

AN OVERVIEW OF GENERATIVE THIRD LANGUAGE ACQUISITION RESEARCH

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Abstract: The goal of this paper is to provide a short state-of-the-art review of third language (L3) acquisition research from a generative point of view. I present some of the most important theoretical models of morphosyntactic transfer along with the results of exemplar studies that test them. Research in this field of study is most interested in tracing transfer, identifying its source(s) – first language (L1) and/or second language (L2) – and determining its nature – facilitative or non-facilitative in the process of attaining proficiency in L3 (see Rothman et al. 2019). Experimental results indicate that both previously acquired languages (L1 and L2) can be transferred in a facilitative and non-facilitative manner, approving or contradicting some of the proposed models of transfer. I conclude that there is a need for more research, testing the models across different language combinations and thus providing answers to the questions raised by the field.

Keywords: third language acquisition, transfer, (non-)facilitation, multilingualism

1. Introduction

This article¹ is a review of third language (L3) acquisition research where I discuss some of the most important theoretical models and the results of a number of experiments conducted to test them. My approach to the subject is non-exhaustive and centers on the generative framework prevalent in this particular domain of study. In the context of additional language assimilation and development, the interaction of linguistic knowledge between previously and newly acquired languages has been the area of investigation. Previous linguistic experience is determining in multilingualism; however, further research is required to show exactly how. Whether the acquisition of subsequent languages is the same as the acquisition of the first language (L1) or not, has long been discussed by linguists. Also, an expanding collection of studies appears to show that learning a third or further languages (Ln) differs from learning a second language (L2) (see Flynn et al. 2004, Rothman et al. 2019).

L3 acquisition studies are focused on several key questions. Firstly, which previously learned language(s) serves as the source of transfer? Secondly, at what moment does transfer take place? Is its occurrence confined to the early phases of language acquisition, or does it extend to intermediate and even advanced levels of proficiency? Thirdly, how do learners manage to eventually overcome non-facilitative transfer? Furthermore, does proficiency level in the learner's L2 and L3 matter in the process of setting the parameters of the target L3 grammar?

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Diverse theories attempt to model how transfer occurs, sustaining their claims with a large number of studies conducted with different language combinations (typologically dissimilar or related such as Romance: Spanish, Italian, French, and Germanic languages: English, German, Norwegian, or Russian, Chinese, Hungarian). The early and preliminary stages of the L3 as well as numerous variables such as acquisition age, linguistic dominance, level of proficiency, etc. are being considered. The examined linguistic properties include domains of differential object marking, null objects/subjects, relative clauses, object placement, pronominal possessors, word order, coordination of subject pronouns, negations, etc. The data give insight into the complex mental process of language acquisition, without being able to answer all important questions about L3 learning.

The following constitutes the paper's structure: In section 2, I address several particular aspects of L3 acquisition research from a generative linguistic perspective. In section 3, I present seven of the most significant models of linguistic transfer up to date and I describe exemplary studies conducted to test them. Next, in section 4, I examine the findings of transfer research spanning the last two decades. Finally, in section 5, I give an overview of the potential advancements in the field of study, and I provide a tentative conclusion.

2. From generative SLA to TLA²

Within the theoretical framework of the generative approach, the formal linguistic study of L3/Ln is a fairly new undertaking. However, generative methods (initially used in SLA) to L3 or Ln learning are well into their third decade and have played a significant role in the recent increase of interest in this topic (as discussed by González Alonso, 2023).

Universal Grammar (UG), the theoretical and methodological frameworks it employs to study language acquisition, and the emphasis on inherent linguistic knowledge are the distinguishing features of the generative approach. It is one of numerous approaches in SLA (e.g. Structuralism, Functionalism, Cognitive Linguistics, Behaviourism, Sociolinguistics, Psycholinguistics, etc.), each of which contributes to the field by concentrating on distinct variables and aspects that affect language acquisition. Some key distinctions between the generative approach and other approaches in linguistics are the focus on: UG (perceived as an innate language faculty), language acquisition device (which acts as a helping tool for children when they acquire their L1), syntax (emphasis on the acquisition of rule, process and principle sets as governing factors of sentence structure), parameter setting (options within UG possible to be set based on the linguistic input received), interplay with native language (interaction between L1 and the target language). In contrast, other linguistic approaches may emphasize the importance of cognitive processes, experience, and the environment in the acquisition of language.

