## Third Language Acquisition: Evolving Perspectives

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### Abstract

This paper critically reviews the evolving perspectives and disciplinary developments in the field of third language acquisition. It illustrates three of the most prominent and widely discussed models, namely Cumulative Enhancement Model (Flynn, Foley, & Vinnitskaya, 2004), L2 Status Factor Model (Bardel & Falk, 2007), Typological Primacy Model (Rothman, 2011), and their later developments/refinements. Based on the comparison of the three models, this article continues with a survey of up-to-date empirical studies and further reconciles the current conflicting findings. It points out potential factors and deficiencies of research designs, including selection of participants, languages involved, linguistic features examined, and elicitation instruments, that may have led to controversial findings. Built upon the critical investigation of existing theoretical frameworks and empirical studies, this paper moves beyond the three models, brings in perspectives that are overlooked in prior research, and identifies the future research directions in the field of third language acquisition.

**Keywords**: Third language acquisition; background languages; crosslinguistic transfer

### Introduction

Multilingualism has increasingly drawn scholarly attention in the field of applied linguistics (Alonso & Rothman, 2017). Yet, studies of third language (L3) and subsequent language acquisition (Ln) have remained subsumed under the header of bilingualism for a long time (De Bot & Jaensch, 2015; Rothman, 2010). Many scholars have treated L3 or Ln acquisition as essentially another instance of second language (L2) acquisition (Cenoz, 2001; Mayo & Rothman, 2012; Rothman & Cabrelli, 2010). This is problematic because of the validity of current bilingual studies, considering that a major part of the research on bilingual processing has actually been done with multilinguals without taking into account the participants' language background (De Bot and Jaensch, 2015). For the last two decades, researchers have proposed various perspectives (e.g., generative, sociolinguistic, and neurolinguistics) to understand the differences and similarities between L2 and L3 acquisition (e.g., Bardel & Falk, 2007; Hoffman, 2001; Paradis, 2004, 2009). Whereas L3 acquisition is still a subfield in its infancy, recent scholarship has made great efforts to examine the role of prior acquired languages and factors in learning a third language. In this paper, I attempt to critically review these evolving perspectives, reconcile the conflicting findings, identify research gaps, and provide future directions.

Throughout this paper I adopt Hammarberg's (2001) definition of L3, in which L3 does not mean the third language being learned or acquired after a first and second language, but the focus additional language, with "all other foreign languages are labeled L2" (p. 22). This definition is widely recognized in the field of L3 acquisition, and the merit of this view is to assume that

there may not be only one L2. Although some recent literature refers to L3 as L3/Ln to highlight this presupposition (e.g. Amaro, Flynn, & Rothman, 2012), readers should note that L3 in this paper does not necessarily refer to the third language acquired chronologically.

The remainder of this paper is structured as follows. In the first section, I illustrate three of the most prominent and widely discussed models, and their developments/refinements. Then I continue with a survey of up-to-date empirical studies that are in support of or against these models, and alternative accounts. In the final section, I discuss conflicting findings emerging from the literature and the deficiencies of some empirical designs. This paper also goes beyond the three models and brings in perspectives that are overlooked in prior research. It is worth noting that, although some early studies have examined L3 acquisition at the phonological and (morpho-)lexical levels, the focus of this paper is to trace the developments and evolving perspectives in L3 acquisition at the syntactic/semantic level; nonetheless, some discussion briefly touches on other features when necessary.

## An Evolving Perspective on L3 Acquisition Models

Since the late 1990s, an increasing number of scholars have noticed the differences between L2 and L3 acquisition and started to consider distinct variables that may influence L3 acquisition. Earlier scholars suggested the significant influence of "typology, L2 status, proficiency, and recency" (Williams & Hammarberg, 1998, p. 322) on L3 acquisition. Since then, a large body of literature has examined two sets of potential determining factors in L3 acquisition (see Murphy, 2003 for a detailed review), including learner-based variables (e.g., proficiency, amount of target language exposure and use, language mode, linguistic awareness, age, educational background, and context) and language-based variables (e.g., language typology, frequency, word class, and morphological transfer). However, the empirical findings on L3 acquisition at that time were unsystematic and incomparable across studies.

In addition, even though many scholars have found crosslinguistic influence from the L2 in the (morpho-)lexical acquisition and production of the L3 (Hammarberg, 2001; Sikogukira, 1993; Williams & Hammarberg, 1998), there was no evidence, until the mid 2000s, that L2 influence can be generalized to the (morpho-)syntactic level (or semantic/discourse levels). Researchers have strived to fill this gap for the last fifteen years, but the proposed models on third language learning process are incongruous. This further motivates the investigation of the transfer source(s) and roles of background languages in L3 acquisition. In the next section, I elaborate on the three most frequently studied models and their subsequent developments and refinements.

## Cumulative Enhancement Model

The Cumulative Enhancement Model (CEM), one of the earliest models in L3 acquisition, was proposed by Flynn, Foley, and Vinnitskaya (2004), and it focused on the crosslinguistic influence in L3 acquisition at the syntactic level. According to Flynn et al. (2004), the CEM suggests that "language learning is cumulative, [and that] all languages known can potentially influence the development of subsequent learning" (p. 474). In other words, the first language (L1) and L2 play important roles in the transfer process in learning an L3. The model also emphasizes that the pre-acquired languages do not have any negative impact on the learning of an L3, which has aroused many debates among later studies.

