The Faculty of Arts and Education

MASTER'S THESIS

Study programme: Master in English and Literacy Studies MLIMAS-1 23H Dissertation and oral exam	Spring term, 2024 Open
Author: Mayu Asada	…… (signature author)
Supervisor: Nadine Kolb	
Title of thesis: Cross-linguistic influence (CLI) in L3 Spanish by Norwegian-English bilinguals	
Keywords: L3 acquisition Cross-linguistic influence Heritage language Multilingualism	Pages: 85 + attachment/other: 19 Stavanger date/year 7th May, 2024

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Master thesis [2024]
Master in English and Literacy Studies
Department of Cultural Studies and Languages

Faculty of Arts and Education

Acknowledgement

I would like to express my sincere appreciation for my supervisor, Nadine Kolb, throughout the entire process of completing this Master thesis.

Your dedicated support, advice, and encouragement during this academic period was always my motivation to go through this long journey. I would also like to deeply thank your support for my mental care on the way to handle difficulties in living abroad. I could not have finished this whole process without your heartful dedication.

I would like to extend my gratitude to the faculty, University of Stavanger, for their flexibility. I truly appreciate their understanding of my situation, and giving me a chance to complete the thesis.

Finally, I would like to thank my family and friends who always supported me throughout this academic year.

Abstract

This empirical study investigates cross-linguistic influence (CLI) in L3 acquisition at the early stage with Norwegian-English bilinguals in Norway and examines whether either or both previously acquired languages is more influential in L3 acquisition and which factor leads to CLI. The participants were divided into two groups: (i) L1 Norwegian / L2 English, and (ii) L1 or heritage language (HL) English / L2 Norwegian. The target condition is adverb placement for four conditions depending on the main or subordinate clause types with the lexical and copular verbs in which the target three languages have different patterns of word order. This experiment conducted a gap filling task and a language proficiency task in the three target languages. The results demonstrate all participants have an overall preference of the same adverb placement for all conditions, and word order from both L1 and L2 is found in the results by each group. The finding of this study suggests that both previously acquired languages are influential in L3 Spanish, and the same word order is generally preferred in any conditions presumably based on principle of economy.

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1. Introduction

This study examines how previously acquired languages influence third language acquisition (L3). I investigate factors leading to cross-linguistic influence (CLI) in early stages of L3 Spanish in Norwegian-English bilinguals in lower secondary school in Norway.

In Norway, students acquire English in primary school and may choose to learn Spanish, French or German in lower secondary school. Thus, for first language (L1) speakers of Norwegian, English is their second language (L2) and Spanish, French or German their L3. Understanding the factors that lead to cross-linguistic influence from L1 Norwegian and L2 English in L3 Spanish will (i) help the field of L3 acquisition move forward, and (ii) will potentially have pedagogical implications for foreign language classrooms.

As a relatively new field in linguistics, many questions on L3 acquisition remain to be answered and more empirical data is necessary. In the field of L3 acquisition, there is a debate on which factors lead to CLI in L3 acquisition, e.g., typological primacy (Rothman, 2015), structural similarity (Westergaard, Mitrofanova, Mykhaylyk & Rodina, 2017; Westergaard, 2021), order of acquisition (L1: Hermas, 2015; L2: Bardel & Falk, 2017), language of communication (Fallah, Jabbari & Fazilatfar, 2016). Several L3 acquisition models, which will be discussed in detail in section 2.3, have been developed. Most L3 studies investigating CLI have focused on adults (e.g., Hermas, 2010) and only few L3 studies include (heritage language bilingual) children (e.g., Hopp 2019; Lorenz et al. 2019; Kolb et al. 2022). This study will contribute to the current debate by adding new empirical data on L3 Spanish in a classroom setting.

The main discussion surrounding the L3 acquisition is to clarify the determiner of CLI on the process of acquiring third or further languages among various influential factors as described above. What differentiates the process of acquisition in L3 from that in L2 is the accessibility to multiple linguistic knowledge for learners, which makes the debate controversial. While

transfer in L2 acquisition field mainly discusses the interference of L1 on L2, CLI in L3 acquisition questions which sources of transfer are more influential, L1, L2, or both, and to what extent of each source. Since the debate arose almost 20 years before, order of acquisition has been focused as the possible determiner of CLI. Some researches argue that L1 plays a dominant role as the source of transfer rather than L2 (e.g., Hermas, 2010, 2015), while others claim that L2 is more influential on L3 acquisition (e.g., Bardel & Falk, 2007, 2012). Both arguments emphasize order of acquisition as the fundamental factor on L3 regardless of language properties. Additionally, some models are suggested placing the importance of CLI as the similarity between each language. The Cumulative Enhancement Model by Flynn, Foley & Vinnitskaya (2004), according to González Alonso (2023), is regarded as the first attempt to focus on linguistic characteristics among L3 acquisition models, with the recognition of the third language acquisition as the cumulative process. They argue that the importance of L3A underlies how much one cumulates linguistic knowledge. Afterwards, the Typological Primacy Model is also proposed by Rothman (2011) with the emphasis of typological similarity between L3 (Ln) and L1/L2. Among previously acquired languages, learners select one typologically similar language and make it as a blueprint in L3 learning with a reference to the entire grammar of that language. That language has a superior access for learners than any other previously acquired languages. The crucial determiner of CLI is, therefore, the overall linguistic similarity rather than order of acquisition and linguistic property. The Linguistic Proximity Model by Westergaard, Mitrofanova, Mykhaylyk, & Rodina (2017, 2023) and the Scalpel Model by Slabakova (2017) have the same point of view regarding the important factor of CLI: property-by-property transfer. In contrast to the Typological Primacy Model, these models argue that learners equally have access to all previously acquired languages on the process of acquiring additional languages. They make use of any available linguistic knowledge depending on structural similarity shared with L3/Ln and L1/L2. Thus, The Linguistic Proximity Model and the Scalpel Model place an importance as sources of transfer on structural similarity of all languages leaners gained rather than order of acquisition and wholesale transfer. Finally, The Language of Communication Model Fallah, Jabbari & Fazilatfar (2016) proposes the influential factor of CLI as the language learners most frequently use in their daily life.

These models described above are the dominant theories in L3 acquisition. In this study, the proposal of the Linguistic Proximity Model and the Scalpel Model are employed as the main theory.

The data collected for this thesis is part of a research project by van Osch, Kolb, Luque, Anderssen & Westergaard (2023) investigating CLI in L3 Spanish, French and German in Norway. The authors' aim is to examine which factors are the source of CLI, e.g., the status of the L1 (e.g., Hermas, 2015), the status of the L2 (e.g., Bardel & Falk, 2007, 2012), typological similarity (e.g., Rothman, 2015), structural similarity (e.g., Westergaard et al., 2017, Flynn et al., 2004), exposure to the L2 (e.g., Tremblay, 2006, Stadt 2019), proficiency in the L2 (e.g., Sanchez &Bardel 2017), metalinguistic knowledge in the L1/L2 (e.g., Falk, Lindqvist & Bardel, 2015, Thomas, 1988), language dominance (e.g., Puig-Mayenco et al., 2022), age of onset (Cabrelli & Iverson, 2023). While the study by van Osch et al. (2023) investigate early and later stages of L3 acquisition, the current project focuses on early stages only.

This study investigates CLI in L3 Spanish for two comparison groups: L1 Norwegian, L2 English and HL (heritage language) English, L2 Norwegian. The definition of "heritage language" is employed from Rothman (2009): "a language qualifies as a heritage language if it is a language spoken at home or otherwise readily available to young children, and crucially this language is not a dominant language of the larger (national) society" (p. 156). Therefore, heritage bilingual means able to use both a dominant language and a heritage language. The results of this study include examining whether a heritage language (L1) or societal language (L2) is influential on L3 learning and to what extent. The situation of Norway, however, makes a difference from other countries since it has lots of exposure of both Norwegian and English in a daily life. Particularly, the participants from the international school in this study have English not only as their heritage language but also as their societal language at their school as well as Norwegian. The students at the regular school, on the other hand, have lots of exposure to L2 English from age 6 when they start to get English education. With an accordance to the circumstance in Norway, where English is frequently used in a daily life, proficiency level of L2 English by the regular school students are estimated to be high.

The target condition of this experiment is adverb placement in the main clause and subordinate clause with the lexical and copular verb since it is uniquely presented in several word orders depending on languages. For example, among Norwegian, English, Dutch, French, German and Spanish, there are only Dutch and German which share the same adverb placement regardless of the clause and verb type. In short, examining word order of adverb placement with various language combinations under the controlled conditions reveals whether a syntactic difference influences on language learning, which is the main topic of the research of van Osch et al. (2023). In this study, the conditions of adverb placement are divided into the clause type and verb type. In total, there are four conditions of adverb placement: 1) the main clause and lexical verb condition, 2) the main clause and copular verb condition, 3) the subordinate clause and lexical condition and 4) the subordinate clause and copular condition.

The main purpose of the current project is to add empirical evidence to the body of current literature on CLI in L3 acquisition by using different language combinations and methodologies. The analysis focuses on word order in L3 acquisition, that is, whether English-like word order or Norwegian-like word order is reflected in L3 Spanish. In short, the role of English and Norwegian as L1/L2 can be assessed depending on the L3 learners' word order preferences. The project employs a gap filling task in Spanish, English and Norwegian as well as a proficiency task in Spanish and English (Norwegian proficiency task is added for L1 English speakers). The participants of this study complete these tasks regarding word order with adverb and a vocabulary test at their school.

The main purpose of this study is to investigate which language is more influential in L3 Spanish and which factors lead to CLI. The following research questions are addressed:

RQ1: Does crosslinguistic influence occur from either or both previously acquired languages in L3 Spanish?
RQ2: Does the role of English change depending on whether it is L1 (HL) or L2?

RQ3: Which factors lead to crosslinguistic influence in the early stages of L3 acquisition?

This thesis is divided into the following chapters: Chapter 2 presents the theoretical background and the literature review on adverb placement in L3 acquisition. In chapter 3, cross-linguistic variation between Norwegian, English and Spanish is discussed with a focus on adverb placement. Chapter 4 presents the research questions and prediction. Chapter 5 deals with the methodology. In chapter 6 the results are presented, which are then interpreted in the discussion in chapter 7, and finally a conclusion is provided in chapter 8.

2. Theoretical background

In this chapter, first the field of L3 acquisition is introduced, followed by a definition of the concepts *transfer* and *cross-linguistic influence*. Then, the L3 acquisition models are presented. Finally, an overview of relevant previous literature is provided.

2.1 Third language acquisition

The main approaches in the field of L3 acquisition discuss which factors determine the source of cross-linguistic influence from various points of view, such as order of acquisition, language proficiency, age onset, and so on.

At first, the concepts of language transfer/ cross-linguistic influence have emerged in the field of second language acquisition (SLA), which has significant influence on the field of L3 acquisition. The general discussion around CLI is to what extent the L1 affects the process of L2 acquisition. One notable model is the Full Transfer/Full Access model by Schwartz & Sprouse (1996) which argues that the grammar of the L1 is fully transferred into L2 acquisition, which means that the L1 grammar is the starting point of the L2 initial stage. On the other hand, there is another model which discusses partial transfer of the L1: Minimal Trees Hypothesis by Vainikka & Young-Scholten (1996). These two contradicting arguments have been discussed in the field of L3 acquisition, whether wholesale or property by property transfer determines language learning. In addition, the correlation between L1 and L2 is also one of the main controversial questions. In the following chapters, current L3A models are presented with their generative approaches.