In order to comprehend Chomsky's (1986) generative approach to linguistics, it is imperative to grasp the concepts of I-language and E-language. I-language is an acronym

² Third Language Acquisition.

for “internal language”. It denotes the internalized language system that is present in the mind of an individual. Chomsky's linguistic theory is primarily concerned with this system. It incorporates the mental representation of linguistic knowledge, which includes the rules and principles that regulate the generation of grammatical sentences. E-language, in contrast, is an acronym for “external language”. Chomsky regards E-language as the aggregate of all external manifestations of I-language, which encompasses every instance of linguistic performance. E-language is perceived as more abstract and disconnected from the psychological mechanisms that generate linguistic proficiency.

Preoccupation with aspects of the learning process, initial state transfer, ultimate attainment (popular topics in SLA) characterizes early generative L3 studies. Transfer source selectivity was an additional significantly generative inquiry that emerged as the primary focus of L3 research. Yan-Kit Ingrid Leung's dissertation (Leung 2002) and early postdoctoral work (e.g. Leung 2003, 2005a, 2005b) are the first generative research programs to successively approach the L3 context as a distinct scenario to what is initially reported about SLA. At the same time, Flynn and colleagues publish their seminal study, which becomes the first model of transfer in multilingual morphosyntax (Flynn et al. 2004). Leung (2007) provides substantial evidence that L3 acquisition has been pertinent to the issues that generative acquisitionists were examining at the time. Her argument centres on the untapped potential of multilingualism as a testing ground for the two contradictory but complementary approaches to language acquisition: the one concerned with sameness, where natural languages are an expression of a universal language faculty, and the one concerned with difference, where misalignments between the grammars of those natural languages are essential to model the learning trajectories of bi-/multilingual speakers.

3. Models of transfer

Models of morphosyntactic transfer are divided into two categories by Rothman et al. (2019) based on the source of transfer: (i) Default L1/L2 (L1 scenario, L2 Status Factor); (ii) Non-default L1/L2 (Cumulative Enhancement Model, Typological Proximity Model, Linguistic Primacy Model, Scalpel Model). Additionally, the Cumulative Input Threshold Hypothesis (CITH) is introduced as a seventh model, which emphasizes the development of L3 and establishes a new direction in the field. In the following subsections, a brief description of each model is provided.

3.1 L1 scenario

The L1 scenario is a plausible hypothesis, indicating that the L3 learner's native language is the default source of transfer (see e.g. Na Ranong & Leung 2009, Hermas 2010, 2015). This design conforms to the Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1994). The initial logical possibility when examining the selectivity of transfer sources in L3/Ln acquisition is that the transfer will originate exclusively from L1. There is disagreement in the literature concerning the factors that determine L1 transfer source selection (e.g. order of acquisition, language dominance in the case of adults as pointed

out by Lloyd-Smith et al. 2017). For a more comprehensive understanding of the potential testing of this hypothesis, the reader is invited to look at a few exemplary studies. In his doctoral dissertation Lozano (2003) suggests that traces of the L1 Greek could be detected in the advanced L3 Spanish of his participants. Na Ranong & Leung (2009) conducted research on null objects, examining 20 L1-Thai L2-English L3-Chinese learners, 7 L1-English L2-Chinese and 20 native controls. Null objects are licensed in Chinese and Thai but they are not allowed in English. In order to test the learners' knowledge of null objects, they used an offline interpretation task. The results indicate that L3 learners interpreted null objects similarly in their L1 and L2. Comparing the responses of the L2 and L3 groups, however, reveals no statistically significant differences. Individual analyses of the responses suggest that L1 might have a facilitative effect in the L3 group. According to their findings, the L1 is preferred for morphosyntactic transfer in L3/Ln acquisition. This is consistent with the conclusions of Hermas (2010).