Rather than examining how L1 and L2 exert transfer influence differently in acquiring an L3, the initial focus of Flynn et al.'s study in 2004 was to investigate the role of learners' L1 in all

subsequent language acquisition. By examining and comparing the use of three types of restrictive relative clauses by both adults and children in their L2 Russian and L3 English production, the authors showed that the L1 did not play a privileged role in the learning of the L3. Meanwhile, the patterns of L3 use indicated that the L2 impacted the L3 learning process. Based on these emergent findings, Flynn et al. proposed the Cumulative Enhancement Model, which showed insightful directions for subsequent language learning processes that neither first language nor second language studies at that time could provide.

In response to the critiques of and models proposed after the CEM, Berkes and Flynn (2012) provided further evidence in support of the model. They designed a study using elicited imitation task to examine the use of complementizer phrase structure with 42 German-speaking learners of L2 English and 36 Hungarian-speaking learners with German as their L2 who were learning English as their L3 at three different levels of proficiency. They carefully chose the three languages involved because whereas German is a head-initial language like English and Hungarian, the word order in complementizer phrases in German is different from the other two languages. Their findings rejected the L2 Status Factor Model (see details in the next section, Bardel & Flynn, 2007) by showing the mismatching developmental patterns and error types between the two groups (i.e., the bilingual group and the multilingual group), which indicated that there were visible transfer effects from both Hungarian (L1) and German (L2) into the English L3 group. In addition, further analyses suggested that with each new language learned, there was an increased facilitation in subsequent language acquisition, which they argued supported the assumption in CEM that the last acquired language has no negative impact on later language acquisition.

Interestingly, Flynn et al. (2004) considered the possibility that the last acquired language might play a dominant role in L3 acquisition, which coincided with the main idea in the L2 Status Factor Model discussed in the next section. In Flynn et al. (2004)'s discussion, they raised the question of whether it could be "that the last learned language (i.e., L2) determines the next language learned (i.e., L3) in some sense" (p. 13). However, the CEM and its later development have yet to further address this point.

## L2 Status Factor Model

The L2 Status Factor Model[i] was first put forward by Bardel and Falk (2007) in their empirical study on the placement of sentence negation (i.e., post-verbal or verb-second) in L3. The primary argument in this model is that in "L3 acquisition, the L2 acts like a filter, making the L1 inaccessible" (Bardel & Falk, 2007, p. 480). In other words, the L2 is seen as the determining factor in L3 acquisition, regardless of other language-based variables proposed in previous literature (Flynn et al., 2004; Hammarberg, 2001; Murphy, 2003).

In their 2007 study, Bardel and Falk tested existing hypotheses in additional language acquisition. According to the Developmentally Moderated Transfer Hypothesis (Håkansson, Pienemann, & Sayehli, 2002) in L2 acquisition studies, there should be no direct syntactic transfer from L2 to L3. However, the L2 status factor indicates that the L2 may act as an obvious transfer source for L3 acquisition (Hammarberg, 2001). The CEM also predicts that there is a positive transfer from both L1 and L2, but it does not show which background language is the dominant one. Bardel and Falk (2007) assessed these questionable hypotheses by analyzing L3 grammaticality judgement test (GJT) results of learners with different L1s and L2s acquiring Swedish or Dutch as L3 at the initial stage. Their experimental design also considered the effect of typological similarity in L3 acquisition. Learners' L1s/L2s/L3s were carefully controlled based

on the typology of placement of sentence negation. Their findings showed that "among the languages known to the learner—L1 and L2(s)—the L2 is more likely to have an impact on the process of L3 acquisition" (Bardel & Falk, 2007, p. 460). This clearly provided additional support Hammarberg's (2001) argument regarding the "L2 Status Factor," which had previously only been supported by evidence at the (morpho-)lexical level. Hence, Bardel and Falk (2007) justified their L2 Status Factor model over the other hypotheses and expanded it to the syntactic level. More importantly, the model argues that the L2 status factor is stronger than the typology factor in L3 acquisition. In other words, the typological similarity between L1 and L3 is not enough to resort to L1 transfer. However, this study only included a small number of learners (9 in total) with various L1 and L2 backgrounds, and thereby it is too risky to conclude that L2 blocks L1 transfer effect by only using a grammaticality judgment test.

After the L2 Status Factor Model, many scholars have conducted empirical studies to test the "L2 status factor" at the initial stage of learning an L3; however, how the factor functions at higher proficiency level of the L3 remains mostly unknown. To address this gap and provide further accounts for the model, Falk and Bardel (2011) examined the use of object pronouns[ii] by 44 German L3 learners (an English L1/French L2 group and a French L1/English L2 group), who were at the intermediate level in German, using a grammaticality judgement/correction task (GJCT). The results for learners at the intermediate level were consistent with the L2 Status Factor Model, indicating that their L2s played dominant roles in the acquisition of L3 German. In addition, in this study, Falk and Bardel (2011) did not find any L1 transfer effect, thus challenging the CEM (Flynn et al., 2004) and the Typology Primacy Model (TPM, see details in the next section, Rothman, 2011).