2.2 Cross-linguistic influence

The term “cross-linguistic influence” has emerged in the field of L2 acquisition from 1970s. The origin falls back to the term “transfer,” but the appropriate definition of the term was

controversial among researchers. Odlin (1989) points out that the notion of transfer was first discussed in Lado (1957), who argues that basically transfer occurs when learners adapt L1 practice into L2 acquisition. However, Corder (1983) criticizes the complexity and technicality of the term as well as Kellerman and Sharwood Smith (1986), who also claim a problem with Lado's (1957) definition, i.e., the insufficiency of lacking learning strategies such as borrowings, loans and avoidance. Thus, they define the term cross-linguistic transfer as "the way two language systems interact in the learner's mind" (Kellerman and Sharwood Smith 1986:72).

Odlin (1989) summarizes the notion of transfer by criticizing four older concepts: a consequence of habit formation, interference, L1 influence, and the repetition of L1. At first, the use of the term transfer used by behaviorists implied a habit formation. However, according to Odlin (1989), as cognitive psychology replaced in the position of behaviorism, less people associated the concept of transfer with habit formation since "the acquisition of a second language need not (and normally does not) lead to any replacement of the learner's primary language" (Odlin 1989: 25). That is, a habit formation, which implies the replacement of the leaner's primary language in Odlin's words, is not necessarily related to the acquisition of a second language. Secondly, Odlin (1989) claims transfer is not simply an interference because it implies not only negative but also positive influence. In addition, in a multilingual society, the interaction with a target language is among three or more languages, and not limited to L1. At last, transfer is not a falling back on L1 rule since transfer can occur in several complex settings such as multilingual situations, and also other influences regarding cognitive linguistic aspects. In conclusion, Odlin (1989) proposes the new definition of transfer in order to avoid the problematic notions described above:

> "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: 27)

This thesis will use the term cross-linguistic influence based on Odlin's definition of transfer. Both terms "transfer" and "cross-linguistic influence" are used interchangeably in this thesis.

2.3 L3 acquisition models

Since the study of L3 acquisition is still fairly new compared with other linguistic fields, there has been no consensus on the process and mechanisms of CLI in third language acquisition. From the early 2000s, some formal models regarding transfer in L3 have been proposed by several scholars, and these models have a focus particularly on the correlation between L3 and previously acquired languages. González Alonso (2023) groups the main generative perspectives of L3 models into three types:

> "(1) There is no transfer from previous languages
>
> (2) Transfer comes predominantly or exclusively from the L1.
>
> (3) Transfer comes predominantly or exclusively from the L2.
>
> (4) Transfer can come from either, or both, the L1 or/and the L2. "
>
> (González Alonso 2023: 31)

González Alonso (2023) mentions the theory stating (1) is not explicitly proposed as a L3 acquisition model so far. The L2 Status Factor, proposed by Bardel and Falk (2007, 2011, 2012), is a model classified as category (3), which claims that the L2 is the fundamental source in L3 acquisition. On the other hand, Hermas (2015) suggests that the L1 has more influence on the L3 than the L2, which is categorized as (2). In addition, there are several models in category (4) with different perspectives; the cumulative enhancement model by Flynn, Foley and Vinnitskaya (2004), the typological Primacy Model by Rothman (2015), the Linguistic Proximity Model (LPM) by Westergaard, Mitrofanova, Mykhaylyk & Rodina (2017) and the Scalpel Model by Slabakova (2017). In this chapter, each model is briefly explained.

2.3.1 L2 status factor

Bardel & Falk (2007) first argued for syntactic transfer from L2 to L3 with their study on the placement of sentence negation in L3 Dutch and Swedish. By comparing several L1 and L2 groups, they found differences in syntactic structures on the placement of negation in the L3, attributed to the L2s. This leads to the argument of a typological relationship between the L2 and the L3. Subsequently, in their following study, Bardel & Falk (2011) emphasized the L2 status factor with another finding of syntactic transfer in L3 German, showing a greater influence from the L2 than the L1. They investigated two groups of L1/L2 English and French speakers (both n=22) respectively, examining their object placement in L3 German using a grammaticality judgement task (GJT). While object placement is postverbal (V-Adv) in English and preverbal (Adv-V) in French, German accepts both depending on context. As a result, the two groups show different preferences in their choice of object placement in L3, resembling those of their respective L2s. These outcomes underscore the significance of the L2 status factor, and suggest that the L2 has an important role in L3 acquisition. Bardel & Falk (2012) also refer to a cognitive approach supporting the prominence of L2 over L1 based on Declarative/Procedural model by Paradis (2009). They explain that cognitively, the L2 and L3 (and Ln) are stored in the same memory (declarative memory), whereas the L1 is stored in procedural memory, resulting in a stronger relationship between L2 and L3 rather than L1.

However, Falk, Lindqvist, & Bardel (2015) modify the L2 status factor with the hypothesis that the role of explicit metalinguistic knowledge which is obtained through language learning, of L1 is relevant at the early stages of L3 acquisition. They compare the oral production in L3 of 40 participants with both low and high explicit metalinguistic knowledge focusing on adjective placement. The results show that the higher degree of explicit metalinguistic knowledge in L1 affects their L3, so that metalinguistic knowledge is also declarative. Furthermore, as the recent version of L2 status factor, Bardel & Sánchez (2017) take individual differences in cognitive functions such as metalinguistic knowledge and working memory into account to influence L3 under multilingual situations. Therefore, not only the degree of metalinguistic knowledge, but attention, working memory capacity, or

inhibitory control affect the transfer source of L1 or L2. In short, currently L2 status factor is not that straightforward as original with a focus on the cognitive approach of L1 and L2.

2.3.2 Cumulative enhancement model

The Cumulative Enhancement Model, proposed by Flynn, Foley & Vinnitskaya (2004), considers language acquisition as a cumulative process in which all previously acquired languages play a fundamental role. In their study, Kazakh-Russian bilingual children and adults, as well as groups of L1 Spanish and L1 Japanese speakers, were tested on restrictive relatives in English as their respective L3/L2 and separated into three groups based on their L3 proficiency. While Spanish, Russian and English share the same patterns for restrictive relatives, Kazakh and Japanese do not. The results indicate that both the bilingual group and the L1 Spanish group outperform the L1 Japanese group. Flynn et al. (2004) attribute this difference to the prior knowledge acquired by the bilingual and Spanish groups in their L1 and L2, which the Japanese group lacks. They also compare equivalent proficiency levels among adults and children, finding that the adults' results have more facilitative effects by their L2, Russian. Flynn et al. (2004) suggest that a possible reason could be that most adults begin learning their L2 and L3 almost at the same time, whereas children learn Kazakh and Russian before acquiring L3 English. Additionally, the performance of the L1 Japanese group resembles that of children acquiring English as their L1, indicating a lack of background knowledge about restrictive relatives in both groups. In conclusion, the prior knowledge of L1 or L2 shared with the target language proves to have a positive effect on L3 acquisition, regardless of when it is acquired.

González Alonso (2023) summarizes the CEM as the kickstart of CLI in L3 acquisition, wherein the interaction of all prior languages is clearly differentiated from L2 acquisition. Additionally, the increase of efficiency and the avoidance of redundancy based on their linguistic repertoire are assets compared to L2 acquisition.

Although the CEM is often regarded as the claim with the lack of the non-facilitative transfer from their first publication stating that "language acquisition is accumulative, i.e. the prior

language can be neutral or enhance subsequent language acquisition" (Flynn et al. 2004, p.14), the recent proposal by Fernández-Berkes & Flynn (2021) argues this is a false claim. They clarify the core meaning of the CEM:

> "1. The more languages one knows, the easier it appears to be to acquire new subsequent languages (see also Cenoz 2004, for example) and,
> 2. Linguistic facts, based on extensive and robust data drawn from English L1/L2/L3 acquisition, having to do with head-complementation or the Complementizer Phrase seem to play an important role not only in L1 but also in L2/L3 development."
>
> (Fernández-Berkes & Flynn, 2021: 32)

That is, the argument of the CEM has to do with the merits of previously acquired languages in the subsequential process of language acquisition, which does not necessarily lead to the ignorance of non-facilitative transfer.

2.3.3 Typological primacy model

Rothman (2010, 2011, 2015) proposes the Typological Primacy Model, which suggests transfer from either prior language. The basic claim of the model is that typologically similar language has a prominent effect on L3 acquisition as wholesale transfer, regardless of order of acquisition. The TPM develops the argument from the idea of overall typological similarity by the Interlanguage Transfer Hypothesis (Leung, 1998, 2003) which claims superficial linguistic similarity is the determining factor as the source of transfer at the initial stage. Based on this hypothesis, the TPM argues that CLI occurs at some point of the initial stages, when the parser determines one typologically similar language to L3 out of the previously acquired ones. The selected typologically close language serves as a blueprint, and creates the basis of newly constructing L3 grammar. Thus, it can be both facilitative and non-facilitative since the entire grammar of typological similar language is copied. According to the TPM, L3 learners do not refer to all accessible linguistic knowledge but only rely on one predominant language once it is recognized as lexically closer, which Rothman (2019) calls "a shortcut of sorts" (p.29).

The first empirical evidence has been conducted by Rothman (2010) for L3 Brazilian-Portuguese learners who have English or Spanish as their L1 or L2. Their level of proficiency in L2, either English or Spanish, is ascertained to be at an advanced level. The experiments conducted related to syntactic word order and relative clause attachment preferences in the L3, and the results indicate that transfer from Spanish is evident for both the L1 Spanish/ L2 English group and the L1 English /L2 Spanish group. Therefore, Rothman (2010) concludes that typology between the L3 and previously acquired languages is the main predictor for transfer. Rothman (2011) also supports this idea with additional data from two comparison groups: L1Italian, L2 English, L3 Spanish and L1 English, L2 Spanish, L3 Brazilian Portuguese. In terms of L3 adjectival interpretation, both groups demonstrate knowledge of subtle adjectival semantic nuances, which are shared from L1 Italian and L2 Spanish, respectively. This experiment leads to the conclusion that the typological primacy between the L3 and the L1 or L2 determines the source of transfer. Rothman (2013, 2015) update the TPM from a cognitive perspective on how to determine typological primacy in the mind. Linguistic similarities between L1/ L3 and L2/L3 are compared respectively according to the following hierarchy: Lexicon ≫ Phonology/phonotactics ≫ Morphology ≫ Syntax. The comparison begins at the lexical stage, and once similarities have been identified, the process stops with sufficient information. If similarities are not found at the lexical stage, the process moves on to the phonological level, and so forth. Rothman (2013, 2015) assumes that this mechanism is particularly processed at the early stages of learning, resembling parsing a first grammar. However, the extent of transfer and the duration of the process to recognize similarities remain uncertain. These factors depend heavily on the distance between language combinations. For instance, the combination of two closely related languages and one distant language leads to a longer process to assess linguistic comparison compared to the combination of three closely related languages.

Overall, although the TPM has been examined with various language combinations in several studies since the first empirical evidence in 2010, the most fundamental evidence has been provided by a series of studies on L3 Brazilian Portuguese for L1/ L2 Spanish and English speakers by Rothman and colleagues (e.g., Rothman, 2010, 2013, 2015; Rothman & Cabrelli

Amaro, 2010). González Alonso (2023) summarizes eleven properties tested in total by this series of studies, all resulting in non-facilitative transfer from both L1 and L2 Spanish, contradicting evidence of the CEM and L2 status factor. That is, the TPM differs from the CEM in the observation of negative transfer, while the CEM places an importance of positive and cumulative effects. Additionally, the fact that order of acquisition does not matter in the TPM cannot be aligned with the argument of the L2 status factor, which primarily focuses on transfer from the L2.

