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CROSS-LINGUISTIC INFLUENCE IN THIRD-LANGUAGE ACQUISITION: LEARNING MANDARIN CHINESE (L3) THROUGH THE MEDIUM OF ENGLISH (L2)

Wpływ międzyjęzykowy w nabywaniu drugiego języka obcego na przykładzie nauki języka chińskiego (L3) za pośrednictwem języka angielskiego (L2)

Interferencja (znana także jako transfer językowy) L1 to wpływ pierwszego języka na produkcję lub odbiór języka drugiego (L2). Większość badań dotyczących zjawiska interferencji koncentruje się na procesie przyswajania i produkcji zachodzącym pomiędzy językiem ojczystym a pierwszym nauczanym językiem obcym. Jednakże tego typu transfer językowy może również dotyczyć posługiwania się drugim językiem obcym (L3). Artykuł przedstawia głównie spostrzeżenia poczynione podczas prowadzenia zajęć z języka chińskiego (L3) dla mieszanej (Polacy/Ukraińcy) grupy początkujących. Zajęcia były prowadzone w języku angielskim (L2) (poziom angielskiego grupy: B2). W ostatnich latach coraz więcej badań prowadzonych jest nad tematem wpływu międzyjęzykowego w postaci transferu zarówno z L1, jak i z L2 w odbiorze L3, a niektóre badania pokazują, że wpływ L2 na opanowanie sprawności językowych w L3 może być bardziej istotny niż wpływ L1. Celem pracy było zatem stwierdzenie, jaki wpływ ma L1 i L2 na produkcję L3 oraz czy przewagę pod tym względem ma L1, czy L2. Stwierdzono, że na gramatykę najbardziej wpływał L2, a na fonetykę – L1. Przykłady transferu semantycznego były nieliczne.

Słowa kluczowe: wpływ międzyjęzykowy, transfer/interferencja, język ojczysty (L1), pierwszy język obcy (L2), drugi język obcy (L3)

1. Introduction

It is often stated that multilingualism (knowledge of three or more languages) is at least as frequent as monolingualism, although as Hammarberg (2001, p. 21) points out, such claims are difficult to support with statistical evidence. What is clear is that foreign language learning is a common and increasing tendency throughout the world. Among the main reasons cited for this trend are the rise of globalisation (Cenoz and Jessner, 2000) and increased migration flows (Cenoz, Hufeisen and Jessner, 2001; Gunnarsson, 2014). The growth of multilingualism and third-language acquisition has attracted the attention of a considerable number of academic researchers seeking to determine the differences between second-language acquisition (SLA) and third-language acquisition (TLA) from both a sociolinguistic and psycholinguistic perspective (Cenoz *et al.*, 2001, p. 1).

1.1. Transfer

In early research on SLA, the phenomenon of language contact effects, especially L1 influence on L2 production, was seen almost entirely as a negative tendency, which was reflected in the term initially used to describe the phenomenon, 'interference'. (Weinreich, 1953). However, subsequent research showed that native language influence on SLA was not always negative; as a consequence, the term 'transfer' began to replace 'interference' (Murphy, 2003, p. 3). A widely used definition of transfer is that formulated by Odlin: "transfer is the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (Odlin, 1989, p. 27). This definition is considered by some to be too broad (Sharwood Smith and Kellerman, 1986), and Odlin himself stressed that it "is only a working definition, since there are problematic terms within the definition." (Odlin, 1989, p. 27); however, it has the advantage of being phrased in such a way as to allow it to be applied to either SLA or TLA and will serve adequately as a practical definition for the purposes of this study. Finally, a distinction should be made between forward transfer and reverse transfer: forward transfer applies to transfer from L1 to L2, or from L1 or L2 to L3, while reverse transfer refers to transfer from L3 to L2 or L1, or from L2 to L1.

1.2. Factors affecting transfer in 3rd language production

Perhaps the most interesting aspect of cross-linguistic influence (CLI) in 3rd language production is determining which language, the speaker's native language (L1) or their first foreign language (L2), influences L3 production more. When forward transfer takes place from L1 to L3 or from L2 to L3, the source of the transfer is referred to as the 'supplier language'. In an important study, Williams and Hammarberg (1998, p. 303) argued that "L1 and L2 may play essentially different roles in L3 acquisition". Third-language learners unconsciously assign

two roles, the instrumental role and the default supplier role, to their previously learned languages. The instrumental role is appointed to the language (L1 or L2) with which the speaker identifies and with which the interlocutor associates the speaker, both linguistically and culturally. In contrast, the default supplier role is allocated to the language (L1 or L2) which exerts the greater influence in L3 production. The default supplier is the language "scoring the highest on all counts" based on four factors: psychotypology, L2 status, proficiency, and recency" (Williams and Hammarberg, 1998, p. 322).

1.2.1. Language typology and psychotypology

At the level of linguistic analysis, a number of criteria may be applied to classify languages by type. They may, for example, be classified according to syntactic structure, such as SVO or SOV, or by whether they are analytical languages, conveying grammatical relationships without using inflectional morphemes, or synthetic languages, in which syntactic relations within sentences are expressed by inflection. However, as Kellerman (1979, 1983) has shown, language learners make subjective judgments about the *perceived* distance between languages (for which he coined the term 'psychotypology'), and that this is a key factor in determining the transferability of items across languages; transfer between languages is more likely if the learner perceives that they share some characteristics.