3.2 L2 Status Factor (L2SF)

The L2 Status Factor is a hypothesis that claims a second language to be the preferred source of transfer because of its recency and psychological and cognitive importance (Bardel & Falk 2007, Falk & Bardel 2011). It was proposed in the mid-2000s as an extension into morphosyntax of notions that had been significant in non-native vocabulary acquisition. In a nutshell, the model asserts that distinct memory systems support various forms of linguistic knowledge. While procedural memory serves the native grammar, declarative memory serves the lexicons of the first and subsequent languages. Newer instantiations of the L2SF cover L3 scenarios beyond the one for which the model was first designed — adult sequential bilinguals (L2 learners) learning a third language in formal instruction settings. In situations where the “L2 status” factor is minimized or effectively neutralized (e.g. the presence of at least some L1 knowledge in declarative memory or the existence of two native languages, as in simultaneous bilingualism), transfer source selectivity will be determined by individual differences in cognitive variables, according to Bardel & Sanchez (2017). As a result of the significant increase in research on L3/Ln morphosyntactic acquisition over the past decade, the L2SF was adjusted and upgraded and the new formulation of the model (Bardel & Sánchez, 2017, Falk et al. 2015) accommodates L3 contexts, too.

The reader might want to look into the exemplary study conducted by Falk & Bardel (2011), which investigated the acquisition of object placement in English-French bilinguals who were learning L3-German. In their study they use mirror-image groups (22 L1-English L2-French and 22 L1-French-L2 English learners acquiring L3-German). They look at the acceptability of object pronouns in pre-verbal and post-verbal position. In English object-pronouns must be placed post-verbally and in French pre-verbally, whereas German allows both positions in different contexts. The researchers devise a grammaticality judgement task (GJT), which was coded for accuracy and they compared the results of the two groups. In fact, the data demonstrate that the group with English as their L2 chooses post-verbal object pronouns, while the group with French as their L2 prefers preverbal object pronouns. Bardel & Falk (2011) interpret these data as indicating that the L2 has a preferred status regardless of language combination.

3.3 Cumulative Enhancement Model (CEM)

The CEM represents a shift in formal linguistic strategies for L3/Ln acquisition, particularly in recognizing the importance of prior linguistic impact. The CEM's claim that "further language learning has a cumulative effect" implies that prior linguistic experience in the form of grammatical knowledge is significant, thereby distinguishing between L2 and L3 acquisition (see Rothman et al. 2019: 88). Before the CEM revealed this distinction, and possibly even now, researchers did not always take into account potential differences between L2 and L3/Ln learners. Proponents of the CEM argue that L3 syntactic transfer obtains from either the L1 or the L2 (Flynn et al. 2004). According to the CEM, the process of learning a language is sequential and builds upon itself, and prior knowledge of any language can either be beneficial to learning a new language or be irrelevant to the process. Proof of non-facilitative transfer (meaning transfer from a previously acquired language that hinders grammar development in the target L3) is, in principle, evidence against the model. Two studies that assess the predictions of the CEM are presented in the subsequent two paragraphs.

Flynn et al. (2004) examine the production of relative clauses by 33 L1-Kazakh L2-Russian L3-English learners. Lacking a mirror-image control group, they compare this group to L2-Japanese and L2-Spanish groups. Russian and English are head-initial languages, and Kazakh is head-final. According to their findings, both groups (regardless of age or proficiency) produce target-like restrictive relative clauses in L3 English. Their results showed that both groups (irrespective of age and proficiency) had target-like production of restrictive relative clauses in English. The authors interpret these results as proof that transfer selection in adult sequential multilingualism occurs if it is fully facilitative.

Berkes and Flynn (2012) examine the structural understanding of relative clauses in the case of L1-Hungarian L2-German L3-English learners. German, like English and Hungarian, is a head-initial language, although it is essentially SOV, as seen by its mandatory verb-final word order in embedded clauses. They look at word order in relative clauses in a language combination where this property manifests itself differently. The authors of the study test 42 L1-German L2-English and 36 L1-Hungarian L2-German L3-English learners. Test instruments consist of an elicited imitation task with three types of relative clauses. They assume that transfer is only facilitative. Their findings reveal significant differences between the production of free relative clauses and lexically-headed relative clauses in the L1-German, L2-English group. They ascribe these results to German influence. When examining the production of relative sentences by the L3 group, various performances can be observed and no significant difference can be seen. They interpret their findings as evidence for the facilitation of L3 acquisition in comparison to the possible non-facilitation from L2 German to L3 English.