The L2 Status Factor Model has ignited considerable debates in the field. Bardel and Falk (2012) provided a neurolinguistics account (noting the role of declarative and procedural memory) to illustrate what lays behind the model of L2 Status Factor. They pointed out that the experiences and strategies acquired during L2 learning were essential to the learning of an L3. Unlike the firm position held in the previous L2 Status Factor Model, in this refined version, they acknowledged that other factors (such as typological factor) might influence L3 acquisition and these factors might also interact with the L2 status factor to varying degrees. However, they suggested that when the L2 had been learned in a similar manner as the L3, and when the (psycho)typology of the involved languages was not of extreme similarity, the L2 would still be a stronger source for the transfer effect in L3 acquisition. Falk, Lindqvist, and Bardel (2015) further pursued this direction and discussed the function of metalinguistic knowledge (i.e., the ability to reflect on and talk about how language is used) of the L1. They argued that a high degree of metalinguistic knowledge of L1 would generate a stronger possibility for transfer in L3 acquisition and acknowledged the need to look at the factors more interactively rather than merely positing the L2 as the strongest transfer source in L3 acquisition. Thus, the fundamental assumption of this model has gradually shifted from seeing the L2 as the only and the most prominent factor to acknowledging other conditions that may also influence L3 acquisition.

**Typological Primacy Model**

The Typological Primacy Model (TPM), proposed by Rothman (2011), supplements Flynn et al.'s (2004) CEM and rejects Bardel and Falk's (2007) L2 Status Factor Model. The TPM argues that both the L1 and the L2 influence L3 acquisition, but that (psycho)typology[iii] is the strongest factor that determines multilingual syntactic transfer. In addition, the model posits that the influence could be both negative and positive, depending on the (psycho)typological similarities.

The initial idea of the TPM was first mentioned in the discussion section of Rothman and Cabrelli's (2010). Rothman and Cabrelli (2010) conducted a study on Null Subject Parameter to test the existing hypotheses on crosslinguistic transfer, in which they had two groups of learners (one English L1/Spanish L2/Italian L3 group and one English L1/Spanish L2/French L3 group)[iv] at the lower level of their L3s. A grammaticality judgement/correction task and a context-sentence matching task were implemented with these two groups. The L2 Status Factor Model (Bardel & Falk, 2007) seems to adequately explain their findings. However, the authors provided another possible explanation for the results, in which the determining factor was the psychotypological similarity. More specifically, Spanish is a language (psycho)typologically close to both L3s, while English is not. Thus, the authors argued that with the design of participants who had identical L1 and L2, they could not rule out the possibility that the transfer was a result from the (psych)typological relatedness. The only cautious conclusion that could be made from the previous literature, they argued, is that L1 is not privileged for multilingual syntactic transfer.

To further pursue evidence for the (psycho)typological accounts, Rothman (2011) examined the Determiner Phrase and adjectival semantics using data collected from two groups of learners (one Italian L1/English L2/Spanish L3 group and one English L1/Spanish L2/Brazilian Portuguese L3 group). More specifically, in all the languages involved above other than English (i.e., the Romance languages), the adjectival interpretation is unambiguous, depending on the adjective's surface position, while in English, the pre-nominal position of these adjectives is inherently ambiguous between a restrictive and non-restrictive meaning. Thus, the selection of the participants provided the possibility to investigate 1) whether or not the transfer always came from the L2 (which would be in support of the L2 Status Factor Model), and 2) whether or not the transfer would only be facilitative/neutral (which would be in support of the CEM). A semantic interpretation task and a context-based collocation task were conducted to collect both perception and production data. The results suggested that the two groups did not differ from each other. In other words, the transfer did not solely come from the L2, but also from the language that is (psycho)typologically similar to the target language. These findings also suggested that both facilitative and non-facilitative transfer effect were located.

Several empirical studies since have provided evidence that structural typological similarity may not override the influence of L2 in L3 acquisition and raised questions towards the term (psycho)typological similarity in the TPM (Falk & Bardel, 2011; Kulundary & Gabriele, 2012). Later in 2015, Rothman explained the contradictory findings between structural and psychotypological differences and argued that "the mind may unconsciously determine typological (structural) proximity based on linguistic cues from the L3 input stream used by the parser early on to determine holistic transfer of one previous (the L1 or the L2) system" (p. 179).

To summarize, in the last decade, a sizeable number of studies in L3 acquisition at the syntactic level have been conducted to test and refine the aforementioned three models (Table 1 provides details of the empirical studies for the three models):

1. ***Cumulative Enhancement Model*** (Berkes & Flynn, 2012; Flynn et al., 2004)

    Both L1 and L2 could be the transfer source for L3 acquisition, and there is no negative transfer from L2;

2. ***L2 Status Factor Model*** (Bardel & Falk, 2007; Bardel & Falk, 2012; Falk & Bardel, 2011; Falk et al., 2015)
    L2 is the strongest factor in L3 acquisition. However, the later model refinement suggests that L2 learning strategies and the typological similarities between L1 and L3 may interact with the L2 status factor to varying degrees;

3. ***Typological Primacy Model*** (Rothman, 2011)
    Both L1 and L2 could be the transfer source into L3 acquisition, and the transfer effect can be both facilitative and non-facilitative. The most prominent factor is (psycho)typological similarity between languages.