2.3.4 Linguistic proximity model

The Linguistic Proximity Model (Mykhaylyk et al, 2015; Westergaard et al, 2017; Westergaard, 2021) predicts property-by-property transfer, emphasizing the role of structural similarity, independent of order of acquisition. Similarities of linguistic properties can be both in a facilitative and non-facilitative way. This model significantly differs from the TPM, which predicts wholesale transfer, in that L3 learners have access to all previously acquired languages on the process of L3 acquisition. In short, the LPM suggests that not only typological proximity but also abstract structural similarity can result in both positive and negative transfer from both previously acquired languages.

The argument of the LPM is based on the hypothesis that transfer is selective through all accessible linguistic knowledge since children are sensitive to any differences between languages. Busterud et al. (2023), supporting the LPM, argue that the parser should make use of the existing knowledge to make the process of learning L3 less costly. In contrast to the TPM, transfer proposed by the LPM does not determine one dominant language but selectively refers to any accessible languages depending on property. That is, CLI occurs based on co-activation of all previously acquired languages, regardless of order of acquisition and no matter whether facilitative or non-facilitative. Furthermore, the LPM differs from the TPM in that CLI includes all stages of L3 learning while the TPM focuses on CLI at the initial stage.

As the first empirical study tesitng the LPM, Westergaard et al. (2017) investigate L3 English for L1 Russian L2 Norwegian bilinguals using a grammaticality judgment task (GJT) with two word order conditions. The two conditions are chosen based on properties with structural similarity for each of the languages involved. The first condition is verb-second syntax, Norwegian differs for this linguistic property from Russian and English. The second condition is subject-auxiliary inversion in interrogatives since Norwegian and English have the same pattern in contrast to Russian. Therefore, for the first condition Russian is structurally similar to English (i.e., L1 = L3 ≠ L2), while Norwegian is similar to English for the second condition (i.e., L2 = L3 ≠ L1). Russian-Norwegian bilinguals among 11-14 years old (n=22) are tested on the GJT as well as Russian monolinguals (n=31) and Norwegian monolinguals (n=46) learning L2 English who formed the comparison groups. The results indicate that both monolingual groups scored higher than the other two groups in the condition similar to their native languages respectively, while the bilingual group scored in-between the monolingual groups in both conditions. Although this trend is found in the verb-second condition, it was not in subject-auxiliary inversion condition, which is assumed to be relatively easy and already acquired for all groups. The highest score by Russian monolinguals in the V2 condition suggests that Russian has a facilitative influence on L3. In addition, Westergaard et al. (2017) argue that the outperformance of the bilingual group than Norwegian monolinguals is due to their linguistic knowledge by Russian. In this regard, the LPM significantly differs from the TPM since the TPM would lead to a non-facilitative influence in bilinguals' results of V2 condition due to the typological similarity of Norwegian with English.

Westergaard (2021) argues that the core of the LPM lies in "learning by parsing" in multilingual situations. Since L2/Ln learners are sensitive to label linguistic distinctions to parse Ln input, the linguistic properties from previous languages are basically borrowed to parse new information. Thus, the LPM argues against wholesale transfer and instead suggests Full Transfer Potential: "anything may transfer, not everything does transfer" (Westergaard, 2021: 405).

The study by Kolb et al. (2022) also supports the LPM with the experiment for Russian-German bilinguals in L3 English. As in Westergaard et al. (2017), the participants consist of

three groups: one bilingual group and two corresponding monolingual groups. The target conditions are subject-auxiliary inversion, determiner use, adverb placement and non-subject initial declaratives. The first two conditions share structural similarity between English and German (i.e., English = German ≠ Russian), whereas the latter two conditions are Russian and English (i.e., English = Russian ≠ German). The results of the study support the LPM. Both monolingual groups have the highest scores in the conditions of their native-like structures, the bilingual group scores in-between the monolingual groups, and in the nonnative-like condition, the monolingual groups score the lowest. The study finds evidence for the LPM as structural similarity is the determining factor leading to CLI in L3 acquisition, and as the bilingual group is both positively and negatively influenced by L1 and L2 linguistic properties.

2.3.5 Scalpel model

The Scalpel Model proposed by Slabakova (2017) is mostly in line with the LPM and adds the cognitive point of view to argue against wholesale transfer. The model shares some claims with the other L3 acquisition models: 1) the acquisition occurs property by property. 2) transfer can be both facilitative and non-facilitative, 3) wholesale transfer at the early stages does not occur in the multilingual's neurological system. In Slabakova (2017), the argument (3) is mainly discussed referring to the neurolinguistic studies of multilinguals (see e.g. Abutalebi & Green, 2007; González Alonso, 2012; Hall & Ecke, 2003).

The Scalpel Model claims that wholesale transfer is not economical in creating new morphosyntactic representations under the multilingual situation. Unlike L2 acquisition, L3 acquisition is more dynamic since it can have access to two grammatical systems. As the empirical studies by González Alonso (2012) and Hall & Ecke (2003) show the L3 acquisition process has access simultaneously to the L1 and the L2 lexicon at the onset. Rather than blocking off linguistic information as the idea of wholesale transfer suggests, it is more economical to get access to the existing lexical network.

González Alonso (2012) further emphasizes the relationship between new L3 lexical information and former L1 and L2 knowledge. In L3 acquisition, new lexical entries are built upon the foundations of L1 and L2. According to González Alonso (2012), common features shared between new L3 items and previous L1 and L2 knowledge serve to activate new L3 items. With repeated used over time, the activation of new L3 items becomes sufficiently strong leading to independent representations.

Overall, the Scalpel Model suggests selective transfer and indicates additional factors from cognitive aspects, such as processing complexity, misleading input, and construction frequency.

2.3.6 Language of communication model

Fallah & Jabbari (2018) propose the language of communication model, which suggests that the dominant language, that is the language which is most frequently used, regardless of order of acquisition, serves as the primary source of transfer in early stages of L3 acquisition. They examine three bilingual groups in L3 English by a GJT and an element rearrangement task (ERT) : (1) L1 Mazandarani/L2 Persian, with Mazandarani as the dominant language of communication, (2) L1 Mazandarani/L2 Persian, with Persian as the dominant language of communication, and (3) L1 Persian/L2 Mazandarani, with Mazandarani as the dominant language of communication. The target condition is attributive adjectives where Mazandarani and English have the same pattern while Persian does not. The results of the GJT and ERT show that group (1), with Mazandarani as the dominant language achieved the highest scores while group (2) and (3) obtained lower scores. Fallah & Jabbari (2018) conclude that group (1)'s better performance was attributed to facilitative transfer from Mazandarani, which shares the same structure with English. Conversely, groups (2) and (3) exhibited non-facilitative transfer from Persian. This experiment highlights the determinant role of the language most frequently used in social contexts in influencing transfer. It contradicts other L3 acquisition models in several aspects: the order of acquisition does not influence transfer, unlike the L1 Status Factor and L2 Status Factor, and cumulative effects proposed by models such as the

CEM, TPM, and LPM were not observed in groups (2) and (3), despite their access to similar structures in Mazandarani.

2.4 Previous research on L3 acquisition of adverb placement

In this chapter, some studies which also focus on adverb placement in CLI studies are discussed. They are presented in order of relevance to the present study.

2.4.1 van Osch, Kolb, Luque, Anderssen and Westergaard (2024)

The present study is part of the larger study by van Osch et al. (2024). They investigate CLI in adverb placement in L3 Spanish for Norwegian-English bilinguals living in Norway. The participants are students at a regular school in Norway who are Norwegian native speakers and learn English as an L2, (N=76, mean age=13.6) and students at an international school in Norway who use English regularly at their school and learn Norwegian as the societal language (N=67, mean age= 12.5). Although most of the international students speak English at home, their L1 is not necessarily English since they also use other languages at home as well as English and Norwegian. Van Osch et al. (2024) investigate adverb placement (and topicalizations as a filler condition) in L3 Spanish with a gap filling task (GFT) and a self-paced reading task, as well as a mini GFT in English and Norwegian. The proficiency in each of the three languages is assessed by the PPVT.

It is important to note that the present study examines a subset of the dataset by van Osch et al. (2024), focusing only on the gap filling task (GFT), early stages of L3 Spanish, and only on international students who have English as their L1. Therefore, the results of van Osch et al. (2024) show the bigger picture by investigating early and later stages and by comparing L3 Spanish to L3 French and L3 German. The present study examines more precisely the correlations between L1/HL and L2 in Norwegian and English, that is, order of acquisition.

The results reveal that all participants exhibit an overall preference for Adv-V order across all conditions, which is seen by Spanish native speakers as well. When comparing conditions, the

sub clause with the lexical verb condition has the lowest frequency of V-Adv suggesting CLI from both English and Norwegian. There is also an effect of verb type which has been found only for the international students, which is argued to be due to CLI from English. For this group, CLI from English was found to be stronger in speakers with lower proficiency and later age of onset, which is in line with the findings by Stadt et al. (2018a, 2020).

In L2 English, the "regular school students do not show a strong preference for V-Adv in the sub clause copular condition suggesting CLI from Norwegian" (van Osch et al., 2024: 26) and in L2 Norwegian, the "international school students show a preference for V-Adv in the sub clause copular condition suggesting CLI from English". (van Osch et al., 2024: 26).

In conclusion, the study by van Osch et al. (2024) suggests that CLI from both Norwegian and English occurs in L3 Spanish.

2.4.2 Listhaug, Busterud, and Dahl (2021)

Listhaug, Busterud, and Dahl (2021) investigate the impacts of previously learned languages on the acquisition of L3 French by focusing on verb movement in L3 acquisition of L1 Norwegian and L2 English speakers. In order to examine the L1 and L2 impacts respectively, they choose 1) main clauses with a topicalized adverbial and 2) subject-initial main clauses with sentence adverbials, where L3 French shares the structural similarity with each prior language in each condition. For instance, in example (1), French and English place the finite verb in the third position although it is located in the second in Norwegian. On the other hand, in example (3), the placement of the finite verb in both French and Norwegian makes it the second constituent, where English places it in the second position. All these systematic differences are summarized in (1a) to (1c), and (2a) to (2c).

(1) Topicalization

a. *Le lundi*, je **mange** du poisson.	(French)	XSVO
b. *On Mondays*, I **eat** fish	(English)	XSVO

c. *På mandager* **spiser** jeg fisk. (Norwegian) XVSO

(2) Adverb placement

a. Je **mange** *toujours* à 7 heures. (French) V-Adv

b. I *always* **eat** at 7 o'clock. (English) Adv-V

c. Jeg **spiser** *alltid* klokka 7. (Norwegian) V-Adv

(Listhaug et al. 2021: 127)

Their main question is whether and to what extent verb placement in L1 Norwegian and L2 English influences verb placement in L3 French, and also whether higher L2 proficiency is more relevant to transfer into the L3 or not. Listhaug et al. (2021) mention that previous research on CLI of verb placement have no clear evidence of which factor determines transfer on L3. Therefore, their prediction does not follow any specific models and their focus is rather on filling this knowledge gap.

The participants are high-school students (age 16–17, n = 112) learning French in their first, second, fourth or fifth year and university students (mean age 21, n = 12). Age, gender, relevant diagnoses, L1 background, years of exposure to L2 and L3, and L2 and L3 proficiency are also collected as the background data. They are given acceptability judgment tests both in L3 French and L2 English, including 24 sentences in four conditions: "verb in second position (verb-2) and in third position (verb-3) in topicalized structures, and verb-2 and verb-3 in subject-initial declaratives with sentence adverbials." (Listhaug et al. 2021: 129) The examples of the tests are illustrated in (3) to (4).

(3) Topicalization

a. Fr: *Le matin boit Tina du lait.

En: *In the morning drinks Tina milk. (Topicalization, verb-2)

b. Fr: Le matin, Tina boit du lait.

En: In the morning, Tina drinks milk. (Topicalization, verb-3)

(4) Adverb placement

a. Fr: J'écoute souvent de la musique.

En: *I listen often to music. (Sentence adverbial, verb-2)

b. Fr: *Je souvent écoute de la musique.