3.4 Typological Primacy Model (TPM)

Rothman (2011, 2013, 2015) presents the Typological Primacy Model (TPM), which entails a complete initial transfer from the language that is typologically nearest. TPM thinks that the first stages should be accorded a special status. The TPM does not

provide projections for later L3A phases. Experiments are typically carried out in the initial stages of training, often involving English and Romance language speakers learning a different Romance language as a third language (e.g. Rothman & Cabrelli Amaro 2010). This theory asserts that previous language transfer is not defined a priori by order of acquisition, that is, by whether a given language is the L1 or the L2, but rather by the implicitly observed structural resemblance between each previous language and the L3. Once the grammar of the L1 or L2 has been copied as a first-pass L3 grammar, the remaining acquisition process consists of reconfiguring those areas where the transferred grammar and L3 target grammar do not match.

Rothman (2013) assumes that the comparison process leads to transfer source selection. The process consists of hierarchical linguistic domains (e.g. Lexicon, Phonology, Morphology, Syntax) used by the learner's internal linguistic parser in order to gather sufficient information about linguistic similarities. This process is assumed to take place in the initial stages of acquisition and its role is to help the learner form a first grammar to parse the new L3 input (see González Alonso 2023). Depending on the similarities of L1-L3, or L2-L3, the process would take longer or shorter. The TPM receives support from a number of studies, though with restricted language combinations, mainly Spanish-English-Brazilian Portuguese (for a review of studies see Puig-Mayenco et al. 2020). The TPM's predictions are tested in the subsequent exemplary study with bilingual learner groups that are acquiring their L3.

Rothman & Cabrelli Amaro (2010) examine L2 and L3 acquisition of French and Italian as target languages by four groups of learners: L1-English L2-French, L1-English L2-Italian, L1-English L2-Spanish L3-Italian, L1-English L2-Spanish L3 French and a group of English natives as controls. The domain of grammar they look at are properties related to null-subject licensing. In the language combinations implied, Spanish would be the source of non-facilitation for L3-French learners and the source of facilitation for Italian. The authors design a context/sentence matching task (for the knowledge of the Overt Pronoun Constraint) and a grammaticality judgement task with correction (GJT) – to examine properties of the Null Subject Parameter. The results of the OPC task showed that both L2 groups behave similarly and they transfer their L1-English. L3 groups also behave similarly to each other but differently from L2 groups: L2-Spanish is the transferred language in the case of learning Italian and French. The results of the GJT task align with the OPC task, L2 learners transfer English and reject null subjects in Italian and L3 learners transfer Spanish. The authors' goal is to show whether non-facilitative transfer could be obtained (contradicting the CEM) and they indeed find it in the case of L3-French. The authors find that typological proximity between Spanish, French and Italian could explain the results and thus the TPM was born in that project.

3.5 Linguistic Proximity Model (LPM)

The Linguistic Proximity Model is proposed by Westergaard et al. (2017). Acquisition entails obtaining properties one by one and allows input from one or both languages previously acquired, whether facilitative or non-facilitative. Crosslinguistic effect happens when a linguistic feature of a language being taught is comparable in structure to features of languages previously acquired. In the early stages of L3, LPM does not allow

for the possibility of a complete transfer of one of the previously acquired grammars. The LPM agrees essentially with the consensus among models that L3 acquisition is a “nonredundant process” (see González Alonso, 2023: 35). Specifically, it accepts the CEM’s view that transfer can and does originate alternately from L1 and L2 throughout. The LPM is, in fact, a model for L3 acquisition that places emphasis on transfer/CLI as an integral component of the acquisition process. In contrast to the TPM, the LPM is intended to model the mechanisms that give rise to CLI/transfer (of individual properties) during L3 acquisition.