1.2.2. L2 status factor or foreign language effect

The powerful effect that L2 can have on L3 production has been noticed by a number of authors and has been described as the L2 status factor by Williams and Hammarberg (1998) or the foreign language effect by Meisel (1983) and De Angelis and Selinker (2001). Hammarberg (2001) defines the L2 status factor as "a desire to suppress L1 as being 'non-foreign' and to rely rather on an orientation towards a prior L2 as a strategy to approach the L3" (Hammarberg 2001, pp. 36–37). Bardel and Falk found that "the L2 status factor is stronger than the typology factor in L3 acquisition" and that "in L3 acquisition, the L2 acts like a filter, making the L1 inaccessible" (Bardel and Falk, 2007, p. 480). Williams and Hammarberg (1998, p. 323) concluded that: "Provided the factors of proficiency, typology, and recency are at a sufficient level, L2s appear more likely to be activated than the L1 as supplier language during the early stages of L3 acquisition." Falk and Bardel go even further, arguing that the L2 status factor continues well beyond the initial stages of L3 acquisition and affects L3 production even at intermediate levels (Falk and Bardel, 2011).

1.2.3. Proficiency

Proficiency is a major factor in forward transfer in L3 acquisition. A number of authors agree that a substantial proportion of L2→L3 transfer may be attributed to low L3 proficiency (Dewaele, 2001; Fuller, 1999; Hammarberg, 2001; Williams

& Hammarberg, 1998). By the same token, L2→L3 transfer appears to decrease as L3 proficiency increases (Dewaele, 1998), and L2 influence diminishes twice as quickly as L1 influence (Hammarberg, 2001). Moreover, L2→L3 transfer is limited or unlikely unless L2 proficiency is at a "sufficient" (Williams and Hammarberg, 1998, p. 323) or "threshold" (Tremblay, 2006, p. 117) level. Tremblay also suggests that exposure to L2 is as important a factor as proficiency in L2: "a high level of L2 proficiency may not be enough for L2 to become automatized and that L2 exposure may be essential." (Tremblay, 2006, p. 117).

1.2.4. Recency

Recency is seen as either recency of use or recency of acquisition. De Angelis defined recency of use as "how recently a language was last used" (De Angelis, 2007, p. 35). According to Hammarberg: "an L2 is activated more easily if the speaker has used it recently" (Hammarberg, 2001, p. 23). Some research points to recency of acquisition, which is related to L2 status or "foreign language effect", as also being a factor in L2 activation. Both Shanon (1991) and Dewaele (1999) allude to a 'last language effect', in which speakers are influenced by the last language they have learnt.

1.3. Aims of the present study

It is clear that cross-linguistic transfer occurs during third language acquisition and that the influence may be from L1 or L2. In the context of the classroom situation described below, this paper sought to establish the extent to which forward transfer from L1 and/or L2 affected L3 production and to ascertain the circumstances in which L1 or L2 was the dominant influence.

2. Nature of the present study

The majority of the literature on cross-linguistic influence, transfer and third language acquisition is based on data obtained from planned and prepared quantitative studies targeting specific areas (e.g. lexis, syntax, phonology) of learner production of non-native languages. The present work was not planned or prepared in this way; it rather 'emerged' out of observations made during the course of classroom teaching and does not, therefore, carry the weight of a full quantitative study, although some statistical data were obtained from learners' answers in written tests.

2.1. Learners, languages and circumstances

The observations presented in this paper arose from a beginners course in Mandarin Chinese taught by the author at Andrzej Frycz Modrzewski Kraków University over two semesters from October 2015 to June 2016. The students involved

were in their 2nd year of a 3-year English philology degree, who had previously selected "Elements of Chinese as used in Business" as their special subject for study during the 2nd and 3rd years. The students were of Polish and Ukrainian nationality, divided more or less equally; therefore, L1 was either Polish or Ukrainian, with the Ukrainian students being truly bilingual in Ukrainian and Russian. The students' L2 was English, and Mandarin Chinese was L3. Apart from one student who had previously completed a semester of a Chinese beginners course at a different institution, all the students were true beginners. The general English level of the students was B2/B2+.

English was used as the language of instruction for the following reasons:

1) Given the particular difficulties posed by Mandarin for European learners, it was considered that the total immersion method would be inappropriate.
2) The use of English rather than any of the students' L1s would not favour any members of a mixed group.
3) A standard Mandarin textbook was used,[1] which is annotated in English.
4) English is the usual language of instruction for subjects taught on the English philology degree.

2.2. Selection and collection of data

The examples of transfer discussed later in this work were noted by the author during lessons or obtained from students' answers in a written test. Although a large number of interesting examples of transfer were noticed, many of these were isolated examples from only one student. Such examples were disregarded for the purposes of this study as being statistically insignificant.; only examples of transfer which were heard several times by different students were selected for inclusion in the present study, although, as explained above, with the exception of answers given in tests, quantitative data are not available in these cases.

3. Examples of transfer

As a non-Indo-European, tonal language using a logographic script, Mandarin Chinese presents substantial phonological, grammatical, lexical and orthographic challenges to European learners, and examples of transfer were found in each of the first three of these categories.[2]

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[1] Liu Xun (2010). *New Practical Chinese Reader 1* (2nd Edition). Beijing: Beijing Language & Culture University Press.

[2] While the issue of orthographic transfer from an alphabetic to a logographic script does not arise, it will be seen that there was an orthographic element in phonological transfer, in that students produced non-target pronunciations of Mandarin initials and finals due to errors in ascribing phonetic values to syllables transliterated using pinyin romanisation. These errors were caused by transferring phonetic values from LI/L2 orthography for the romanised Mandarin syllable (see section 3.1.4.2.).

3.1. Phonological transfer

In the case of Mandarin Chinese acquisition, transfer in the area of phonology can be divided into two categories: intonation and pronunciation of initials and finals.