## Testing the Three Models and Beyond: Empirical Evidence

Many empirical studies have been conducted to test the three models.[v] In this section, I consider recent empirical studies that either support or oppose the models and alternative accounts beyond these three models as well. It is important to note that this paper does not aim to cover all empirical studies in the field, but rather to select those that represent various research designs and perspectives. Table 2 summarizes the studies that support or oppose these three models discussed in this section.

    As aforementioned, the CEM adheres to the tenet that there is only facilitative transfer from L1/L2 to the L3 learning process. However, many scholars have found non-facilitative transfer from pre-acquired languages in L3 acquisition, which provides contrary evidence against the CEM (e.g., Angelovska & Hahn, 2012; Falk & Bardel, 2011; Martins & Pinharanda, 2013; Rothman, 2011). Recent scholarship has also investigated the transfer effect in both oral and written production of L3. For instance, Angelovska and Hahn (2012) found the existence of negative transfer instances from L2 German by analyzing free-written texts collected from 13 L3 English learners at all traceable aspects (i.e., syntactic, lexical, morphological, etc.). Similarly, Lindqvist (2015) discovered negative grammatical transfer instances from English into French (e.g., deviant word order, genitive construction, a lack of articles, and adaptation of progressiveness) after analyzing learners' written story-telling production data. Martins and Pinharanda (2013) further found both positive and negative transfer instances stemming from English (L2) in 26 learners' Portuguese oral production corpora. All these empirical studies provide solid evidence that the pre-acquired languages may influence the L3 learning both positively and negatively.

    Whereas prior studies have demonstrated that negative transfers can be found in L3 acquisition, the question of which background language (or both L1 and L2) provides a dominant transfer effect remains controversial. In Angelovska and Hahn's (2012) and Martin and Pinharanda's (2013) studies, their findings supported the "L2 Status Factor," showing that the most frequent and salient observed transfer occurrences were from L2 syntactical properties. In addition, their qualitative analyses further demonstrated that regardless of typological similarity, L2 always played a dominant role in L3 acquisition. However, only one or two qualitative instances were given in their discussions, and there were no statistical analyses of the frequency of the transfer instances. Kulundary and Gabriele (2012) focused on coordinate and relative clauses with two

**Table 1.** Empirical Studies for the Proposal of the Three Models[vi]

| Author(s) | No. of Participants | L1 | L2 | L3 | L3 Proficiency | Data Type | Proposed Models | Rejected Models |
|---|---|---|---|---|---|---|---|---|
| Flynn et al. (2004) | 33 adults<br>10 children | Kazakh | Russian | English | All levels | Elicited imitation task | CEM | |
| Berkes & Flynn (2012) | 42 adults<br>36 adults | German<br>Hungarian | English<br>German | N/A<br>English | All levels | Elicited imitation task | CEM | L2 Status Factor |
| Bardel & Falk (2007) | 9 adults | Multiple | Multiple | Swedish/ Dutch | Initial stage | GJT | L2 Status Factor | CEM; (TPM)[vii] |
| Falk & Bardel (2011) | 22 adults<br>22 adults | English<br>French | French<br>English | German<br>German | Intermediate stage | GJCT | L2 Status Factor | CEM; TPM |
| Rothman & Cabrelli (2010) | 9 adults<br>10 adults | English<br>English | Spanish<br>Spanish | Italian<br>French | Initial stage | GJCT and Matching task | L2 Status Factor | |
| Rothman (2011) | 12 adults<br>15 adults | Italian<br>English | English<br>Spanish | Spanish<br>Portuguese | Intermediate stage | Interpretation and collocation task | TPM | L2 Status Factor; CEM |

different learner groups (i.e., 132 L1 Tuyan/L2 Russian/L3 English learners and 20 L1 Russian/L2 English learners). The selection of these languages involved was based on the typological similarities and differences[viii] among them. Their results showed that there was a significantly stronger influence from the L2 than from the L1, both positively and negatively. However, given that the L2s in the three studies discussed above are all (psycho)typologically close to the L3s, it is still unclear whether the transfer was a result from L2 or (psycho)typological similarity.

Efforts have been made by many scholars to differentiate the L2 status factor and the (psycho)typological factor. Sánchez (2012) collected data from 154 simultaneous bilinguals (Spanish and Catalan) who had German as an L2 and English as an L3 (termed as "L3" and "L4" respectively in the paper), with a focus on Verb-Object (VO)/Object-Verb (OV) orders. Although both non-native languages examined in this study were Germanic languages (English and German), the two languages have structural typological differences on VO/OV orders, while the L3 English behaves similarly with both L1s. Such design ascertains that the effect of the L2 status factor and typology factor could be separated. The results showed that in L3 acquisition, the L2 was most likely to be activated than the mother tongue regardless of typological similarity. This study stands for the L2 Status Factor Model and rejects the TPM in terms of structural typological similarity. Yet, this design still could not rule out the possibility of the influence of language relatedness and psychotypological similarity. In other words, due to the fact that German (L2) and English (L3) are all Germanic languages, they might be perceived more similar by the learners than Spanish/Catalan (L1s) and English (L3).