En: I often listen to music. (Sentence adverbial, verb3)

(Listhaug et al. 2021: 130)

The results show the insecurity score of the judgement by students in Year 1 and 2 for either sentence type, but students in Year 4 and 5 succeed in distinguishing between grammatical and ungrammatical sentences with topicalizations. However, they fail to correctly judge with sentence adverbials. On the other hand, the university students clearly distinguish between grammatical and ungrammatical sentences of either type. Overall, compared with topicalizations, the results in both L2 English and L3 French illustrate the greater insecurity of sentence adverbials.

Listhaug et al. (2021) suggest that there is a possibility that this insecurity of sentence adverbials is partially caused by CLI, since the negative acceptance of the verb-2 word order by students in Year 1 and 2 indicates that they prefer to the ungrammatical verb-3 word order, which is the structure of English. By pointing out that the generalization of the overall structural similarity between English and French may occur, Listhaug et al. (2021) also suggest to compare this study with a group of L1 Norwegian and L2 French speakers without the influence of English in order to ascertain the correlation of English and French for sentence adverbials. In addition, the comparison with other studies of verb placement in L3 for sentence adverbials facilitates the hypothesis of the generalization in CLI. Dahl, Anne, Listhaug and Busterud (2020) examine L3 German by L1 Norwegian and L2 English, but their results in L3 sentence adverbials are more target-like than topicalizations. Moreover, Stadt, Hulk and Sleeman (2020) find that adverb placement in L3 German is more target-like than L3 French by L1 Dutch and L2 English speakers. As a result, Listhaug et al. (2021) conclude verb placement related to sentence adverbials in L3 French is particularly difficult for those whose L1 is verb-2 language and L2 is English, which is supportive to the statement

that “partial (surface) word order overlap resulting in cross-linguistic influence from English plays a role.” (Listhaug et al. 2021: 138)

Finally, Listhaug et al. (2021) mention about the correlation between L2 proficiency and L3 acquisition from their data of higher target-like performance in L3 for those with greater L2 abilities. Therefore, higher L2 proficiency does not lead to the evidence of L2 transfer in L3 acquisition. Although this hypothesis contradicts the conclusion by Stadt et al. (2016, 2018a,b), Listhaug et al. (2021) analyze this contradiction is caused by the different learning contexts in L2 of participants for each study. While L2 proficiency of the participants in Stadt et al. (2016, 2018a,b) relies on the difference of external circumstances such as a learning environment and years of learning, internal factors such as learning strategies and motivation differentiate L2 proficiency in the experiment by Listhaug et al. (2021). That is, lower L2 proficiency with less learning strategies and motivation is more likely relevant to the less sensitivity to the difference between L2 and L3. Thus, they recognize both L2 and L3 as foreign languages similarly, so that transfer between these two languages can be observed.

Although Listhaug et al. (2021) does not ascertain a specific factor of CLI in L3 in conclusion, they suggest some possibilities of the influence from previous acquired languages in L3 French: the partially overlapping surface word order and higher L2 proficiency with less L2 transfer.

2.4.3 Stadt, Hulk and Sleeman (2018a)

Stadt et al. (2018a) also investigate adverb placement on CLI of L3 French acquisition for L1 Dutch and L2 English speakers. As well as Listhaug et al. (2021), they do not follow any L3A models in particular, rather their study is in line with a longitudinal study, which focuses specifically on the developmental stages in L3 to examine the correlation between L3 and each prior language since this method is not yet expanded in L3 acquisition field. They look at two word-order constructions where all of three languages differ: XVSO word order and verb-adverb placement. As described in Listhaug et al. (2021), adverb-verb word order is only characteristic in English whereas other two languages are not. On the other hand, XVSO word

order, that is, the verb-2 rule is only applied to Dutch. This linguistic correlation is illustrated in Table 1.

Table 1: Dutch, English and French word order in declarative root clauses

Movement type	**Word Order**	**Dutch**	**English**	**French**
V-to-C movement	XVSO(+V2)	Yes	No	No
V-to-T movement	Verb adverb	Yes	No	Yes

(Stadt et al. 2018a: 64)

Following by the previous finding of Stadt et al. (2016, 2018a), in which L1 Dutch has much greater influence than L2 English in the initial stage of L3 while L2 transfer increases in the later stage, their prediction is that L1 is a main source of transfer in Year 1, and gradually L1 loses the influence as L2 is more transferred into L3 from Year 2.

The test is conducted three times in a Dutch/English immersion secondary school over two years. The data consists of 18 participants (mean age = 12.8) at the beginning of Year 1 and 2, and 14 participants at the beginning of Year 3. They take 7 items of a grammaticality judgement task (GJT) and 8 items of a gap-filling task (GFT) per each condition in the same way through Year 1 to 3. In GJT, the participants have to choose the grammatical sentence as illustrated in the example (5). In GFT, they are required to simply put the verb in the right gap as the example (6).

(5) a. En France Manon mange les crêpes.

b. *En France mange Manon les crêpes.

'In France Manon eats pancakes.'

(6) Jean …….. parfois …….. au cinéma. *(va)*

'Jean sometimes goes to the cinema.'

(Stadt et al. 2018a: 67)

The most explicit outcome of the experiment is that V2 errors decrease from Year 1 to 2 in both tasks (GJT: 67.3% to 34.7% / GFT: 83% to 16.1%). On the other hand, Adverb errors are stable across years in both tasks (GJT: 34.7% through 32.7% to 30.6% / GFT: 15.2% through 13.4% to 23.2%). From the data of V2 errors, Stadt et al. (2018a) analyze that the participants rely on the verb-2 rule from L1 Dutch in the initial stage instead of facilitative transfer from English. Therefore, as their prediction, L1 transfer is superior to L2 transfer at the onset of L3 acquisition (Year 1).

Stadt et al. (2018a) suggest a possibility of L2 English interfere into L3 French from the stable statistic of adverb errors over two years even though their L3 proficiency increased. However, there is not enough evidence to determine L2 transfer from this experiment. They point out a possible obstacle that L2 is not sufficiently immersed especially in Year 1 and 2 to get activated. For those who just graduate from a primary school, a foreign language (L2) is not familiar yet as one of the resources in their brain. Thus, L1 is the only option to rely on. After Year 1, L2 gradually plays an important role as the data shows in GFT (Year 2:13.4% to Year 3: 23.2%).

2.4.4 Stadt, Hulk and Sleeman (2020)

Stadt et al. (2018c, 2020) is respectively a follow-up study of Stadt et al. (2018a) under the almost same condition. The prior study (2018c) focuses on the length of L2 exposure by targeting both the mainstream school and the bilingual school in Netherland. The main finding is that the third-year bilingual students make more errors (42.4%) of Adv-V word order based on L2 English than V2 errors (24.6%). This is opposite to the result of the third-year mainstream students (Adv-v errors: 34.4% and V2 errors: 37%). The results are summarized in the Table 2 and 3.

Table 2 : Adv-V and V2 errors in third-year bilingual (B) stream and mainstream (M) group

			Adv-V errors				V2 errors			
	Pupils	items	#	%	M	SD	#	%	M	SD
B	16	224a	95/224	42.4	5.94	2.24	55/224	24.6	3.44	1.79
M	11	154b	53/154	34.4	4.82	2.82	65/154	37	5.18	2.23

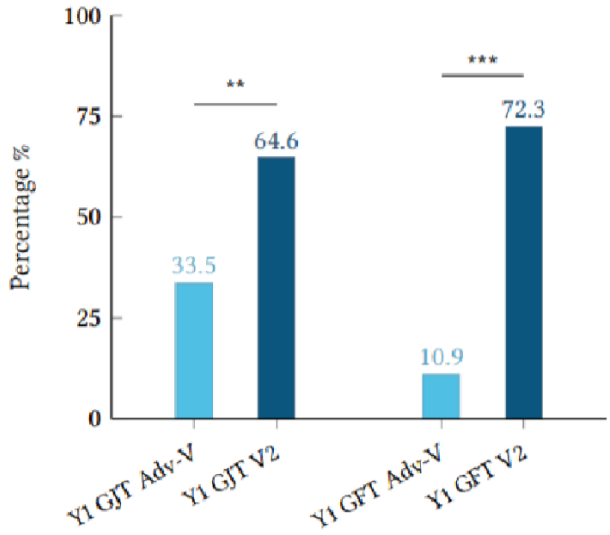
Table 3: Adv-V and V2 errors in fourth-year bilingual (B) stream and mainstream (M) group

			Adv-V errors				V2 errors			
	Pupils	items	#	%	M	SD	#	%	M	SD
B	12	168a	55/168	32.7	4.58	1.83	19/163	11.3	1.58	1.98
M	11	154b	39/154	25.3	3.55	1.92	4/154	2.6	0.36	0.516

(Stadt et al. 2020: 245)

Combining these results and the hypothesis that L1 is the main factor of transfer in the initial stage on L3, Stadt et al. (2020) investigate the extent of L1 and L2 transfer by specifying L2 proficiency of participants at the initial stage of L3 learning. The participants are 23 first-year students in a secondary school, who meet all the criteria of L2 proficiency, such as the awareness of Adv-V word order in English. The results illustrate that in the GJT, the rate of Adv-V errors is 33.5% whereas that of V2 errors is 64.6%. Similarly, in the GFT the gap between the rate of errors under two conditions is significantly high: 10.9% (Adv-V) and 64.6% (V2). The results are visualized in Figure 1.

Figure 1: Results of Adv-V errors and V2 errors in GJT and GFT for first-year pupils



(Stadt et al. 2020: 252)

According to the results, L1 Dutch clearly influences on V2 word order, and possibly Adv-V word order as well.

Stadt et al. (2020) assume the correlation between L1 an L2 in the initial stage of L3 that they have insufficient L3 inputs yet in order to activate L2 into L3 so that L1 plays a major role at this stage. They also mention about the metalinguistic aspect with a reference to the L2 status factor hypothesis (Bardel and Sánchez, 2017), which explains the particular status of L2 is activated under the awareness of linguistic knowledge. That is, as students learn a language and deepen their knowledge, their usage of background languages can be different, which leads to the changing roles of L1 and L2 in later stages of L3 acquisition.

2.4.5 Busterud, Dahl and Listhaug (2023)

Busterud et al. (2023) investigate CLI of verb placement in L3 French and German respectively for L1 Norwegian and L2 English learners. They use an acceptability judgement

task (AJT) of verb placement in subject-initial (SU-I) and non-subject initial sentences (Non-SU-I).

These four languages have different systematic varieties of verb movement summarized in examples (7a) to (8d). Under both target conditions, the verb in English remains the third constituent in VP shown in (7a) and (8a). In German and Norwegian, on the other hand, the verb moves to CP due to the V2 rule, which results in the second constituent for both of Non-SU-I (7c, 8d) and SU-I (7c, 8d). French has the different verb positions under these structures following the verb movement from VP to IP. In Non-SU-I (7b) the verb becomes the third constituent, and the second constituent in SU-I (8b).

(7) a. [CP Every morning [IP Marianne [VP takes the bus]]]. (X-SU-V)

b. [CP Tous les matins, [IP Marianne prend [VP prend le bus]]]. (X-SU-V)

'Every morning Marianne takes the bus.'

c. [CP Jeden Morgen nimmt [IP Marianne nimmt [VP den Bus nimmt]]]. (X-V-SU)

'Every morning takes Marianne the bus.'

d. [CP Hver morgen tar [IP Marianne tar [VP tar bussen]]]. (X-V-SU)

'Every morning takes Marianne bus.'