3.1.1. Intonation

All European students find the idea of a tonal language difficult. The rationale for tone differentiation in Mandarin is entirely different from that in European languages; in the former, tonality is used to differentiate meaning, and is therefore phonemic since changing the tone of a syllable changes the meaning of a word. In European languages, intonation has, among others, grammatical, attitudinal and discourse functions, which in Mandarin are usually performed by particles.

There are five tonal possibilities for syllables in Mandarin Chinese: one of the four tones[3] or neutral tone. Accuracy in tone production is very important, but is perhaps less crucial in disyllabic words (the majority in modern Chinese); however, in monosyllabic words, and most of the words occurring in the highest frequency in Mandarin are monosyllabic, tonal accuracy can be absolutely crucial to meaning. For example, the verb *mǎi* (third tone) means *buy*, while the verb *mài* (fourth tone) means *sell*.

Apart from intonational errors caused by transfer of European default intonation patterns (see below), students were generally challenged by the requirement to memorise and accurately reproduce the correct tone for each syllable uttered; in this they were typical of most beginning learners of Mandarin. Accuracy in tone production is normally acquired only after considerable exposure to hearing and practice of speaking the language.

3.1.1.1. Intonational transfer

Certain default intonation patterns are common in European languages. A rising intonation is used to indicate questions (usually yes/no questions) or uncertainty, e.g. answering questions without conviction, not being certain if the information in the answer is correct. A falling intonation is the default pitch pattern in sentence-final and clause-final cadences. Students regularly transferred these default intonations in their production of Mandarin, using falling intonation at the end of sentences, regardless of the lexical tonality of the Mandarin, and rising intonation for questions and expressing uncertainty: indeed, the latter was perhaps the biggest single reason for intonation transfer since students were, quite naturally for beginners, frequently uncertain of the correctness of their response, with the result that all such utterances were made in a high rising (i.e. Mandarin second) tone, regardless of the target tone. When questioned further, students often correctly identified the target tone of the syllable, but they had been unable

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[3]   First tone: level; second tone: high rising; third tone: low rising; fourth tone: falling.

to produce it due to the strength of the intonation transfer in a situation where the student felt even a slight degree of uncertainty.

3.1.2. Segmental phonology: initials and finals

The conventional analysis of the Mandarin syllable is that it consists of an initial and a final. The initial consists of a single consonant (Mandarin does not have consonant clusters). However, not all Mandarin syllables require an initial consonant; many syllables consist only of a final. The basic minimum required in a Mandarin final is a nuclear vowel (with the possible exception of syllabic fricatives, see below), with some finals also having a pre-nuclear approximant and others a post-nuclear nasal or retroflexive.

While some Mandarin phones are similar or identical to those in the students' L1 or L2, there are also others which do not feature in any languages the students are familiar with and initially seem quite alien. Such phones include the so-called syllabic fricatives (pinyin transcription *zi, ci, si, zhi, chi, shi, ri*[4]; articulation is post-alveolar, with the latter four being retroflexive), the rounded close-mid back vowel [ɤ][5] (pinyin transcription *e*), the rounded open-mid front vowel [œ] (pinyin transcription *e*) and the rounded close front vowel [y] (pinyin transcription *u* or *ü*). Phones which do not occur in the students' L1 but do occur in English (L2) include schwa [ə] (pinyin transcription *e*) and the velar nasal [ŋ] (pinyin transcription *ng*). Although the velar nasal [ŋ] occurs in the students' L1, it is always followed by a velar plosive, either [k] or [g]. In both English and Mandarin the velar nasal occurs without a following velar plosive.

3.1.3. Issues concerning pinyin[6]

The advantages and disadvantages of using pinyin to teach Mandarin pronunciation are familiar to many and succinctly expressed by Bassetti: "On the one hand, it provides a very useful tool for teaching Chinese phonology and vocabulary, and for allowing beginner learners to read. On the other hand, it can have negative effects on learners' pronunciation." (Bassetti, 2007, p. 1) The same author concludes: "The influence of pinyin results in non-target-like pronunciations that never occur … in the Chinese spoken language learners are exposed to…" (Bassetti, 2007, p. 12).

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[4]   I have given only the pinyin transcriptions without IPA transcriptions because there is some disagreement among phoneticians concerning the phonetic realisation (due to variation among native Mandarin speakers) and, therefore, phonetic transcription of these phonemes. The issues revolve around whether and to what extent the initial frication continues throughout the duration of the syllable.

[5]   In the present work, phonetic realisations are given using International Phonetic Alphabet (IPA) symbols in square brackets.

[6]   Pinyin, or to give it its official name, *Hanyu pinyin*, is the system of romanisation for Mandarin Chinese most widely used today. Most beginners of Mandarin start to learn the language using pinyin rather than Chinese characters. Originally developed in the People's Republic of China (PRC), it is now the official system (with some variant forms outside the PRC) for transcribing the Mandarin pronunciation of Chinese characters in the PRC, Taiwan (Republic of China), and Singapore.

One of the main reasons why pinyin leads to confusion and "non-target-like pronunciations" is that it is not a consistent and precise system of phonetic transcription in the way that IPA is. Limited to the letters of the Roman alphabet, a single vowel letter can be used to represent distinctly different sounds: for example, the letters *e* and *a* are each used to represent at least three distinct phones and the letters *o* and *i* two different sounds each. Another confusing inconsistency in pinyin is triphthong reduction: a triphthong final has the middle letter missing when preceded by a consonant initial. For example, the final -*iou* [ioʊ] is written -*iu*, as in *liu* [lioʊ], and the final -*uei* [ueɪ] is written -*ui*, as in *gui* [kueɪ].

3.1.4. Segmental phonological transfer

With regard to segmental phonology, it would perhaps be appropriate to classify examples of transfer as belonging to one of two types.