In contrast to the studies discussed above that support the L2 Status Factor Model, some empirical studies have provided evidence that L1 may play a dominant role when the L1 and the L3 are (psycho)typologically similar (e.g., Giancaspro, Halloran, & Iverson, 2015; Montrul, Dias, & Santos, 2011). Montrul, Dias, and Santos (2011) used both a judgment task and an oral production task with two groups of L3 Brazilian Portuguese learners (i.e., an English L1/Spanish L2 group and a Spanish L1/English L2 group) to assess the three models, and they identified both facilitative and non-facilitative transfers from L1 and L2. Since Spanish is (psycho)typologically similar to Brazilian Portuguese, their findings supported the TPM over L2 Status Factor. However, their study fails to identify whether or not Spanish demonstrates a more dominant transfer than English. With a similar participant group design, Giancaspro, Halloran, and Iverson (2015) found that although the L2 Spanish group showed clear transfer from Spanish, the L1 Spanish group performed similarly as the L2 Spanish Group, indicating that (psycho)typological factor played a dominant role in L3 acquisition. Since they only used a grammaticality judgement test, results might be due to over-acceptance of a novel structure.

All of these foregoing studies have examined Romance or Germanic languages as background languages, which sometimes raises some difficulty in assessing learners' psychotypological leaning. Only a few studies to date (e.g., Jaensch, 2011, 2012) have examined non-Indo-European languages such as Chinese and Japanese. Jaensch (2011) examined gender and number concord in adjectival inflection in L3 German by Japanese speakers with varying proficiencies of L2 English. Neither the L1 (Japanese) and L2 (English) have number or gender agreement. The design seems inadequate to provide evidence supporting or opposing the three models, given that English (L2) and German (L3) are more (psycho)typologically similar to each other than to Japanese (L1). However, Jaensch' (2011) study takes L2 proficiency into account, which has been neglected by most of the previous literature.[ix] Jaensch (2012) further studied crosslinguistic transfer using three morpho-syntactic properties (i.e., gender assignment, gender concord and the definite/indefinite contrast) with two groups of participants (6 Japanese

L1/English L2/German L3 group and 20 Spanish L1/English L2/German L3 group)[x] and fill-in-the-blank tasks. Results showed that the higher L2 English proficiency group performed better than the lower L2 English proficiency groups in the tasks. At the same L2 English proficiency level, the Japanese L1 group performed better than the Spanish L1 group in terms of gender classification for nouns. These findings provided evidence supporting the L2 Status Factor and rejecting the TPM and brought in the L2 proficiency as a key factor, which has been overlooked by most of the aforementioned studies.

In addition to the inclusion of non-Indo-European languages and L2 proficiency, researchers have also sought alternative accounts beyond the three models for L3 acquisition. For example, Sanz, Park, and Lado (2015) proposed to use the Competition Model (CM) (MacWhinney, 2001) to examine the role of prior acquired languages in L3 acquisition. Participants in their study were English L1 speakers with Japanese and Spanish as their L2 respectively who were currently learning Latin as an L3. Relying on a longitudinal design that examined both factors at the initial stage and changes overtime, they found that L1 (English) presented a dominant influence at the initial stage regardless of typological proximity or (in)convenience of transfer. After identical exposure to L3, two L2 groups demonstrated similar developmental trajectories in L3 acquisition. Based on the CM, Sanz et al. (2015) argued that "the relative weight of the L1 with respect to the L2 in successive bilinguals could account for this pre-eminence of L1-related cues" (p. 248). Scholars have also moved beyond the syntactic level to the interface of syntax-discourse properties. Slabakova and García (2015) tested the interface hypotheses by examining three syntax-discourse properties in English: topicalization, focus fronting, and left dislocation. Their findings rejected the two current L3 acquisition models (CEM and L2 Status Factor Model) by arguing that "both cumulative enhancement as well as cumulative inhibition [are] possible processes in L3 acquisition" (p. 223).

## Discussion

Prior empirical studies on the influence of previously acquired languages on L3 acquisition have shown contradictory results. This is partly due to the various research designs based on different participants, languages, linguistic features, and elicitation instruments (Falk & Bardel, 2011). In this section, I discuss some limitations in methodological design in prior studies with regard to four aspects: participants, languages, instruments, and linguistic features. Based on these deficiencies, I provide some suggestions to improve the validity of the research to acquire generalizable results.