(8) a. [CP Peter [IP [VP often eats sushi]]]. (SU-Adv-V)

b. [CP Peter [IP mange [VP souvent mange des sushis]]]. (SU-V-Adv)

'Peter eats often sushi.'

c. [CP Peter isst [IP isst [VP oft Sushi isst]]]. (SU-V-Adv)

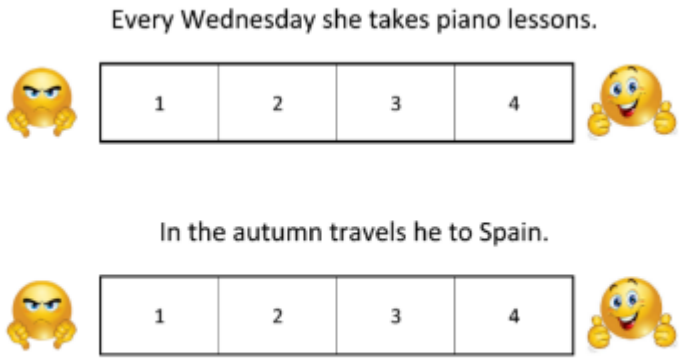
'Peter eats often sushi.'

d. [CP Peter spiser [IP spiser [VP ofte spiser sushi.]]]. (SU-V-Adv)

Since the prior languages in their study, L1 Norwegian and L2 English, vary the placements of finite verbs both in Non-SU-I and SU-I, Busterud et al. (2023) predict CLI from either of languages in L3s where partially share the structure patterns with Norwegian and English depending on the conditions.

The participants are L3 French leaners (n=125) and L3 German leaners (n=154) having Norwegian as L1 and English as L2. The range of their age is between 16 and 17, although their period of learning L3 differs from Year 1 to Year 5. The experiment consists of a background questionnaire, self-assessment of their L2 and L3, the AJTs in L2 and L3. The AJT in L3 includes 48 sentences in total: 12 items for each Non-SU-I and SU-I conditions and 24 filler items. The participants judge the acceptability of each sentence from 1 to 4, indicating the higher acceptability as the number increases illustrated in Figure 2.

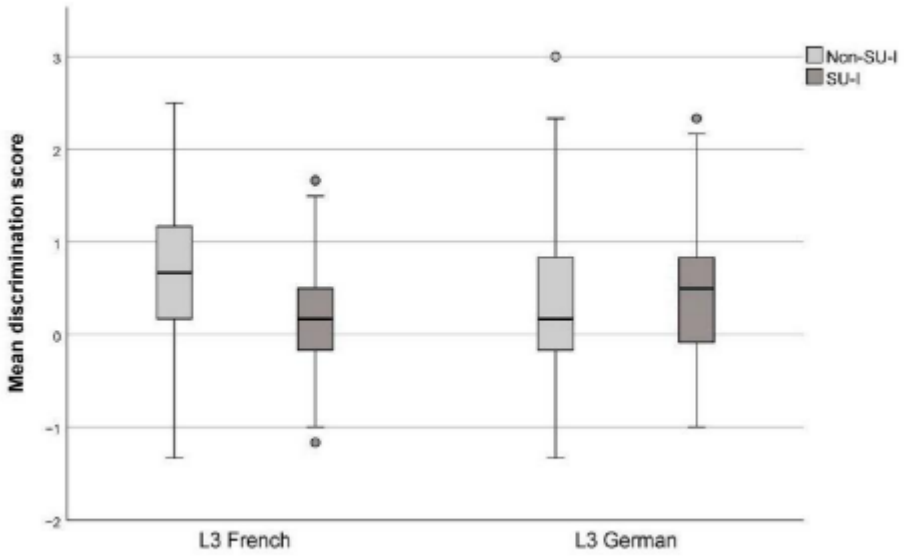
Figure 2: Example of test items



(Busterud et al, 2023: 15)

The results show that L3 French learners rate French-like word order for Non-SU-I higher than non-French-like word order, whereas the acceptability of French-like word order for SU-I is lower. Interestingly, the asymmetry is observed in the AJT of L3 German: the participants of L3 German perform better for SU-I than for Non-SU-I. The correlation between grammaticality and sentence type in L3 French and L3 German is summarized in Table 4 and Figure 3.

Figure 3: Mean discrimination score per sentence type per L3 learner group.



(Busterud et al, 2023: 20)

Table 4 Mean discrimination scores, SD, and range per sentence type per L3 learner group.

	L3 French						**L3 German**					
	Non-SU-I			**SU-I**			**Non-SU-I**			**SU-I**		
Year	*Mean*	*SD*	*Range*	*Mean*	*SD*	*Range*	*Mean*	*SD*	*Range*	*Mean*	*SD*	*Range*
1	0.33	0.55	-0.75-1.17	0.06	0.49	-1.00-1.17	-0.14	0.79	-1.33-1.67	-0.02	0.45	-0.67-1.00
2	0.14	0.55	-1.33-0.83	-0.19	0.47	-1.00-0.50	-0.15	0.34	-0.67-0.50	0.14	0.39	-0.33-0.83
4	1.09	0.64	0.00-2.33	0.38	0.51	-0.83-1.17	0.53	0.75	-1.33-3.00	0.61	0.73	-1.00-2.33
5	0.66	0.67	-1.00-2.50	0.31	0.61	-1.17-1.17	0.31	0.59	-1.00-2.33	0.52	0.64	-1.00-2.17

(Busterud et al, 2023: 20)

Since both Non-SU-I and SU-I show the accuracy and ambiguity in both L3s, the difficulty of sentence type and the superiority of L1 or L2 do not simply apply for the explanation of their findings as suggested in Stadt et al. (2018b). Comparing a three way interaction of grammaticality, sentence type and L3 group, Busterud et al. (2023) suggest the idea that the preference to the acceptability for the L3 learners reflects less costly option in any conditions: no movement of lexical verbs is most likely chosen, short movement (from VP to IP) is the second preference and consequently long movement (from VP to CP) is less preferred in this experiment. In the case of better performance for Non-SU-I of L3 French learners, they choose less costly no verb movement which superficially overlaps the target word order while the grammatical word order for SU-I requires movement from VP to CP, which they fail to choose correctly. In the other case of L3 German, in contrast, their accurate rate for SU-I results in the more economical choice of short movement to I, whereas Non-SU-I in German needs long verb movement to C. Therefore, Busterud et al. (2023) argue this assumption accounts for the asymmetry of L3 French and L3 German in Non-SU-I and SU-I.

Busterud et al. (2023) also focus the significant role of English on its syntactic properties rather than L2 status, which opposes to the L2 Status factor (e.g., Bardel & Falk, 2012; Falk, 2010) which is supported by the studies having English as L2. They argue that the less costly option of no verb movement in English dominantly leads to the preference for English-like word order. Furthermore, the premise of L2 Status factor that L2 and L3 are supposed to be acquired in adolescence or adulthood is invalid in the setting of Norway, where children start learning L2 English from age 6.

Busterud et al. (2023) provide the new perspective in L3A models: the economical point of view. This is in line with property-by-property transfer rather than wholesale transfer, and neither support L2 Status factor nor L1 status factor. They conclude that economy is one of the considerable factors attributed to CLI if all other settings are equal.

2.4.6. Falk (2010)

There are also other studies focusing on adverb placement in L3 learning with another language combination. Falk (2010) examines language transfer on Adv-V word order for L1/L2 English-French bilinguals learning German as L3. Each bilingual group consists of 30 participants in a secondary school. The data is collected by GJT on adverb placement of a main clause (+French / -English) and a subordinate clause (+English/ -French).

The results show that both L2 French group and L2 English group incorrectly accept ungrammatical sentences on each L2-like word order as Figure 4 and 5 exhibit. The score of accuracy rate on English-like adverb order by L2 English group is 38% even though other scores are high, whereas L2 French group results in 25% of the accurate score on Adv-V word order corresponding to French.

Figure 4: L2 English group, Accuracy rate

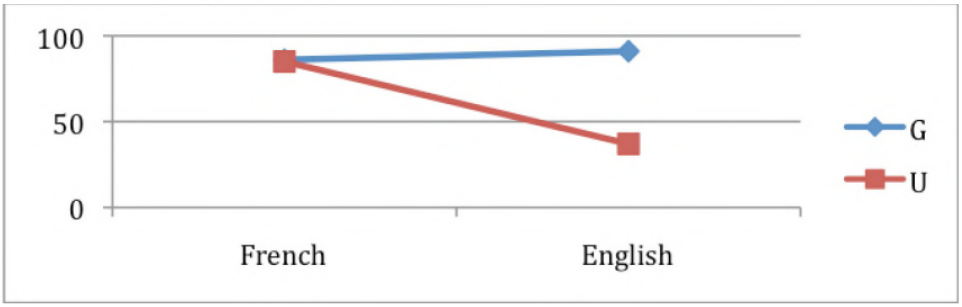
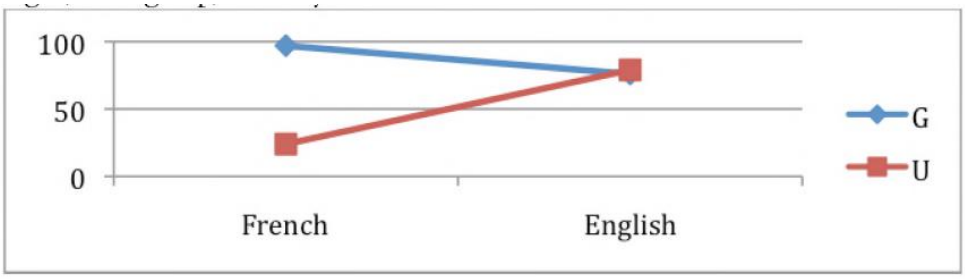


Figure 5: L2 French group, Accuracy rate



(Falk 2010: 104)

Based on these results, Falk (2010) summarizes that L2 is the default transfer source on L3 acquisition both in a facilitative and non-facilitative way.

2.4.7 Hermas (2010)

Hermas (2010) states that L1 is the main influence on L3 based on his study of adverb placement and negation by L1 Arabic and L2 French learners on L3 English, which is the opposite argument from Falk (2010). The grammatical difference of Arabic in adverbial structure from French and English is that Arabic accepts both Adv-V and V-Adv word order. The participants are consisted of 20 Arabic-French adult bilinguals around 20 years old, and also French and English native speakers around 22 to 25 years old as control groups. They take Preference Test (PT) and Acceptability Judgement Test (AJT) in L2 and L3, as the control groups only take their L1s. The results are summarized in Table 5 and 6.

Table 5: Accuracy rates (%) by structure and grammaticality in AJT

Structure	Grammaticality	Group A	L2 Group FR	Group A L3	Group EN
Adverb	Target	88.61	94	81.94	94
	Target*	46.11	75.11	17.5	84.66
	Total	67.36	84.55	49.72	89.33
Negation	Target	90.55	92	82.77	94
	Target*	81.11	90.66	63.61	95.11
	Total	85.83	91.33	73.19	94.55

Table 6: Preference rates (%) according to grammaticality in PT.

	Adverb position			Negation		
Groups	Target*	Target	Same	Target*	Target	Same
Group A L2	11.66	63.33	25	1.66	95.83	2.5
Group FR	0.66	89.33	10	2	95.33	2.66
Group A L3	40 39.	16	20.83	13.33	79.16	7.5
Group EN	1.33	91.33	7.33	3.33	96	0.66

(Hermas 2010: 353 and 354)

Focusing on the results that the bilingual group has almost the same preference rate on both SVAdvO and SAdvVO orders (81.94% and 82.5%), Hermas (2010) considers L1 is more reliable factor of transfer on L3 English since L2 French cannot influence on the acceptance of SAdvVO order. As a conclusion, Hermas (2010) argues that L2 French influence cannot be detected from the data so that L1 is the main source of transfer on L3.