3.1.4.1. Direct transfer from L1/L2

Students struggled with a number of Mandarin phones which do not exist in L1 or L2, some of which have been mentioned in section 3.1.2. However, in many of these cases, non-target realisations of these sounds were most probably at least partly caused by their pinyin romanisation and for that reason are not included here.

The clearest example of direct transfer without any orthographic influence from the pinyin romanisation is the failure to correctly articulate syllable-final velar nasals[7], which, as explained above, do not occur without a following velar plosive in the speakers' L1. In most cases of non-target production, students either produced dental/alveolar nasals or velar nasals followed by a velar plosive. Clearly, this is a result of L1 and not L2 influence since syllable-final velar nasals are frequent in English. Having previously taught the same students English phonetics, the present author can report that mastering velar nasals in English was (and in some cases, remains) a difficult challenge for students with Polish/Ukrainian L1, and transfer from L1 of alveolar/dental nasal or velar nasal followed by velar plosive was a significant feature in these students' L2 phonetic production.

Generally speaking, there were no differences between Polish and Ukrainian students with regard to transfer in segmental phonology. Given the phonetic similarity between Polish and Ukrainian, this finding was not unexpected. There was, however, one exception, which concerned the Mandarin unvoiced aspirated dental plosive initial (pinyin transcription *t*). The phonetic realisation of this phoneme, which appears only in initial position, is [tʰ]. The aspiration is quite pronounced and the exhalation is audible in the speech of most Mandarin speakers.

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[7]   The pinyin romanisation of the velar nasal is -*ng* in syllable-final position, which clearly does not cause any confusion with other phones in either L1 or L2.

The degree of aspiration is somewhat greater than that of the English unvoiced alveolar plosive and considerably more marked than either Polish or Ukrainian unvoiced dental plosive. Aspiration of syllable-initial unvoiced plosives in Slavic languages is generally quite light or even entirely absent. One noticeable difference observed was that most of the Ukrainian students (but not the Polish students) consistently produced incorrect realisations of this initial with no aspiration: [t] instead of [tʰ]. Aspiration is essential because in Mandarin [t] and [tʰ] are phonemic.

This difference between Polish and Ukrainian students was somewhat puzzling and initially put down to coincidence since all the data available to me (which, not being a speaker of Ukrainian, I relied on) suggested that the phonetic realisation of the unvoiced dental plosive was the same in both languages. However, an experiment later conducted in class[8] revealed that this was not the case and that most of the Polish students produced this phoneme with light but discernible aspiration, while in the case of the Ukrainian students no aspiration was produced. It should be noted that this was the only clear and consistent difference between L1 transfer from Ukrainian and from Polish in segmental phonology, or, indeed, in any other linguistic feature examined in this study.

3.1.4.2. Indirect transfer from L1/L2 influenced by pinyin romanisation

Although students were thoroughly instructed and drilled in the correct pronunciation of the pinyin transliteration of Mandarin initials and finals, there was a very strong tendency for their phonological production to be influenced by transferring phonetic values for orthographic elements from their L1/L2.[9] The following are fairly typical examples of this kind of transfer:

1) Non-target pronunciation of *e* in pinyin was common and usually produced as an open-mid front vowel [ɛ], as is generally the case in L1/L2. In pinyin, *e* is an open-mid front vowel only when preceded by a close front vowel [i] (unrounded, e.g. *xie* [ɕiɛ]) or [y] (rounded, e.g. *jue* [tɕyœ]) as part of the final. When *e* constitutes the entire final and is preceded by a consonant initial, it is pronounced as an unrounded close-mid back vowel [ɤ], e.g. *de* [tɤ] (non-target: [tɛ]). When *e* is followed by an alveolar nasal in the final *-en*, it is a mid-central vowel [ə] (schwa), e.g. *fen* [fən] (non-target [fɛn]), and an unrounded close-mid vowel [ɤ] when followed by a velar nasal in the final *-eng* [ɤŋ], e.g. *feng* [fɤŋ] (non-target [fɛŋ]). The frequent inability

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8   Polish and Ukrainian both have a word consisting of an unvoiced dental plosive initial followed by an open central unrounded vowel; the Polish word is *ta*, while the Ukrainian word is *ma* (та). Without being aware of the purpose of the experiment, students were asked individually to pronounce the word in their respective language. Virtually without exception, Polish *ta* was pronounced with light but discernible aspiration, while Ukrainian *ma* was pronounced with no aspiration.

9   It should be noted that although the L1 of Ukrainian students uses the Cyrillic and not the Roman alphabet, the students are sufficiently well acquainted with the phonetic values of Roman letters in other languages they have studied for this type of transfer to apply equally to them.

of students to use schwa in the final -*en* may be seen as L1 influence since schwa does not occur in the L1 but is extremely common in the L2.

2) The finals -*an* and -*ian/-üan* caused a number of transfer-related non-target realisations. Probably because of the appearance of the letter *a* in the pinyin, students frequently produced a Polish [a][10], which is a central open vowel, whereas the vowel in -*an*, which, interestingly, is also transcribed using the IPA symbol [a], is decidedly fronter than Polish [a], and is quite close phonetically to the English front open vowel [æ]. Despite being frequently encouraged to pronounce it similarly to the English indefinite article *an*, many students persisted in using an L1 pronunciation, indicating the influence of L1 phonology. Two more complex finals, written -*ian* and -*üan* in pinyin, are preceded by a close front unrounded [i] and rounded [y] vowel; this changes the quality of the nuclear vowel in the final, which is an open-mid front vowel. The two finals are pronounced [iɛn] and [yɛn] respectively. Many students transferred whatever pronunciation they generally used for the final -*an*, either a front or central *open* vowel, in both cases producing non-target realisations of these two finals.