First, existing studies suffer from the difficulties of recruiting sufficient number of participants for experiments. Due to this difficulty of recruiting multilingual individuals (Falk & Bardel, 2011), early studies have relatively low numbers of participants (e.g., Bardel & Flynn, 2007; Jaensch, 2012). Many studies have also considered L3 proficiency at all levels (L2 proficiency as well in Jaensch's 2011, 2012 studies), which further reduces the number of participants in each sub-group (e.g., Flynn et al., 2004; Jaensch, 2011, 2012) and leads to insufficient sample sizes for quantitative analysis. For instance, to provide further evidence for the CEM, Berkes and Flynn (2012) designed their experiment with two participant groups, with 42 and 36 participants in each group respectively. However, since the participants were at different levels of their L3, they were further divided into three different levels, leading to a low number

**Table 2.** Representative Empirical Evidence Supporting/Opposing the Three Models

| Author(s) | No. of Participants | L1 | L2 | L3 | L3 Proficiency | Data Type | Supported Models | Rejected Models | Features Examined |
|---|---|---|---|---|---|---|---|---|---|
| Angelovska & Hahn (2012) | 13 | Multiple | German | English | All levels | Free-writing texts | L2 Status Factor or TPM | CEM | All features |
| Martins & Pinharanda (2013) | 26 | Chinese | English | Portuguese | Intermediate | Oral story re-telling | L2 Status Factor or TPM | CEM | All grammatical and lexical features |
| Lindqvist (2015) | 63 | Swedish | English | French | Initial stage | Written story-telling task | L2 Status Factor | CEM | All grammatical and lexical features |
| Kulundary & Gabriele (2012) | 132 | Tuyan | Russian | English | All levels | English/Russian comprehension tests | L2 Status Factor or TPM | CEM | Relative clauses |
| | 20 | Russian | English | | | | | | |
| Sánchez (2012) | 154 | Spanish/ Catalan bilinguals | German | English | All Levels | Oral story-telling | L2 Status Factor | TPM | Verb Object/Object Verb orders |
| Montrul et al. (2011) | 18 | Spanish | English | Brazilian Portuguese | Intermediate to Advanced | Oral production task; Acceptability judgement task | TPM | CEM and L2 Status Factor | Clitics and object expression |
| | 18 | English | Spanish | | | | | | |

| Author(s) | No. of Participants | L1 | L2 | L3 | L3 Proficiency | Data Type | Supported Models | Rejected Models | Features Examined |
|---|---|---|---|---|---|---|---|---|---|
| Giancaspro et al. (2015) | 12 | English | Spanish | | Initial stage | Grammaticality Judgement Test | TPM | CEM and L2 Status Factor | Differential Object Marking |
| | 9 | Spanish | English | Brazilian Portuguese | | | | | |
| | 20 | English/Spanish Bilinguals | | | | | | | |
| Jaensch (2011) | 39 | Japanese | English | German | All levels | Gap-filling task; Oral elicitation task | CEM; L2 Status Factor | N/A | Gender and number concord |
| Jaensch (2012) | 6 | Japanese | English | German | All levels | Fill-in-blanks | L2 Status Factor | TPM | Gender concord & definite/ indefinite contrast |
| | 20 | Spanish | English | German | | | | | |
| Sanz et al. (2015) | 10 | English | Japanese | Latin | From initial stage to later | Longitudinal study | The Competition Model | | |
| | 15 | English | Spanish | Latin | | | | | |
| Slabakova & García (2015) | 24 | Spanish | Basque | English | Advanced | Stories and test sentences | Interface Hypothesis | CEM and L2 Status Factor | Topicalization, focus fronting, and left dislocation |
| | 23 | Basque | Spanish | English | | | | | |
| | 39 | Spanish | English | N/A | | | | | |

(around eight) of participants in each sub-group. Some recent studies have tried to recruit a larger number of participants (e.g., Kulundary & Gabriele, 2012; Lindqvist, 2015; Sánchez, 2012) to obtain more generalizable results, allowing scholars to further pursue the mechanism behind the L3 acquisition. While participants who are multilinguals may be difficult to recruit, researchers could incorporate existing learner corpora to access data needed.

It is also crucial to design the structure of participant groups carefully to achieve the research goal. For instance, Berkes and Flynn's (2012) study compared one group of L3 learners with an L2 group. Although the findings demonstrated the existence of transfer effect from L1, it is difficult to conclude that L2 does not play a dominant role in L3 acquisition. Similarly, studies that only used one group design without consideration of (psycho)typological differences might not convincingly support the L2 Status Factor Model (e.g., Angelovska & Hahn, 2012; Kulundary & Gabriele, 2012; Lindqvist, 2015; Martins & Pinharanda, 2013). This is not to say that researchers have to adopt a design with more than one group; with a purposeful selection of languages involved (see details in the next paragraph), a single group design could still provide solid evidence in support of the existing models.

Second, a careful and purposeful selection of languages involved is essential to reconciling the findings. For example, the identification of L2 as the dominant transfer resource of Chinese speaking learners of L3 Portuguese who had English as an L2 may not result from the L2 Status Factor (see details in Martins & Pinharanda, 2012); instead, it may be due to the fact that English and Portuguese were perceived to be closer (as alphabetic languages) by Chinese speaking learners. Therefore, although studies have provided evidence that structural typological similarity may not override L2 to influence L3 acquisition (Falk & Bardel, 2011; Kulundary & Gabriele, 2012; Rothman & Cabrelli, 2010), the perception towards L1/L2/L3 cannot be identified in these studies without further investigation.