The predictions of the LPM are tested by Westergaard et al. (2017), who analyse Norwegian-Russian bilinguals who speak English as their third language to determine the origin of transfer/CLE in two different word order scenarios: verb-second (V2) in Norwegian and subject-auxiliary inversion in English. Their aim is to show facilitative and non-facilitative transfer from either Norwegian or Russian into L3 English. They collect data from three groups: Norwegian-Russian bilingual learners of L3 English, L1-Norwegian L2-English learners, and L1-Russian L2 English learners. The participants are early child bilinguals acquiring yet another language in adolescence. A grammaticality judgement task (GJT) is used with two conditions focusing on declarative sentences with and without verb movement and subject-auxiliary inversion sentences. The results of the declarative condition indicate that the bilingual group rejects significantly more sentences containing V2 in English than the monolingual Norwegian learners of L2 English. The fact that the group of bilinguals performs better under these conditions is interpreted as evidence of a Russian effect. In contrast, all students perform equally well in the subject-auxiliary inversion condition, contrary to the hypothesis that bilinguals would perform better. It is argued that the fact that they perceive influence from both languages in L3 English is evidence in favour of a model of L3 acquisition that predicts transfer to occur property-by-property, based on structural similarity.

3.6 Scalpel Model (SM)

The Scalpel Model (Slabakova, 2017), which is best described as a collection of observations on the empirical and theoretical limitations of wholesale transfer and in favour of property-by-property transfer, has been conceptually combined with additional work on the LPM by the original authors of both theories (González Alonso 2023: 34). Slabakova (2017) argues explicitly that complete transfer of a previously learnt language does not occur during the initial period of language acquisition. It further specifies that transfer can occur from L1 or L2, or both, depending on which language learning is assisted by the transfer of parameter settings from the previously acquired language, but this can be done both facilitatively and non-facilitatively. In accordance with the CEM and LPM, it asserts that transfer is from one property to another. According to Slabakova’s Scalpel Model, language interactions might be detrimental if, for instance, a grammatical feature is insufficiently frequent in the target language input. Flynn et al. (2004) contend that transfer is only proactive if it supports language learning.

Slabakova provides evidence for property-by-property transfer by referring to a study by Bruhn de Gavarito & Perpiñán (2014). They test a group of English-French bilinguals following 3 weeks of L3 Spanish learning. In order to test wholesale transfer,

they look at coordination of subject pronouns, focus constructions, adverb placement, clefts, and object clitics. French differs in most of the properties tested from English and Spanish. The authors design a written and aural acceptability judgement task (AJT) and a production task. The results of the AJT show transfer from French across the properties. In the elicited production task, the data shows mixed results which Slabakova interprets as L3 transfer from various sources.

Another study conducted to test the predictions of the SM is done by Clements & Domínguez (2018) in the L3-Chinese acquisition of null (NS) and overt subjects (OS). They use two groups: 15 L1-English L2-Spanish L3-Chinese, and 10 L1-English L2-French/German L3-Chinese learners and two control groups: 20 L1-Chinese and 20 L1-Spanish native speakers. The authors design a written production task (WPT) in order to investigate L3-Chinese learners' use of NS and OS, and a pronoun interpretation task (PIT) to investigate L3 learners' interpretation of embedded NS and OS in Chinese. Their results support the SM's (and LPM's) claim (transfer is not wholesale but partial), referring to the L2-Spanish group's transfer from Spanish for NS and from their L1 English for OS.

3.7 Cumulative Input Threshold Hypothesis (CITH)

Cabrelli & Iverson (2023) propose the CITH as the first customized L3 developmental theory. Literature on L1 and L2 acquisition has revealed that when it comes to rule learning, less is more (see Yang 2018). CITH shares a connection with Yang's Tolerance Principle (Yang 2005, 2016 and 2018) which is "a method by which the learner evaluates potentially productive hypotheses about language" (Yang 2018: 694). According to the Tolerance Principle "[distributional] rule learning [from input data] is easier, and more tolerant of exceptions, when the learner has a smaller set of items in their vocabulary... a larger value of N has the inadvertent consequence of raising the threshold for [rule] productivity, thereby making rule learning much more difficult" (Yang 2018: 692).