3) Triphthong reduction (see section 3.1.3.) regularly produced non-target pronunciations, with students pronouncing only the letters in the orthographic representation of the pinyin romanisation without taking into account the sound associated with the missing middle letter: thus, for example, *liu* [lioʊ] was pronounced [liu], and *gui* [kueɪ] was pronounced [kui].

3.2. Syntactic transfer

Lacking any inflectional morphology, Mandarin grammar relies heavily on syntax and word order. Transfer leading to non-target grammatical structures to a large extent resulted from the influence of L1 or L2 word order. Another issue revolved around differences in the grammatical properties of word classes.

3.2.1. WH-questions

In European languages, WH-questions (questions for information) are usually formed by placing a question word in sentence-initial position. This requires some syntactic rearrangement if the question word represents the grammatical object in a language with underlying SVO (subject-verb-object) typology. Some European languages, for example English, also require inversion of the subject and verb, while others, such as Polish, do not.

Questions for information in Mandarin require no syntactic rearrangement at all; the question word simply fills the syntactic slot where the information required to answer the question would be in a declarative sentence:

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[10]   Although I am not familiar with Ukrainian, it appears that the Ukrainian *a* is an open, back, unrounded vowel [ɑ]. Therefore, it is somewhat further back than Polish [a] and considerably further back than the Mandarin final -*an*.

(1) Nà   shì   wǒmen   lǎoshī.
    That   be   we   teacher.
    That's our teacher.

(2) Nà   shì   shéi?
    That   be   who?
    Who is that?

Students frequently produced incorrect L3 sentences on the pattern of:

(3)* Shéi   shì   nà?

which corresponds exactly to the English syntax of *Who is that?* in having both sentence-initial question word and subject-verb inversion. In this case it could be said that transfer from L2 is stronger than from L1 since the Polish question *Kto to jest?*, while having the sentence-initial question word, does not have inversion.

3.2.2. Prepositions/coverbs

Words which serve as prepositions in Mandarin are also lexical verbs (hence the alternative name 'coverb'). For example, *zài* is a verb meaning 'be located in/at (a certain place)':

(4) Dàwéi   zài   yīyuàn.
    Dawei be located at hospital.
    Dawei is at the hospital.

Zài is one of a fairly small number of verbs which also function as a morpheme which binds with nouns, with the resultant phrase appearing between the subject and the main verb. Their use is analogous to that of prepositions in European languages.

(5) Dàwéi   zài   yīyuàn   gōngzuò.
    Dawei   at   hospital work.
    Dawei works at the hospital.

Mandarin syntax requires the prepositional phrase to be pre-verbal; however, when forming sentences of this type, students frequently produced the following non-target form, in which the prepositional phrase is post-verbal:

(6) *Dàwéi gōngzuò   zài   yīyuàn.

This, again, exactly follows the English syntax of *Dawei works at the hospital*, which requires the prepositional phrase to be post-verbal. While both

Mandarin and English syntax are rigid and do not allow any flexibility in the positioning of prepositional phrases, Unlike both English and Mandarin, Polish is syntactically more flexible, allowing prepositional phrases to be either pre- or post-verbal: *Pracuje w szpitalu*; *W szpitalu pracuje*. Therefore, while the non-target form in (6) could have been produced under L1 or L2 influence, it could reasonably be argued that transfer from L2 was more likely.

3.2.3. Modification of nouns

It is a cardinal rule of Mandarin syntax that subordinate elements precede su-perordinate elements, and that the modification of nouns is always prenominal: the noun head is always the final element of a noun phrase. Noun modifiers may be quantifiers (number + measure), adjectives, other nouns used attributively or clauses (similar in function to relative clauses in European languages). Where more than one type of modifier is present, they follow a certain prescribed order (Li and Thompson, 1981, pp. 124–126); however, what they all have in common is that they never follow the head.

Pre-head modification with a noun as attributive is common in both English and Mandarin:

(7) Běijīng   Dàxué
     Beijing   University

With more complex modification, Mandarin retains the modifier-head word order, adding the modifying particle *de* to mark the end of the modifier; English can in some cases also retain this structure, but with no function morpheme used; alternatively, English can use a function morpheme (typically the preposition *of* but other prepositions can also be used), in which case the modifier follows the head, which is precisely the inverse of the Mandarin order:

Mandarin: modifier   *de*   head
English: head   *prep.*   modifier

(8) Běijīng Dàxué   de   xuésheng
     Beijing University modifying particle   students
     Beijing University students <u>or</u> Students of/at Beijing University

Therefore, both English and Mandarin use function morphemes to connect modifier and head in noun phrases, but with the crucial difference that in Manda-rin the modifier *precedes* the morpheme, while in English it *follows* it.

In a written test, students were asked to translate the English sentence *My boyfriend's Dad is also a doctor* into Mandarin. The correct translation of the noun phrase *my boyfriend's Dad* (modifier-head) should have been:

(9) wǒ   nán péngyou   de   bàba
     I   boyfriend   de Dad

A number of students translated the noun phrase *my boyfriend's Dad* (modifier-head) into Mandarin as:

(10) wǒ   bàba   de   nán péngyou
     I   Dad   de   boyfriend
     my Dad's boyfriend

Of the 15 students who took the test, 2 had totally incorrect answers for this phrase. Of the remaining 13, 9 had the elements in the correct order (a few omitted the particle *de*); however, 4 students (31% of the sample) produced the grammatically correct but semantically incorrect version in (10).