3 Cross-linguistic Variation in Norwegian, English and Spanish

In this chapter, I discuss derivations of adverb placement in all target languages: Norwegian, English and Spanish. In particular, this study focuses on word order of sentence adverbials.

Although Norwegian is typologically more similar to English and shares lexical similarities as the same Germanic languages, Spanish is not that different from English. First, English and Norwegian are basically agreed to be SVO structure languages, and Spanish also accepts SVO structure. However, Spanish does not strictly follow SVO rule as like English and Norwegian so that it is flexible to be VSO or OVS in order to emphasize the verb or the object as illustrated in the example (9).

(9) Comió Juan una manzana. (VSO)

‘Ate Juan an apple.’

Una manzana comió Juan. (OVS)

‘An apple ate Juan.’

In addition, the subject in Spanish is frequently omitted when it is obvious from the inflection or another information within the sentence. Generally, Spanish can be summarized to accept the flexibility of word order and verb placement.

The crucial difference of Norwegian from English and Spanish is verb-second (V2) word order, in which the finite verb of a sentence appears in the second consistent even when the first consistent is not the subject. Commonly Germanic languages display V2 phenomenon while Romance languages do not. However, English is one of the exceptional Germanic languages displaying SVO order instead of V2 word order.

In the following sections, the derivations of adverb placement in main and subordinate clauses with lexical and copular verbs are discussed which are the four target conditions in this study.

The four main conditions are described in following ways; (1) Main clause/ lexical verb: ML, (2) Main clause/ copular verb: MC, (3) Subordinate clause/ lexical verb: SL, and (4) Subordinate clause/ copular verb: SC.

3.1 Adverb placement in Spanish

Spanish accepts all word orders of adverb placement. Under the target conditions, Spanish can be described as (10a) to (10h).

(10) a. ML: Juan siempre trabaja. (Adv-V)

‘Juan always eats.’

b. ML: Juan trabaja siempre. (V-Adv)

‘Juan eats always.’

c. MC: Juan siempre está feliz. (Adv-V)

‘Juan always is happy.’

d. MC: Juan está siempre feliz. (V-Adv)

‘Juan is always happy.’

e. SL: Juan qui siempre trabaja,... (Adv-V)

‘Juan, who always eats.’

f. SL: Juan, qui trabaja siempre,... (V-Adv)

‘Juan, who eats always.’

g. SC: Juan, qui siempre está feliz,... (Adv-V)

‘Juan, who always is happy.’

h. SC: Juan, qui está siempre feliz,... (V-Adv)

‘Juan, who is always happy.’

As described above, all the conditions have two acceptable word orders: Adv-V word order and V-Adv word order. Furthermore, in the main clause conditions, adverb "*siempre*" can also be placed at the beginning of the sentence. Even if the example sentences in the MC and ML conditions have an object, all patterns of word orders (Adv-SVO, S-Adv-VO, SV-Adv-O and SVO-Adv) are grammatically correct, which reflects the flexibility of Spanish. In the subordinate clause conditions, on the other hand, adverb placement can be accepted wherever in the subordinate clause although it cannot be positioned in the main clause.

Among these examples, (10a) and (10h) share the same word order only with English whereas (10b) and (10g) only with Norwegian. Additionally, (10d) and (10e) are shared with both Norwegian and English. On the other hand, (10c) and (10f), which is preverbal adverb in the MC and postverbal adverb in the SL, are not accepted in both languages. In conclusion, Spanish word order covers all the patterns of English and Norwegian word order and additionally have its own word orders.

Although Spanish has many of acceptable word orders, Spanish native speakers normally determine where to place a word depending on the stress of sentence. When there is no necessity to emphasize, Adv-V word order is generally preferred in any conditions, which is demonstrated the results of van Osch et al. (2024). Also, context affects the preference for the word order on adverb placement, but this study prevents context from influencing the results by using a short sentence.

3.2 Adverb placement in English

On the other hand, in English, verb types functions to determine adverb placement as described in (11a) to (11d).

(11) a. ML: John always eats. (Adv-V)

b. MC: John is always happy. (V-Adv)

c. SL: John, who always eat, … (Adv-V)

d. SC: John, who is always happy, … (V-Adv)

With lexical verbs, adverb is placed preverbally both in main and subordinate clauses while post-verbally with copular verbs. This is distinctive within other Germanic languages since postverbal adverb is common in main clause regardless of verb types, such as German, Dutch and French.

3.3 Adverb placement in Norwegian

Adverb placement in Norwegian is determined in accordance with the V2 rule as mentioned above both in the main and subordinate clauses. The word orders of adverbial sentences in four conditions are summarized in (12a) to (12d).

(12) a. ML: Jon spiser alltid. (V-Adv)

‘John eats always.’

b. MC: Jon er alltid glad. (V-Adv)

‘John is always happy.’

c. SL: Jon, som alltid spiser, … (Adv-V)

‘John, who eats always.’

d. SC: Jon, som alltid er glad, …(Adv-V)

‘John, who always is glad.’

In conclusion, regardless of verb types, Norwegian prefer to postverbal adverb in main clause and preverbal adverb in subordinate clause. Therefore, in Norwegian, the clause type determines adverb placement rather than the verb type.

Overall, the schematic overview of the target conditions and languages are summarized in Table 7.

Table 7: Schematic overview of all conditions and languages (adapted from van Osch et al., 2024)

	Clause type	**Verb type**	**Adverb placement**		
			ENG	**NOR**	**SPA**
1	Main clause	Copular	V-Adv	V-Adv	BOTH
2	Main clause	Lexical	Adv-V	V-Adv	BOTH
3	Sub clause	Copular	V-Adv	Adv-V	BOTH
4	Sub clause	Lexical	Adv-V	Adv-V	BOTH

Although in MC and SL English and Norwegian have the same surface word order, they differ in SC and ML where Spanish all accepts. This study investigates how these differences of English and Norwegian affect their preference for word order in flexible L3 Spanish.

4. Research questions and predictions

4.1 Research questions

The following three research questions are addressed in the current study:

RQ1: Does crosslinguistic influence occur from either or both previously acquired languages in L3 Spanish?
RQ2: Does the role of English change depending on whether it is L1 (HL) or L2?
RQ3: Which factors lead to crosslinguistic influence in the initial stages of L3 acquisition?

4.2 Predictions

This study makes research questions and predictions based on the principles of the LPM and the SM, which are in line with previous literatures about adverb placement. Since the main focus of this study is not the difference of positive and negative transfer, the CEM, placing a higher importance on facilitative influence, is not used as the main theory. Although Hermas (2010) and Falk (2010) claim that L1status factor and L2 status factor respectively with each experiment of adverb placement, the argument that L3 has CLI only from L1 or L2 is denied in recent studies. In addition, all the results from the literature reviews (eg., Listhaug et al., 2021; Stadt et al., 2018a; 2020; and Busterud et al., 2023) do not show wholesale transfer with the different outcomes depending on the conditions, which leads to the claim of the property-by-property transfer. Therefore, this study makes a discussion about the determiners of CLI and the roles of L1 and L2 following the idea of the LPM and the SM.

Listhaug et al. (2021) and Stadt et al. (2018a, 2020) assume that the L2 proficiency has an important role as the resource of transfer. Listhaug et al. (2021) find the correlation between

higher L2 proficiency and more target-like structures with their experiment, since the higher level of L2 acquisition relates to the greater sensitivity of linguistic differences. Therefore, their hypothesis is that less L2 proficiency can be one of the resources of CLI in L3 acquisition. Stadt et al. (2018a) suggest another possibility of language proficiency on CLI focusing at the onset of L3 learning: the early stage of L2 learning does not activate the linguistic information of L2 into L3 due to the insufficient L2 immerse for beginners, who just graduated from a primary school. Therefore, L1 is the only reliable resource of transfer in L3 as their findings from the experiment exhibit that the participants in Year 1 more rely on V2 rule from their L1 Dutch in L3 than those in Year 2 and 3. Combining this argument with Listhaug et al. (2021), the correlation between the level of L2 proficiency and CLI on L3 can be summarized that although lower L2 proficiency is related to more transfer in L3, even lower L2 proficiency at the stage of the very beginning does not make transfer happen due to the metalinguistic unawareness caused by the insufficient input of L2. Furthermore, Stadt et al. (2020) also mention the importance of enough L3 input in order to activate background linguistic information. To summarize, all the previous researches analyze that language proficiency (either L2 or L3) is highly associated with metalinguistic awareness, which directly influence transfer in additional language acquisition. Table 8 shows the relationship between language proficiency, cognitive awareness and the extent of transfer with the references.

Table 8: Relationship between language proficiency, cognitive awareness and the extent of transfer with the references.

Proficiency	**Awareness**	**Transfer**	**Reference**
Even lower proficiency (initial stage)	No recognition	No transfer	Stadt et al. (2018a, 2020)
Lower proficiency	Less sensitivity	More transfer	Listhaug et al. (2021)
Higher proficiency	More sensitivity	Less transfer	Listhaug et al. (2021)

This hypothesis, however, may not be applied to the situation in Norway as Busterud et al. (2023) explain. Since children in Norway start learning English mostly as their L2 from the age of 6 with sufficient exposure to English outside, students graduated from a primary school do not tend to be at the initial stage of L2. Furthermore, their cognitive process of L2 from age 6 can differ from that of L3 acquired after adolescence. In other words, their different perception of English from additional foreign languages may reflect the inconsistent metalinguistic awareness between L2 and L3. Thus, examining the hypothesis of lower L2 proficiency with more transfer (Listhaug et al., 2021) and no L2 transfer at the initial stage of L3 (Stadt et al., 2018a; 2020) is not proper under the conditions of this study.

Busterud et al. (2023) suggest the possible determiner of CLI from another point of view: principle of economy. The idea is that L3 learners prefer to choose the less costly option on verb movement unless all the other conditions are the same. This hypothesis is outstanding from other studies in terms of the less significance of order of acquisition; L1 or L2. As Busterud et al. (2023: 28) claim that "we would expect the same result if English were the L1 rather than the L2" in the study of Bardel and Falk (2007) finding non-V2 transfer from L2 English to L3 Swedish, Dutch and German, they associate L2 influence found in other studies with the syntactic superiority of English, that is, the less costliness of no verb movement since in most cases the studies have English as their L2. This assumption, however, contradicts the result by Falk (2010) who finds more L2 French transfer than L1 English from L2 French group on adverb placement while more L2 English than L1 French from L2 English group. According to the principle of economy, the results from L2 French group would be more L1 English transfer than L2 French since French (V to I movement) has the more costly option than English (no verb movement). Currently there is not enough evidence of confirming the principle of economy in L3 so that this study investigates whether the preference for adverb placement by L3 learners is based on the economical choice or other determiners.

The project by van Osch et al. (2023) compares L3s by students at a regular school and an international school in Norway with various language combinations. The students at a regular school are Norwegian native speakers learning L2 English, whereas the international students have English as heritage language and Norwegian as L2. One of the aims of the project is

whether the learning context (L1 and L2 combination) with the same societal language affects CLI. The target language of this study, Spanish, is distinctive in terms of its flexibility of verb placement. That is, both word orders of Norwegian and English are accepted in L3 Spanish, which means grammaticality does not matter in this study.

Based on the hypothesizes of previous literatures and the conditions of the present study and project, the predictions of the research questions are constructed as following.

H1: With a reference to Stadt et al. (2018a, 2020), L1 has a superior role to L2 as the reliable resource at the initial stage of L3 learning. Thus, the students at a regular school more rely on L1 Norwegian as their preference in L3 Spanish word order than L2 English whereas those at an international school more on L1 English than L2 Norwegian.