With this principle in mind, Cabrelli & Iverson (2023) develop the CITH for L3 acquisition. They contend that the larger the quantity of input the learner received in the language transferred during the initial stages of L3 acquisition, the greater the amount of input the learner will require to recover from non-facilitative transfer. In other words, in the case of proven non-facilitative transfer learners of L3 can overcome it and set the parameters of L3 easier when they receive less input of an L2. The learner needs to isolate input amounts by testing properties in L3 that do not exist in L1 or L2. Cabrelli & Iverson's study (2023) reveals that an L2 transfer advantage exists even without explicit knowledge. Therefore, the cumulative input of a structure in the transferred language impacts the time and ease of recovery from non-facilitative transfer in L3.

This theory provides the flexibility necessary to make testable predictions for bilingual types whose order of acquisition and cumulative exposure may not coincide, such as heritage bilinguals – for whom, in strict chronological terms, the L2 typically presents higher cumulative exposure – and simultaneous bilinguals – for whom it is frequently extremely difficult, if not impossible, to determine which language has dominated their linguistic experience (González Alonso 2023).

The theoretical models of morphosyntactic transfer discussed above make well-grounded predictions about the source of transfer. The two models included in the default L1/L2 category (L1 scenario, L2SF) suggest that one of the previously acquired languages stays prominent and readily available as preferred source of transfer. Whether the L1 or the L2 acts as a preselected option in the learner's mind proved not to be the most relevant question, because research has shown that transfer occurs from all and any of the learner's languages therefore these two models have lost from their explanatory power. The non-default L1/L2 category includes models that proved to have larger explanatory power (CEM, TPM, LPM, SM), showing that prior linguistic experience builds upon itself, it is cumulative, and factors like typological closeness, language dominance in case of bilingual learners, age of acquisition all have important roles in L3 acquisition. Whether wholesale initial transfer or property-by-property transfer takes place in the learner's mind is a question subject to future research as studies conducted so far provide evidence for both predictions. The nature of transfer appears to be essentially of two types: facilitative and non-facilitative; the predictions that suggest only one of these should no longer be tested. The next section presents a short summary of the results of L3 transfer studies, shedding more light upon the challenges and questions of the field.

4. Review of transfer studies' results

The findings of a comprehensive analysis of 85 L3 studies (Rothman et al. 2019) are presented below with the goal of achieving a deeper understanding of the nature and origin of linguistic transfer. Rothman et al. (2019) used the following macro-variables to predict the source selection of transfer: (i) L1 or L2 transfer; (ii) Typological transfer; (iii) Hybrid transfer; (iv) Non-facilitative transfer. 15 out of 85 investigated studies showed L1 transfer, conforming to the L1 scenario (see e.g. Na Ranong & Leung 2009, Hermas 2010, 2015), TPM (Rothman 2011, 2013, 2015), and CEM (see e.g. Flynn et al. 2004). L2 transfer is observed in 21 studies, adhering to the L2 Status Factor hypothesis (as stated by Bardel & Falk 2007, Falk & Bardel 2011), and the TPM. Typological transfer is reported in 53 studies, compatible with the TPM, LPM, and SM (Slabakova 2017). Hybrid transfer (essentially, transfer from both L1 and L2) is found in 13 studies (compatible with the LPM, and SM) and non-facilitative transfer (compatible with all models previously mentioned except for CEM) is shown in 78 studies (Rothman et al. 2019: 138).

The authors conclude that studies with production data (where learners are administered production tasks) are significantly associated with L2 transfer only, while hybrid transfer and the majority of studies demonstrating L1 transfer are comprehension studies (in instances where comprehension tasks are used). Order of acquisition cannot explain the vast majority of the data on its own, and the L2SF cannot account for most of the data. Typological transfer has significant explanatory power, and it can account for the majority of the data. In a minority of the studies, hybrid transfer is observed, and the nature of production data might explain these results. Also, there is conclusive evidence that non-facilitative transfer exists. The CEM cannot explain most of the data sets, and it

should no longer be tested. The LPM and SM may be able to account for the variation in results, therefore, they must be tested.

