metaphorical expressions only available in the L2 (namely MT items) more. However, under the assumption of the strategies of transfer, which combined the degree of acceptability of a metaphorical expression and the confidence level, it can be observed that the learners who transferred more L1 knowledge to the L2 in the judgement of the MT items did perceive English as a language closer to Chinese. The psychotypological distance between Chinese and English of individual learners seems to be independent from the proficiency of learners, but somehow related to learners' judgement of metaphorical expressions, which indicates that the influence of psychotypological distance on the acquisition of metaphorical expressions exists independently. Two feasible mechanisms can be derived from the result above. Firstly, psychotypology may only influence the acquisition of metaphorical expressions at relatively early stages of acquisition, and its effect could disappear after the learners become more proficient. Secondly, psychotypology may only obviously influence the acquisition of a particular type of metaphorical expressions, namely those expressions available in the L2 exclusively. The reason could be that learners are less exposed to these

items in their source language so they might rely more on transfer to make judgements to these items. The current result could be seen as the joint influence of the two possible mechanisms.

The current experiment presents some interesting evidence, as well as some further hypotheses, regarding the relation between the transfer phenomenon in the acquisition of word meanings and the constraints on transfer. In general, it follows the assumptions by [Jordens & Kellerman \(1981\)](#) and intends to explore the impact of the three major constraints, particularly psychotypology, on cross-linguistic influence in the acquisition of metaphorical expressions. However, the emphasis of the current study is slightly different from the target of Jordens and Kellerman: the current study focuses on the influence of the in-group psychotypological difference, rather than the differences between two sets of languages as perceived by a same group of people. The psychotypology survey showed that the learner participants have different perceptions of the psychotypological distance between their L1 Chinese and the L2 English, although more than half of the participants suggests that English is farther from Chinese compared with other given languages. In the current experiment, the psychotypological distance was measured in an impressionist way, and learners were not asked to provide any linguistic evidence to support their claims, partly because intermediate learners were less able to describe a language from a linguistic perspective systematically. No significant correlation was found between learners' perception of the psychotypological distance and learners' general L2 proficiency, and it has not been confirmed yet in the current study how the acquisition of a third language may influence the psychotypological perception of a learner's L1 and L2. Nevertheless, the result revealed that regular exposure to a variety of languages might change learners' perception of psychotypological distance, even though the way that learners form their psychotypological perception is still not clear.

At the same time, traces of cross-linguistic influence on the acquisition of metaphorical expressions have been observed across different proficiency levels. Particularly, less proficient learners demonstrated more significant cross-linguistic influence when judging the MS and MT items. From the two parts of result, we can see that transfer is possible in the acquisition of metaphorical expressions even for language pairs that are psychotypologically distant, and it plays an important and persistent role in some conditions. The observation of long distance transfer does not oppose to Jordens and Kellerman's fundamental assumption, because they suggest that what psychotypology will influence is the likelihood of transferability, rather than a binary parameter: transfer or not. The distant psychotypological distance between Chinese and English only suggests that the transfer from Chinese to English will be less likely to happen if we compare it with the cross-linguistic influence between two psychotypologically close languages. It does not mean that transfer from Chinese to English is totally blocked; otherwise it would be questionable how the process of second language acquisition could be free from any cross-linguistic influence.

The only condition in which the different psychotypological distances are correlated to difference of transferability is the judgements of the MT items among the

intermediate and low advanced learners. The result is “complex” in several aspects: (1) the influenced structures are those that are exclusively not available in the learners’ L1; (2) this kind of observed transfer is negative, in the form of rejection; and (3) the proficiency of learners is relatively low when the impact of psychotypology is observed. Based on these features, it is reasonable for us to assume that (1) the influence of psychotypology on the transferability of metaphorical expressions is more likely to happen when learners are less proficient; and (2) in this specific area of acquisition of metaphorical expressions, psychotypology tends to influence learners’ attitude to unknown metaphorical expressions. Learners who perceive the distance longer tend to be more receptive to the expressions that are not available in their L1, while those who perceive the distance shorter are more “conservative” and less willing to take the risk. The second assumption could explain why transfer of the MT items is influenced by psychotypology but that of the MS items is not, even if they are both negative transfer and observed in the experiment. It should be noted that this kind of impact of psychotypology on cross-linguistic influence is exclusively summarised and analysed in the acquisition of metaphorical expressions, which is in the area of vocabulary and lexical meanings, while its impact may be different in the process of acquisition of other linguistic elements.

7 CONCLUDING REMARKS

This article mainly reports the relation between individual psychotypological distance between Chinese and English and the possible cross-linguistic influence on the acquisition of metaphorical expressions by different levels of Chinese learners of English. The metaphorical expressions investigated in the study can be divided to three types: the expressions shared between Chinese and English (MB category), the expressions that only appear in Chinese (MS category), and the expressions that only appear in English (MT category). The three types of metaphorical expressions receive different types of cross-linguistic influences, either positive or negative, depending on the availability of the metaphorical expressions in the L1 of the learners.

Psychotypology between the L1 and the L2 has been investigated as a main constraint of cross-linguistic transfer in the study. A version of magnitude estimation was used to quantify the perception of psychotypology between Chinese and English among the learner participants. Even among the learner participants with similar linguistic background, the perception of psychotypology varies between individuals, and regular exposure to a variety of languages in an informal setting might be a trigger of the difference of psychotypology. The cross-linguistic influence from Chinese to English on the acquisition of metaphorical expressions survives a long psychological distance between the two languages, and the difference in the perception of psychotypology also affect the acquisition of some metaphorical expressions in a limited way. The only observed influence is that less proficient learners who perceive the psychotypological distance shorter tend to show more negative transfer from their L1 when asked to judge the metaphorical expressions only available in their L2. While the result could suggest that psychotypology

can influence the likelihood of cross-linguistic influence, it also indicates that the influence of psychotypology on transferability is restricted by several constraints, such as the availability of the linguistic elements and learners' proficiency.

It should be again noted that the current experiment is essentially different from the study recorded in [Jordens & Kellerman \(1981\)](#) on Dutch speakers learning English and German as well as other studies involving the acquisition of an L3: Jordens and Kellerman observed two groups of learners who were learning two different languages separately, and they assumed that learners had distinct psychotypological distances between two different language pairs. In the current experiment, however, the individual difference of psychotypological distance between a single pair of languages is monitored, which involves fewer languages and possibly more diverse perception. Further investigation is needed to explore whether the individual or collective difference of psychotypology can impact on the acquisition of linguistic elements in the same way. The follow-up of the project will target whether psychotypology can influence the online processing of metaphorical expressions.

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