H2: English has a predominant role as L1 and L2 for both groups as Busterud et al. (2023) suggest its syntactic superiority. Since the role of L1 is privileged at the onset of L3 learning (Stadt et al., 2018a, 2020), the international students show more influence from L1 English

H3: Based on the findings by Busterud et al. (2023), principle of economy plays an important role as the determiner of transfer. The overall preference for adverb is predicted to be the same placement under four conditions since the participants tend to avoid costly choices. Although the effects from L2 English by the regular school students can be also seen to some extent.

5 Methods

In this chapter, the participants, the procedure and the methodology used in this study are presented.

5.1 Participants

The data is collected in 2 classrooms of grade 8 in both a regular middle school (N=13, mean age= 13) and an international middle school (N=13, mean age= 11.98) in Stavanger. Although all the participants in this study also belong to the study of van Osch et al. (2024), this study excludes the students from their study (i) who have any additional language than Norwegian and English, (ii) who are advanced or intermediate in L3 Spanish, and (iii) who do not live in Stavanger. The students in a regular school have Norwegian as their L1, English as L2 and the students in an international school have English as their school language (heritage language or L1) and Norwegian as L2 (at least their societal language). As Table 9 indicates, the age of onset in Norwegian and English is respectively reverse in both the comparison groups.
All the participants are the beginners of Spanish, that is, they learn L3 Spanish for less than one year. The information of the students is summarized in Table 9. The participation in this study is voluntary and only the students whose parents gave consent are included. The project has been registered by the Norwegian Centre for Research Data (Sikt).

Table 9: Overview of the information of the participants

	Regular school (N= 16)	**International school (N=13)**
Age	M=13 R=13	M=11.98 R=11 - 13
Age of Onset NOR	0.38	6.1
Age of Onset ENG	5.1	1.62
Age of Onset SPA	12.85	11.3
Dyslexia	excluded	excluded
Norwegian at home	18	6
English at home	3	12
Other L at home	excluded	excluded
Years of learning Spanish	0.15	0.62

5.2 Procedures

All tests are conducted in the online method of Gorilla Experiment Builder (Anwyl-Irvine et al. 2019) and consisted of a vocabulary task, gap filling task (GFT), proficiency task, background questionnaire in Spanish, English and Norwegian. Only for international students, the proficiency task in Norwegian is also conducted. Both regular students and international students take all tests in November 2023 at their schools. They start from vocabulary task in Spanish to ascertain their knowledge of all words shown in the following GFT in Spanish. After that, they take the GFT and PPVT in Spanish, and linguistic background questionnaire follows these tasks. The GFT and PPVT in English are examined with the shorter version, which have the same structure with the tasks in Spanish. As the final test, the GFT and PPVT

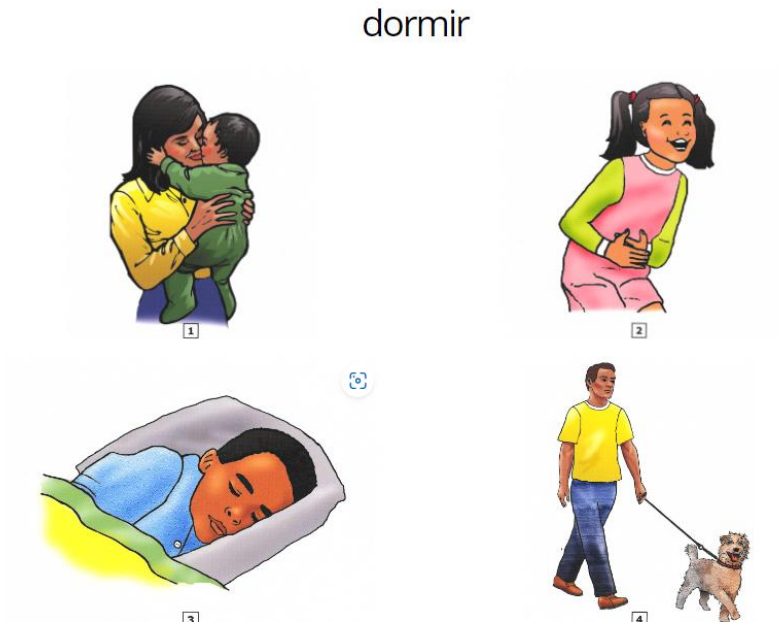
in Norwegian is conducted as the same way of English task. Since there is no necessity to investigate the proficiency in Norwegian for regular school students who are native speakers of Norwegian, the PPVT in Norwegian is eliminated for these students. Before all the tasks begin, the instruction is displayed in their preferrable language as they choose in the beginning. Mostly, international students prefer to English whereas regular students Norwegian.

5.2.1 Vocabulary proficiency task

All the participants are required to complete a vocabulary task to assess their proficiency in Spanish and English (Norwegian is added for international students) by the PPVT (Peabody Picture Vocabulary Task) from Dunn & Dunn (2007) as one of the indicators of their language level.

In the PPVT, four pictures are shown with a single word on the screen and students are required to choose a right picture out of four which most appropriately describes the meaning of that word. The example of the task is shown in Figure 6.

Figure 6: Screenshot of an example of the PPVT in L3 Spanish



This is a screenshot of PPVT, in which the participants click the picture which matches the word. They continue this process by clicking the ‘next’ button in the right below of the screen. As the correct answers are chosen frequently, the vocabulary level of the next item gets higher than before. Thus, their vocabulary proficiency will be assessed by determining on which level they choose a false answer. The whole task includes 20 items.

English and Norwegian vocabulary task is also conducted in the PPVT as the same method with Spanish since their L2 or HL proficiency is one of the essential indicators in this study to examine CLI in L3. The PPVTs in these two languages contain 20 items in total.

5.2.2 Gap filling task in Spanish

The GFT, developed by van Osch et al. (2024), is the main task in this experiment in order to investigate the students’ preference for adverb placement in L3 Spanish under the certain conditions. The four conditions are the ML, MC, SL and SC (see chapter 4).
In the GFT, one or two sentences with two or three blanks and one highlighted word are shown on the screen. To complete the task, the participants drag and drop the single word in their preferrable blank. The examples of the ML and MC condition are given in Figure 7 and 8.

Figure 7: Screenshot of the GFT for the ML condition in L3 Spanish

Figure 8: Screenshot of the GFT for the MC condition in L3 Spanish

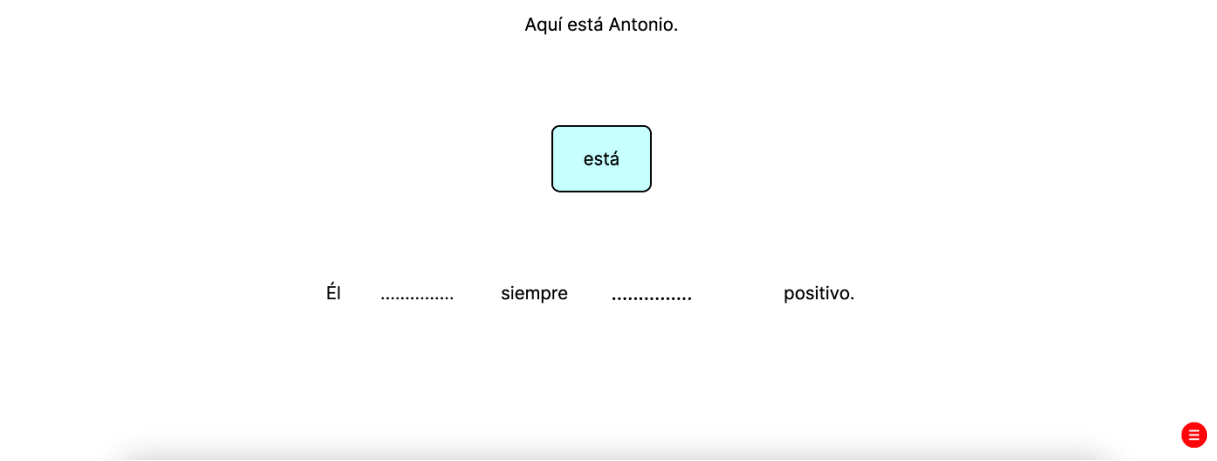


Figure 7 and Figure 8 are translated into (13) and (14).

(13) Aqui esta Guillermo. El ….. a menudo ….. en casa. (*trabaja*)

‘Here is Guillermo. He ….. often ….. in house.’ *(works*)

(14) Aqui esta Antonio. El ….. siemple ….. positivo. (*esta*)

'Here is Antonio. He ….. always ….. positive.' (*is*)

As these examples indicate, the structure of each sentence item in the ML and MC conditions has the same pattern with different words and both require to drag and drop verbs in the right blank. In Figure 7, the lexical verb "*trabaja*" (work) can be placed before or after the adverb "*a menudo*" (often) in the main clause. In the same way, the copular verb "*esta*" (is) can be chosen to drop before or after the adverb "*siemple*" (always) in Figure 8. Since Spanish accepts both of the placements in these two conditions, their preference for the adverb placement may reflect CLI from Norwegian or English. For instance, in Figure 7, if students place "*trabaja*" after "*a menudo*" which means Adv-V word order as the same way with English, this choice is potentially affected by English word order, and vice versa in the case of V-Adv word order from Norwegian. In Figure 8, on the other hand, English and Norwegian share the same structure of V-Adv word order in the MC condition, it is predicted that the distinct influence from one of each language cannot be observed.

Figure 9 and 10 show the examples of the GFT for the SL and SC conditions.

Figure 9: Screenshot of the GFT for the SC condition in L3 Spanish

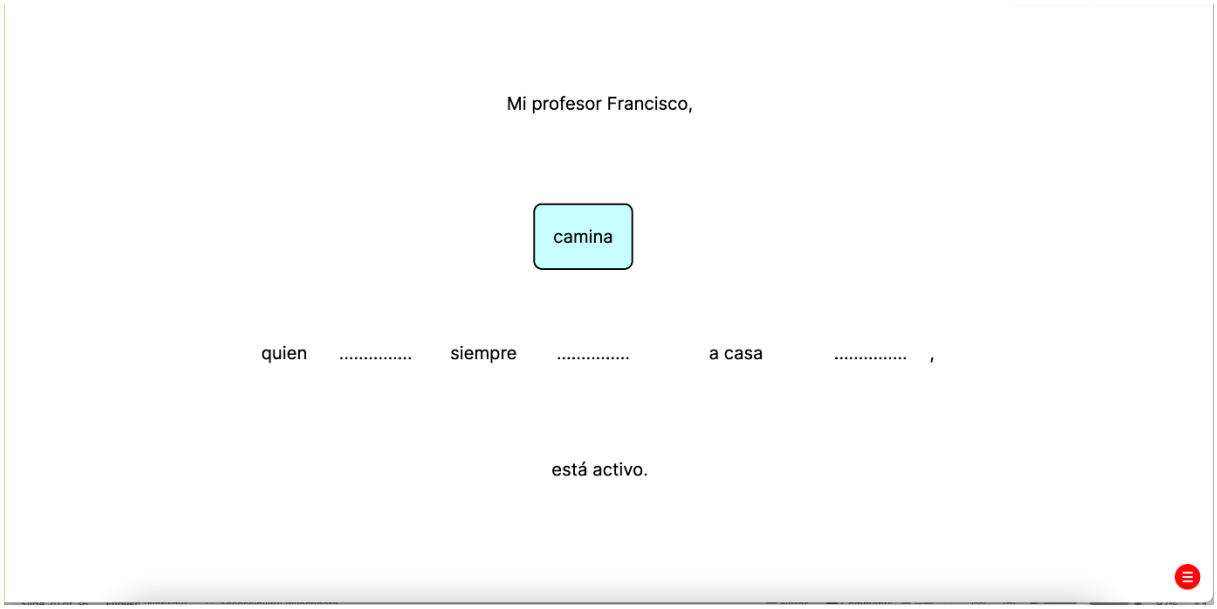
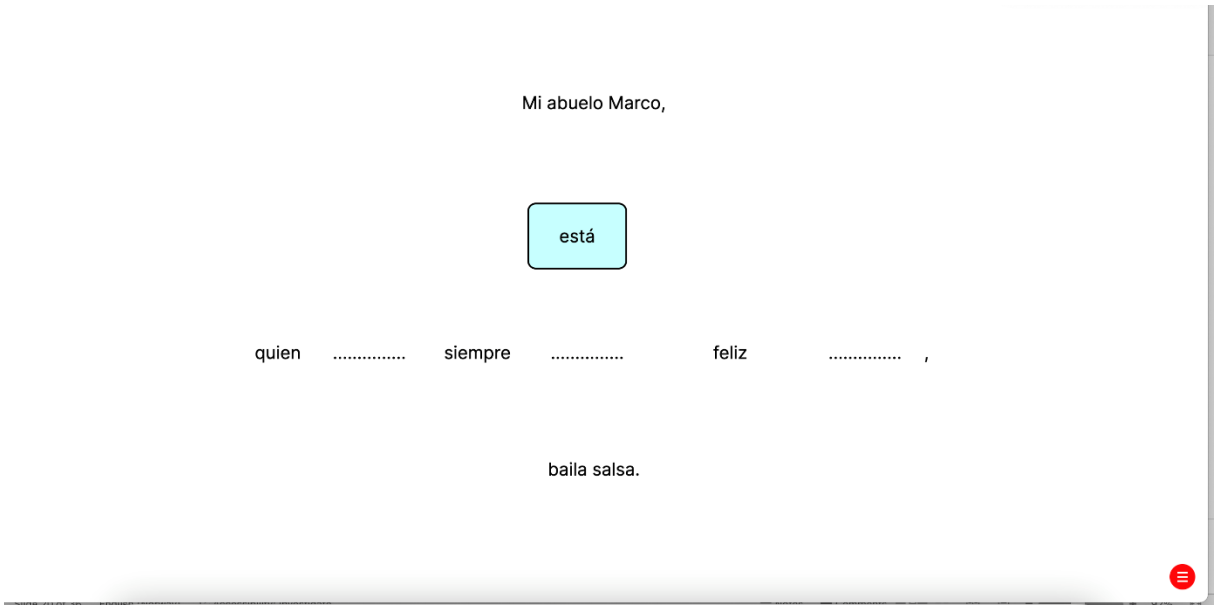