It would appear to be that those students who gave the translation in (10) were influenced by the English structure: head *prep.* modifier and produced the non-target structure: *head *de* modifier. L1 influence was probably less likely in this case since the relationship between nouns is expressed by case inflection without the use of function morphemes and there is more flexibility in word order between modifier and head.

3.2.4. Adverb position

The syntax of the class of Mandarin adverbs described as "nonmovable nonmanner" (Li and Thompson, 1981, p. 328) is absolutely rigid: they always come immediately before the verb (in cases where more than one of these adverbs is used, there are rules of precedence). Although not large, this group contains some of the highest frequency words of Mandarin.

One such adverb is *y*ě, which means *also*. The English adverb *also* belongs to a class of English mid-position adverbs, which similarly includes some very high frequency words. The rules of syntax of mid-position adverbs are also rigid but somewhat more complicated that those of "nonmovable nonmanner" adverbs in Mandarin. Mid-position adverbs come before the verb, except the verb *be* and auxiliary verbs, in which case they follow the verb.

Returning to the sentence students were asked to translate, *My boyfriend's Dad is also a doctor*, the adverb *also* occurs in post-verbal position following the rule given above. Following the rule that the adverb *y*ě comes immediately before the verb, the correct Mandarin translation of the phrase *is also* is:

(11) yě   shì
     also   be
     is also

A number of students produced the non-target phrase:

(12) * shì   yě

Of the 15 students who took the test, 1 had a totally incorrect answer for this phrase. Of the remaining 14, 7 gave the correct translation as shown in (11), while 7 produced the non-target phrase given in (12), which is 50% of the sample. In these cases it is likely that the transfer was from L2 since English has verb + adverb, while Polish normally has the same adverb + verb word order as the Mandarin: *też jest*.

3.2.5. Adjectival verbs

As in European languages, Mandarin adjectives can be used attributively:

(13) hǎo   tiānqi
     good   weather

When not used attributively, Mandarin adjectives are verbs; they form the predicate and are not used with a copula verb

(14) Tiānqi   hen   hǎo
     Weather hen[11]   good
     The weather is good.

There was a tendency for students to add a copula verb, producing the non-target form:

(15) *Tiānqi shì   hǎo

In a written test, students were asked to translate the English sentence *The weather is good today*. Of the 15 students who took the test, 2 had totally incorrect answers for this sentence. Of the remaining 13, 9 did not add a copula; however, 4 students produced the incorrect version in (15), which is 31% of the sample.

In the case of adjectival verbs, the transfer could be from L1 or L2 since both Polish and English use a copula verb when adjectives form the predicate. However, while the copula is essential in English, in Polish there is some scope for omission: *Pogoda dobra*; in addition, I am informed by Ukrainian students in

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[11]   Adjectival verbs are usually supported by the adverb of degree *hěn*, which means *quite*, *very*; however, when unstressed and toneless, as it very often is, *hěn* is stripped of its semantic content. If an adjectival verb is used without supporting *hěn*, a contrast is usually intended.

the group that copula deletion with adjectives is common in Ukrainian. Therefore, in this case one could make a reasonable case for greater L2 than L1 influence.

3.3. Lexico-semantic transfer

Instances of lexico-semantic transfer occurred less frequently than either phonological or syntactic transfer.

3.3.1. Location vs. copula

As was mentioned above, location in a place is expressed in Mandarin not by the copula *shì* but using the verb *zài*:

(4) Dàwéi   zài   yīyuàn.
     Dawei   be located at   hospital.
     Dawei is at the hospital.

In both L1 and L2, location is expressed by the copula followed by an appropriate preposition of location. This influenced L3 production of sentences involving the semantics of location. In a written test, students were asked to translate two sentences expressing location in a place. Of 14 students, 8 consistently used the correct verb *zài*, while 6 students used the copula *shì* or used the equally incorrect form of the copula followed by the verb of location: * *shì zài*. The incorrect answers constituted 43% of the sample. Since both L1 and L2 use copula + preposition to express location, the source of the transfer could equally have been either L1 or L2.

3.3.2. Familiarity with vs. knowledge of

Chinese has separate verbs for knowing in the sense of having familiarity, *rènshi*, and in the sense of having knowledge of facts, *zhīdào*:

(16) Nǐ   rènshi   Dàwéi   ma?
     You   know   Dawei   question particle
     Do you know Dawei?

(17) Nǐ   zhīdào   Dàwéi   zài   nǎli   ma?
     You   know   Dawei   be located where   question particle
     Do you know where Dawei is?

English has just one verb, *know*, while Polish is similar to Mandarin in this regard, using *znać* for the former meaning and *wiedzieć* for the latter. I am informed that Ukrainian is similar to English in only having one verb for both meanings, *знати*.

In speech production during lessons, there was a distinct tendency for students to use *rènshi* instead of *zhīdào* to express knowledge of facts. However, in a written test, only 2 students out of 15 (13% of the sample) made this mistake.

4. Discussion

4.1. Phonological transfer

4.1.1. Intonational phonology
The default intonation patterns of rising tone for questions/uncertainty and falling tone in clause-final and sentence-final positions, which were widely used by students, are certainly examples of transfer and reflect intonational features common to virtually all European languages, and are certainly the norm in the both L1 and L2. It is, therefore, impossible to categorically state the source of the transfer in these cases.

4.1.2. Segmental phonology
In the area of phonology, there are mixed opinions as to whether L1 or L2 is dominant as the source of influence. Wrembel (2010, p. 88) claims that it is L2: "The partial reliance on L2 phonetic encoding at early stages of phonological acquisition seems to be a coping strategy that outweighs the transfer from the L1." This view is shared by De Angelis and Selinker (2001, p. 56), seeing it as part of the 'foreign language effect': "the use of an interlanguage, perceived by the speaker as "foreign", may well be preferred over the use of the native language, particularly in spontaneous oral L3 production, because it "sounds" more foreign than the native language does."