Incorporating languages that are psychotypologically different may solve the aforementioned problem. For instance, using a research design with Japanese-speaking learners of L3 Chinese who have English as their L2 could provide an opportunity to differentiate the two models (i.e., L2 Status Factor Model and TPM). Japanese and Chinese are not genetically related and there are many differences in terms of syntactic structural typology. However, Japanese and Chinese are often perceived as more related to each other than with English. Therefore, if the transfer instances mainly come from English (L2), this would allow researchers to reject the TPM and support the L2 Status Factor Model.[xi]

Researchers have also tried to include multiple L1s and L2s in research design. For example, Angelovska and Hahn's (2012) study demonstrated transfer instances identified in production by learners from multiple L1 backgrounds qualitatively. However, most of the syntactic transfer instances occurred only once, which may raise the question of whether or not the occurrence of the features could be taken as valid evidence in favor of the transfer effect. A recent study carried out by Schepens, Der Slik, and Hout (2016) measured the linguistic distances from L1s to L3 and from L2s to L3 to test the correlation with degrees of L3 learnability. In this large-scale quantitative study, the authors included 39,300 multilingual candidates with 56 different L1s and 35 different L2s. Although their study does not aim to test the three models, it provides a rigorous example of participants with various multilingual backgrounds.

Third, instrument design is crucial to collecting reliable data. Empirical studies testing the three models have mainly used perception data from grammaticality judgement tasks and interpretation tasks (see Tables 1 and 2 for details), thus failing to compare results from participants' production data and may result from over-acceptance of a novel structure in non-native languages

(Giancaspro et al., 2015). A few recent studies have looked at oral and written production data (e.g., Angelovska & Hahn, 2012; Lindquist, 2015). A research design that compares perception and production data affords an opportunity to achieve more reliable results. In addition, there is also a need in L3 acquisition research to compare oral and written production data and to see how the performance and transfer instances are different in these two modalities.

A longitudinal design also provides valuable insights on how transfer effects evolve during the learning of an L3. Current research focuses mainly on the L3 at the initial stage, but how the transfer changes during the acquisition of the L3 still remains unsolved. A few researchers have collected such longitudinal data, which could also be one of the possible directions for future research in L3 acquisition. For instance, García and Villarreal (2011) analyzed cross-sectional and longitudinal data from adolescent L3 English learners. Sanz et al. (2015) also conducted a longitudinal study to investigate the developmental trajectory of L3 learners.

Fourth, the selection of linguistic features in the study is also important and may impact the findings. Scholars have examined various syntactic features such as object negation (Bardel & Falk, 2011), gender concord and assignment (Jaensch, 2011, 2012), null subject parameter (Rothman & Amaro, 2010), VO/OV orders (Sanchez, 2012), and relative clauses (Kulundary & Gabriele, 2012). For instance, Falk and Bardel (2011) examined the placement of object negation, and this is a commonly used and early–acquired feature for language learners. However, given that the structure of classroom conversation usually follows the IRF (Initiation/Response/Follow-Up) and is explicitly instructed (citation), choosing a commonly used structure may influence the results. Since other variables such as metalinguistic knowledge and L2/L3 proficiency may also interfere with the factor under examination, Rothman (2010) pointed out that researcher may choose participants who are at the advanced level of L2 and have clear knowledge of the syntactic feature examined in L2 to control for all the other variables such as proficiency and metalinguistic awareness, in order to test the TPM.

## Conclusion

Recent scholarship in the field of L3 acquisition has taken a great amount of endeavors to explore the characteristics of learning an L3 in the multilingual world in the last decade. This article has critically reviewed current theoretical perspectives and models in the field of L3 acquisition, compared conflicting results from up-to-date empirical studies, and discussed limitations in prior research design. The three proposed models have pushed forward this field to be more systematic and theoretically prepared. More specifically, the CEM (Berkes & Flynn, 2012; Flynn et al., 2004) suggests that both L1 and L2 play important roles (often facilitative) in the learning process of an L3. The L2 Status Factor Model (Bardel & Falk, 2007; Falk & Bardel, 2011) contradicts with the Topological Primacy Model (Rothman, 2011) by arguing that L2 is the filter that may block the influence of the L1 or other factors including (psycho)typological similarity. Many scholars have examined the three models and proposed alternative models (such as CM) to explain L3 acquisition. Yet, previous literature still suffers from several problems, including the low number of multilingual participants (e.g., Berkes & Flynn, 2012; Jaensch, 2012), inadequate group design to differentiate L2 status factor and typological similarity (e.g., Rothman & Cabrelli, 2010), the potential difficulty in identifying structural and psycho-typological similarity caused by the languages involved (Martins & Pinharanda, 2013), inaccuracy and interference of different modality of instruments (Giancaspro et al., 2015), and the possibility of fossilized errors/usages of

certain linguistic features by input (Falk and Bardel, 2011). Thus, to address these limitations, scholars need to direct more attention to their research design.