It is now time to revisit the questions from the introduction and endeavour to provide answers based on the knowledge that has been presented thus far. In the pursuit of the source of morphosyntactic transfer, the literature indicates that it can originate from either the L1 or the L2, or from both of the earlier acquired languages. The researcher's work is made harder by this response, as they must disentangle the sources of transfer and determine whether it is the case of full initial transfer (as predicted by the TPM) or property-by-property transfer (supported by the SP and LPM). Regarding the question of whether transfer is restricted to the initial phases, the response is negative. Research has demonstrated that the transfer process continues into the later stages of learning. For example, non-facilitative transfer is observed in the case of proficient L3 learners, too. The proficiency level of the learners' L2 and L3 is crucial and plays a significant role in overcoming non-facilitation. This has been shown to be achievable; however, the rate of progress may vary depending on the volume of input from the L2 (as evidenced by the CITH).

Overall, it would be highly advantageous to establish a standardized methodology that could be employed to conduct research in the field of L3 research, with a view toward the future. This would result in a more thorough ability to compare research and disprove or support the proposed L3 models. In addition, the models should be more capable of accommodating typologically distant language combinations, as the language pairs that have been observed so far are primarily Romance and Germanic. Also, a potential limitation of the models might be that there is too much emphasis on simultaneous bilinguals acquiring their L3. Such populations are often very difficult to find. In contrast, sequential bilinguals are generally more prevalent and more accessible for testing, such as students in public schools. Additionally, it is exceedingly challenging to control the variables of age and the languages acquired. In the case of children, the researcher is aided by the fact that the school curriculum determines the languages they are taught and the appropriate time to acquire them. However, the situation is more complex for adults. Often, adults are able to communicate in more than three languages at varying levels of proficiency. The reader can grasp from this how challenging it can be to conduct L3 research with an adult population. Consequently, in the future, models of L3 morphosyntactic transfer should more explicitly distinguish between acquisition models designed for young learners and adult populations and provide specific and differential testing tools for researchers.

5. Conclusions

In this paper I have presented a non-exhaustive review of generative L3 acquisition research, which includes a discussion of several of the most significant theoretical models and the outcomes of numerous experiments that were conducted to test them. Conclusions are numerous, and readers are encouraged to contemplate them. As linguistic transfer takes central stage in L3 acquisition, the generative approach continues to guide inquiries, offering a theoretical framework that considers both the sameness and difference

perspectives in language learning trajectories having enriched our comprehension of the process of acquiring multiple languages, providing a robust foundation for ongoing investigations into the nuances of linguistic transfer. Furthermore, the exploration of linguistic transfer, crosslinguistic influence, and parameter setting within the generative framework has unfolded a rich tapestry of theoretical landscapes. The distinctions between linguistic transfer and crosslinguistic influence, coupled with the examination of the initial state of SLA, have contributed to the understanding of the factors influencing language learning outcomes. The controversies surrounding critical periods, parameter setting, and the dynamic interplay of variables like linguistic experience, age of acquisition, proficiency level, and language similarity highlight the depth of inquiry within the generative approach.

Both theoretical and experimental researchers attempt to answer emerging questions, such as whether transfer in L3 acquisition is the same for all bilingual types, and does age of acquisition matter. Understanding the potential differences that may exist between the various types of bilinguals should become an increasingly central focus in the near future, and being aware of these differences can help cognitive research contribute to the development of purposeful educational resources. According to Rothman et al. (2019: 170), non-adult L2 and L3 language acquisition is understudied from a formal linguistic and experimental perspective that should be in accordance with the various models of language acquisition that have been proposed. Therefore, more studies are needed that look into L3/Ln acquisition in childhood.

In conclusion, the ultimate objective of language acquisition models in the multilingual world in which we live should potentially be to aid the learning of languages by both children and adults. In order to develop more effective and targeted learning materials, it is necessary that theoretical findings in the field be tested on learners. In the future, developmental L3 studies should be conducted with a variety of language triads to determine what is easy and difficult for diverse learner populations. The researcher would gain valuable insight by monitoring the learners' progress throughout all phases of proficiency in longitudinal studies, and their findings may be applicable to the practice of language teaching and learning. A potential direction for future generative L3/Ln research is to further explore the nature of morphosyntactic transfer that learners experience and the developmental route that they undergo in setting the parameters of the target language.

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