Hammarberg, on the other hand, stresses the effect of L1 phonology, attributing it to "the fact that articulatory patterns have a basis in neuromotor routines that have been established according to L1 requirements, and are evidently difficult to control at will or modify" (Hammarberg, 2001, p. 35). Ringbom (2001, p. 59) is also convinced of L1 influence: "In the area of phonology it appears that, while all or practically all learners, even at an advanced stage of learning, retain a foreign, L1-based accent in their speech, at least in their intonation, L2 transfer here seems to be relatively rare."

The observations made in this study show no clear evidence of L2 influence on L3 phonology. Some of the non-target realisations where pinyin romanisation probably played a role (section 3.1.4.2.) are just as likely to have been as a result of L1 as L2 influence; however, the incorrect pronunciation of the finals *-en* and *-an* point to L1 rather than L2 influence. Moreover, the frequent problems experienced by students in correctly articulating the velar nasal (section 3.1.4.1.) are a clear indication of L1 influence. Further evidence of L1 influence in phono-

logical transfer may be observed in the difference between Polish and Ukrainian learners' in the phonetic realisation of the initial *t* (section 3.1.4.1.).

One possible explanation for greater L1 influence in phonological transfer may be that Mandarin L3 is so utterly different from either L1 or L2 that students were inclined to rely on the phonology they were most familiar with. This appears to reverse Wrembel's assertion (cited above) that the use of L2 is a "coping strategy that outweighs the transfer from the L1"; the observations reported here suggest that faced with the challenges of a very 'foreign' L3 phonology, learners may well retreat to the 'comfort zone' of their L1 in order to try to cope.

Non-target pronunciations of Mandarin resulting from orthographic transfer of pinyin romanisation (see section 3.1.3.) are a significant problem in beginners and can persist into intermediate stages and beyond. The students connected with the present study received detailed phonological instructions using IPA symbols at the beginning of their studies and were frequently reminded of the correct pronunciation; however, there was a clear tendency for students to simply revert to non-target phonetic realisations of the pinyin romanisation familiar to them in L1/L2 orthography, which, although diminished to some extent, continued to occur. Bassetti stresses the need for regular reminding of correct pronunciation: "Most Chinese language textbooks provide a description of Chinese consonants and vowels only in the first few lessons. It is possible that phonological instruction could be more effective if it was provided not only at the early stages of language learning, but also at later stages" (Bassetti, 2007, p. 11).

4.2. Syntactic transfer

A number of authors have investigated syntactic transfer in L3 acquisition. Håkansson, Pienemann and Sayheli (2002) proposed a Developmentally Moderated Transfer Hypothesis, in which they argued against syntactic transfer from L2 to L3. Bardel and Falk, on the other hand, dispute this theory, presenting evidence to indicate that "syntactic structures are more easily transferred from L2 than from L1 in the initial state of L3 acquisition." (Bardel and Falk, 2007, p. 459) Forsyth found that negative syntactic transfer from L2 to L3 does take place, but that "it is perhaps too complex to be attributed to one factor alone", adding: "As previous research suggests, psychotypology and L2 status appear to be the main determiners of negative L2 transfer" (Forsyth, 2014, pp. 450–451).

The evidence from the present study suggests that syntactic transfer from L2 to L3 played a considerably greater role than that from L1 to L3. This was found to be the case even when there were greater similarities between L1 and L3 syntax than between L2 and L3 syntax, for example, prepositional phrases, adverb position and adjectival verbs.

Forsyth suggests that when investigating syntactic transfer "it is necessary to examine some concepts in the field of language typology and distinguish between actual typological and perceived distance between languages." (2014,

p. 434) Language typology can be determined by objective linguistic analysis; the "perceived distance between languages" (psychotypology), on the other hand, relates to subjective mental processes performed by learners.

Language typology analysis reveals the following basic characteristics of L1, L2 and L3:

1) English and Mandarin are *analytical* languages, that is, languages that convey grammatical relationships without using inflectional morphemes, while Polish and Ukrainian are *synthetic* languages, in which syntactic relations within sentences are expressed by inflection. Thus, syntactic rules are generally rigid in English and Mandarin, while in Polish and Ukrainian they are more flexible.

2) Sentence structure in English is SVO, while Mandarin has both SVO and SOV characteristics. Polish and Ukrainian are free SVO.

On the basis of the foregoing, one could make a reasonable case for stating that, in its general characteristics, Mandarin is typologically somewhat closer to English than to Polish or Ukrainian. However, regardless of the objective linguistic data, which, after all, the learners would hardly have been aware of, Bardel and Falk argue that such data would, in any case, be outweighed by the L2 status factor, which, according to the authors, "is stronger than the typology factor in L3 acquisition" (Bardel and Falk, 2007, p. 480). This may explain why, even in those specific cases when the target L3 syntax was closer to L1 syntax than to L2 syntax, learners still produced syntactic transfer from L2.

4.3. Lexico-semantic transfer

The great majority of studies dealing with lexical transfer in L3 acquisition have reported on language learning situations in which L1, L2 and L3 were all European languages. As a consequence, many of the findings noted in these works concern false friends and borrowings. In a situation with European L1 and L2 and Mandarin L3, these are unlikely to feature in lexical transfer; indeed, lexical transfer will probably occur less frequently than in an all-European context and any examples of lexical transfer in situations such as that reported in the present work can, perhaps, be more accurately described as semantic transfer.