Scholars may also move beyond testing the three approaches and seek accounts from different theoretical perspectives. First, most of the studies only focus on multilingual learners who have near-native proficiency in L1/L2 and the three models neglect the possibility of influence from L2 proficiency (Jaensch, 2011, 2012). Second, researchers should investigate the interconnected and interactive relationship among factors. While a lot of studies in the field only focus on finding the dominant factor, how different factors interact with each other, and what influence they have, the transfer effect has been overlooked. Falk et al. (2015) first moved beyond the investigation of the determining factor and considered the interaction between variables discussed in previous literature. The nature of L3 learning is complex and researchers may not assume that there is a one-fit-all model for the learning process. Furthermore, researchers may also shift their gaze from a single type of L3 learner to comprising more diverse groups such as heritage re-learners, simultaneously L3 learners, learners whose L3 is more advanced than their L2s, etc. For instance, the re-learning experience of L3 as their native language by heritage learners becomes an interesting phenomenon in L3 acquisition. Normally, the proficiency level and the chronological sequence of learning a language is highly associated. However, in the case of heritage speakers, the proficiency of a re-learned native language may be low compared with another L1, or even other L2s. This provides scholars with an opportunity to discern between the influence of L2 status factor and typological similarity in L3 acquisition (Polinsky, 2015). Moreover, Falk and Bardel (2011) suggested that "the high priority would also be to search for multilingual learners with no knowledge of English at all as controls" (p. 212). It is worth noting that with the spread of English, most studies discussed in this article rely on learners who have English as their L1/L2/L3. Thus, future research may consider including more various background languages in the field of L3 acquisition. Finally, recent scholarship has sought to adopt a more holistic view of learning an L3. We may move from (morpho-)syntactic transfer to pragmatic and discourse levels and also look at multi-directional and reverse transfer. Meanwhile, factors such as metalinguistic awareness, formal instruction, implicit knowledge, perception of native-ness and association of foreignness, privilege status of the L2, and amount of exposure should be considered.

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[i] Williams and Hammarberg (1998) first proposed the term "L2 status" in their longitudinal case study on one multilingual individual's lexical switches back and forth to L1 and L2 in the learner's L3 Swedish oral production. The findings indicated that L1 English, on the one hand, was used by the informant in a conscious way, in situations where the learner deliberately decided to leave the "foreign language mode" (Meisel, 1983) and used L1 instead. L2 German, on the other hand, was used more subconsciously in lexical constructions or insertions of words that would not be activated in the third language. The findings not only revealed that L2 status factor existed in L3 production, but also suggested that L1 and L2 played different roles (specifically in lexical level) in L3 acquisition and production. Later in Hammarberg's (2001) chapter which used the data documented for the same multilingual individual, he further illustrated the different roles that L1 and L2 might occupy (e.g., instrumental role or supplier role), extended evidence to the morpho-lexical level, and defined the term "L2 Status" explicitly. Although these two earlier studies did not particularly examine the transfer at syntax/semantic levels, their studies provided directional evidence for the "L2 status", which led to further development by Bardel and Falk (2007, 2010) to the syntactic level.

[ii] The reason for choosing object pronouns as a syntactic feature to observe the influence was that object placement is pre-verbal in French, and post-verbal in English, while in German, the placement varies between sub clause and main clause.

[iii] Psychotypology was first proposed by Kellerman (1983), referring to the learners' perception of language typology. There are three different perspectives in regard as typology: 1) language relatedness; 2) typology in structures; 3) psychotypology. In Rothman's TPM, the "Typological Primacy" include all these aspects. Rothman (2015) argued that the mind may determine the perception of structural typology to some extent.

[iv] The Null-Subject Parameter is a highly-studied parameter of grammar, in English and French, null-subject or pro-drop is not allowed, while in Italian and Spanish, they have the syntactic possibility of null pronominal subjects.

[v] The L2 Status Factor Model discussed in the empirical studies in this section refers to the idea that L2 is the strongest factor in L3 acquisition (Bardel & Falk, 2010) and does not consider Falk et al.'s further refinements of the model (Falk & Bardel, 2011, Bardel & Falk, 2012, Falk et al., 2015).

[vi] CEM=Cumulative Enhancement Model, TPM=Typological Primacy Model, GJT= Grammatical Judgement Test, GJCT=Grammatical Judgement/Correction Task.

[vii] The TPM had not been proposed until 2011; however, the results of this study provided evidence against the later proposed TPM.

[viii] Although the three languages are not genetically related (while Tuvan and Russian share the Cyrillic alphabet), English and Russian share important similarities in terms of relative clauses (i.e., both have post-nominal

relativization and overt complementizers). In contrast to these two languages, Tuvan has prenominal relativization (which is left-branching Complementizer Phrase) and does not have overt complementizer.

[ix] Most of the studies looking at Indo-European languages include participants who have near-native proficiency of L2s, resulting in a neglect of L2 proficiency as a factor.

[x] In terms of structural typology similarity, Japanese and English are similar, while Spanish and German have a system of gender classification for nouns, or gender concord between nouns and articles/adjectives. However, English, German, and Spanish are similar in terms of realizing a definite/indefinite contrast through articles, while Japanese does not have articles in its linguistic system.

[xi] The selection of structure examined will also influence the hypothesis.