According to Ringbom (2001), semantic transfer is L1-based. He distinguishes between "errors based on form and errors based on meaning", commenting that the former are generally influenced by L2, while the latter (i.e. semantic transfer) are nearly always influenced by L1 (Ringbom, 2001, p. 63). Of the errors reported in section 3.3., the semantic transfer in the case of location vs. copula could be attributed to either L1 or L2, since both use the copula with prepositions to express location. The errors regarding familiarity vs. knowledge are interesting. Mandarin distinguishes lexically between these two semantic values, as does L1 Polish; L1 Ukrainian and L2 English do not. As commented earlier, there was a wide discrepancy between speech and written production, with a greater num-

ber of errors in the former (by both Polish and Ukrainian native speakers) than in the latter[12]. A possible explanation for this may be that "limited control in speech situations causes cross-language influence to occur more often in speech than in writing" (Ringbom, 1987, p. 128).

In the present study, instances of lexical (semantic) transfer featured less prominently than those of phonological or syntactic transfer. This may have been due to the fact that there were virtually no "errors based on form" (e.g. false friends) because Mandarin in unrelated to either L1 or L2. Furthermore, the lack of consistently recurring instances of "errors due to meaning" (influenced by L1) may be related to the fact that the group was divided between Polish L1 and Ukrainian L1.

4.4. The effect of English L2 as the language of instruction

Generally, the literature on transfer in L3 acquisition does not discuss the question of the language of instruction in any detail. The only work I am aware of to directly comment on this issue is Musona and Mushangwe (2014), which reported on native speakers of Shona in Zimbabwe learning Mandarin through the medium of English L2. The focus of the study was accuracy in the use of Chinese prepositions. Their findings are not clear-cut, although they appear to come out somewhat in favour of greater influence from L1: "The survey shows that though the acquisition of Chinese prepositions by native speakers of Shona is basically influenced by the students' own mother tongue (Shona), however there is clear evidence that the language of instruction, which is English in this case, has its own contributions too." (Musona and Mushangwe, 2014, p. 8)

The area of language where L2 influence was found to be clearly dominant was in syntactic transfer. The possible contribution of the L2 status factor and (psycho)typology to this finding has already been discussed in section 4.2. The remaining important factors in determining whether L1 or L2 is the default supplier[13] in cross-linguistic transfer in L3 production are proficiency and recency, and it is perhaps the contribution of these two factors that is most likely to enhance the role of L2 being the default supplier when L2 is the language of instruction. At B2/B2+ level, the students certainly had sufficient proficiency in English. Tremblay found that "a high level of L2 proficiency may not be enough for L2 to become automatized and that L2 exposure may be essential." (Tremblay, 2006, p. 117); using L2 as the language of instruction for L3 would accord it an extremely high level of exposure. Moreover, Hammarberg asserts that "an L2 is activated more easily if the speaker has used it recently" (Hammarberg, 2001, p. 23); as the language of instruction for L3, the recency requirement is easily satisfied. On the basis of the findings of the cited authors, it could reasonably be

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[12] Interestingly, both the students who gave erroneous answers in the written text (see section 3.3.2.) were Polish native speakers, although such a small number is not statistically significant.

[13] See section 1.2.

argued that L2 transfer to L3 is increased through being the language of instruction. In the present study, this effect was most clearly seen in syntactic transfer.

5. Conclusion

Embarking on the study of a language entirely unrelated to any with which one is familiar can be something of a 'shock to the system' for the beginning learner. The challenges presented when confronted with such a language are likely to cause the learner to lean quite heavily on their pre-existing linguistic knowledge and inventory, making forward transfer inevitable. In the circumstances described in the present work, There was evidence of transfer from both L1 or L2. Apart from the phonetic realisation of the Mandarin initial *t*, there were no consistent differences between Polish and Ukrainian students in transfer from L1 or L2.

In the case of phonological transfer, L1 appeared to be the main influence underlying the transfer, although some influence from L2 could also be argued. Transfer resulting from incorrectly assumed phonetic values for pinyin romanisation proved to be a significant and persistent issue.[14] Lexico-semantic transfer was confined to semantic transfer. The recorded examples of this form of transfer were few and provided insufficient evidence to determine whether L1 or L2 was the source of the cross-linguistic influence. In contrast, there was a considerable number of examples of syntactic transfer and the evidence from this study indicates that such transfer was considerably more likely to be from L2 than from L1. It was suggested that one factor leading to the preponderance of L2 transfer in the area of syntax was the fact that English (L2) was the language of instruction.

Few studies in the literature have investigated situations where L1 and L2 are linguistically entirely unrelated to L3. Therefore, it is hoped that the present work will provide a somewhat different perspective of cross-linguistic transfer in L3 acquisition. At the same time, it should be remembered that these findings are only partly based on quantitative data.

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[14]   There are other forms of transliteration of Mandarin which are phonetically more reliable and consistent than pinyin but, for various reasons, are not widely used. The Wade-Giles system of romanisation gives more predictable phonetic outcomes than pinyin and predates it, but has largely been superseded by pinyin as the latter is considered simpler: Wade-Giles makes more use of diacritics and indicates aspiration by the use apostrophes. A very accurate system phonetically is *Zhuyin fuhao*, which also predates pinyin and uses symbols instead of the roman alphabet to represent the initials and finals. The symbols are simple, basic elements of Chinese characters and, once learnt, this system will consistently give accurate phonetic values. However, therein lies the disadvantage: beginners are required to learn an unfamiliar set of symbols before they can start learning the language itself. *Zhuyin fuhao* is widely used only in Taiwan. Moreover, in the present digital age, perhaps the overriding reason for pinyin's pre-eminent position as the virtually universal transliteration system is that the vast majority of keyboard input software for digitally generating Chinese characters is based on pinyin.

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