Figure 10: Screenshot of the GFT for the SL condition in L3 Spanish



These examples are translated into (15) and (16).

(15) Mi profesor Francisco, quien ….. siemple ….. a casa …… , esta activo. (*camina*)

My professor Francisco, who …. always …. to house …., is active. (*walk*)

(16) Mi abuelo Marco, quien ….. siemple ….. feliz …., baila salsa. (*esta*)

My grandfather Marco, who …. always…. happy …., dances salsa. (*is*)

As well as the MC and ML conditions, the structure of each sentence item with either the lexical verb or copular verb in the subordinate clause type are almost the same with a few different words. In these tasks, the participants have three choices to place the verb: before or after the adverb, and in the end of sub ordinate clause. In the SC condition (Figure 9), their preference for V- Adv word order may relate to CLI from English, while their choice of Adv-V word order may be influenced from Norwegian word order. The third choice of final-verb in the clause, on the other hand, may show no relevance with prior languages. In the SL condition (Figure 10), both English and Norwegian have the same pattern as well as the MC condition so that the superior influence from one of both languages cannot be determined from their preference. Similarly, the final-verb order is not related to CLI from English and Norwegian in this study.

In conclusion, the correlation of the target three languages under the four conditions are summarized in Figure 11 and 12 with a reference to van Osch et al. (2024).

Figure 11: Examples of sentences of four conditions in the target languages

Clause	Verb	Norwegian	English	Spanish
Main	Lexical	*Jon spiser alltid*	*John always eats*	*Juan (siempre) come (siempre)*
Main	Copular	*Jon er alltid glad*	*John is always happy*	*Juan (siempre) está (siempre) feliz*
Sub	Lexical	*Jon, som alltid spiser*	*John, who always eats*	*Juan, quien (siempre) come (siempre)*
Sub	Copular	*Jon, som alltid er glad*	*John, who is always happy*	*Juan, quien (siempre) está (siempre) feliz*

(van Osch et al. 2024)

Figure 12: Schematic overview of all target languages and conditions

Clause type	Verb type	ADVERB PLACEMENT		
		Norwegian	English	Spanish
Main	Lexical	V-Adv	Adv-V	V-Adv/Adv-V
Main	Copular	V-Adv	V-Adv	V-Adv/Adv-V
Sub	Lexical	Adv-V	Adv-V	V-Adv/Adv-V
Sub	Copular	Adv-V	V-Adv	V-Adv/Adv-V

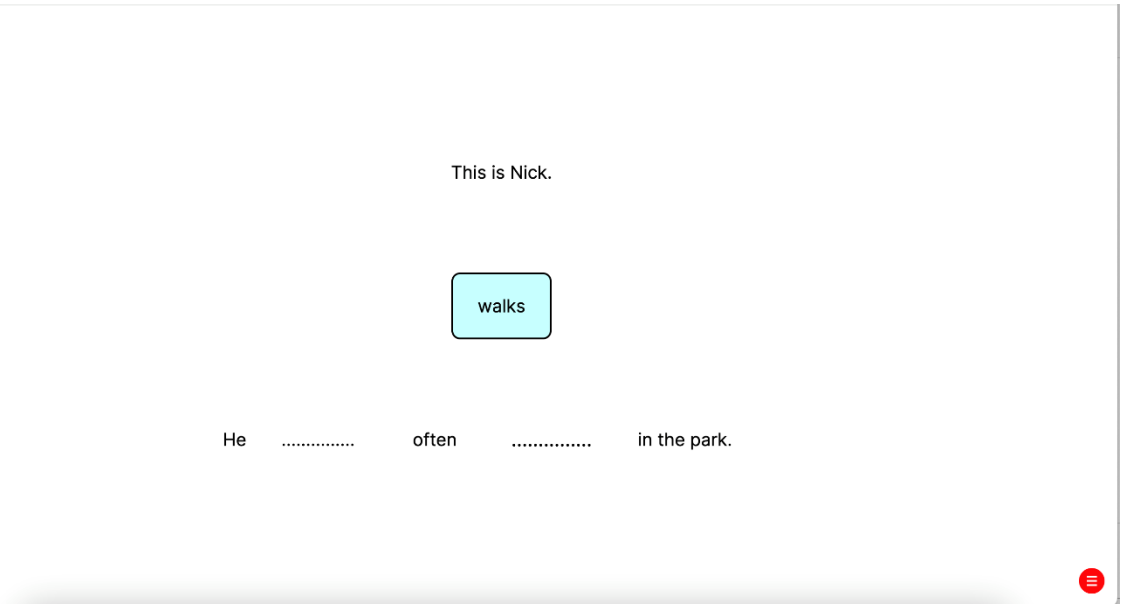
(van Osch et al. 2024)

The GFT in L3 Spanish contains 40 items of four conditions in total. The main focus of this study is to compare the participants' choices of adverb placement particularly in the ML and SC conditions, in which their prior languages have the different word orders. Since Spanish is so flexible that both V-Adv- and pre-verbally adverbs are grammatically correct, the preference for adverb placement of the beginners in L3 Spanish may directly reflect the influential language for learners at the onset of L3.

5.2.3 Gap filling task in English

The GFT in English is conducted after the Spanish tasks with 21 items in total of four conditions, which are fewer amounts than the GFT in Spanish. The sentences of the GFT in English follow the same pattern as the task in Spanish. The four conditions are the MC, ML, SC and SL as well as the GFT in Spanish. The following screenshot in Figure 13 is one of the examples of the MC condition.

Figure 13: Screenshot of the GFT for the MC condition in English

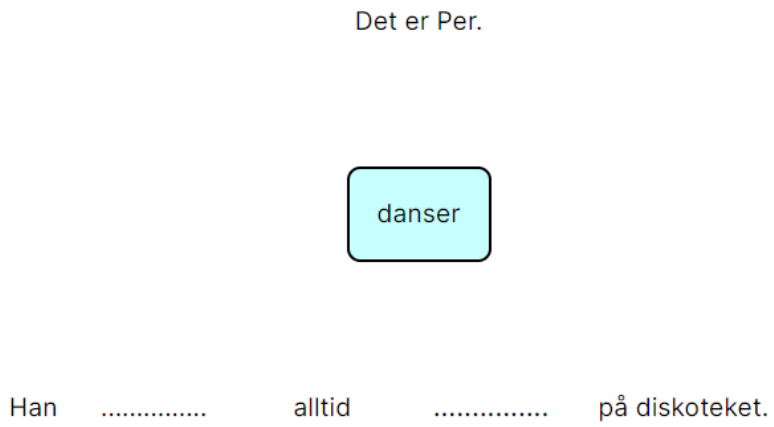


Although the structure follows the same way as the MC condition of Spanish, the vocabulary used in English differs from Spanish tasks. The participants drag and drop the verb “walk” either before or after the adverb “often”. Unlike Spanish, the preverbally adverb is only accepted in the main clause in English, so that dragging “walk” begore “often” is ungrammatical in this case. Thus, the GFT in English aims to investigate whether and to what extent the students acquire the structure of adverb placement in English as the L2 or HL. In addition, the awareness of adverbial structure in English contributes to the analysis of CLI in L3 Spanish from previous acquired languages.

5.2.4 Gap filling task in Norwegian

The GFT in Norwegian is finally conducted to examine whether they correctly recognize Norwegian word order in adverb placement. Although the students at a regular school are the native speakers of Norwegian, it is necessary to complete this task in order to ascertain their awareness of the sentence structure under the target conditions in Norwegian as one of the indicators of CLI in L3. The method and the number of items of the GFT in Norwegian is the same as that in English. Figure 14 is one of the examples shown in this experiment.

Figure 14: Screenshot of the GFT for the MC condition in Norwegian



The students complete these tasks as the same way as the GFT in Spanish and English. In the example of Figure 18 of the MC condition, placing the verb "*danser*" (dance) before the adverb "*alltid*" (always) is grammatically correct. Although native speakers at a regular school are expected to show the high proficiency, the achievement of the international students may show the variation depending on their proficiency level of Norwegian as their social language, or other factors. In conclusion, as well as the GFT in English, the results of the Norwegian task can be one of the significant indicators to narrow down the interaction between three languages in this experiment.

5.2.5 Background questionnaire

Between the GFT in Spanish and the PPVT in English, the background questionnaire is conducted for the participants. They answer their age, school type, grade, place of birth at first. Linguistic background is also asked, such as the age of starting to learn each of three languages, home language, additional languages and use of Spanish outside of school. Since

English is frequently used in a daily life in Norway, the situations of their use of English (when they speak or hear English) are asked more in detail.

6 Results

In this chapter, the results of the experiment are presented. First, the proficiency of each language is indicated by the results of the PPVT. Secondly, I present the data of the gap filling task in Spanish and finally I discuss the data of the gap filling tasks in English and Norwegian.

6.1 Vocabulary proficiency task

As indicated in section 5.2.1, the language proficiency is assessed by the PPVT in all three languages. The participants answered 20 questions in each language and choose a correct picture that matches a word given on the top of the screen. Therefore, the highest score of the vocabulary task is 20 and the lowest is 0. Figure 15 illustrates the average scores of the PPVTs in Spanish and English of the international and regular school students. As stated in section 4.2, only the international school students have a score for the Norwegian PPVT as the proficiency of the regular school students was not measured. Table 10 presents the average and range numbers of all the PPVT scores of each school.

Figure 15: Average scores of the PPVTs in Spanish, English and Norwegian

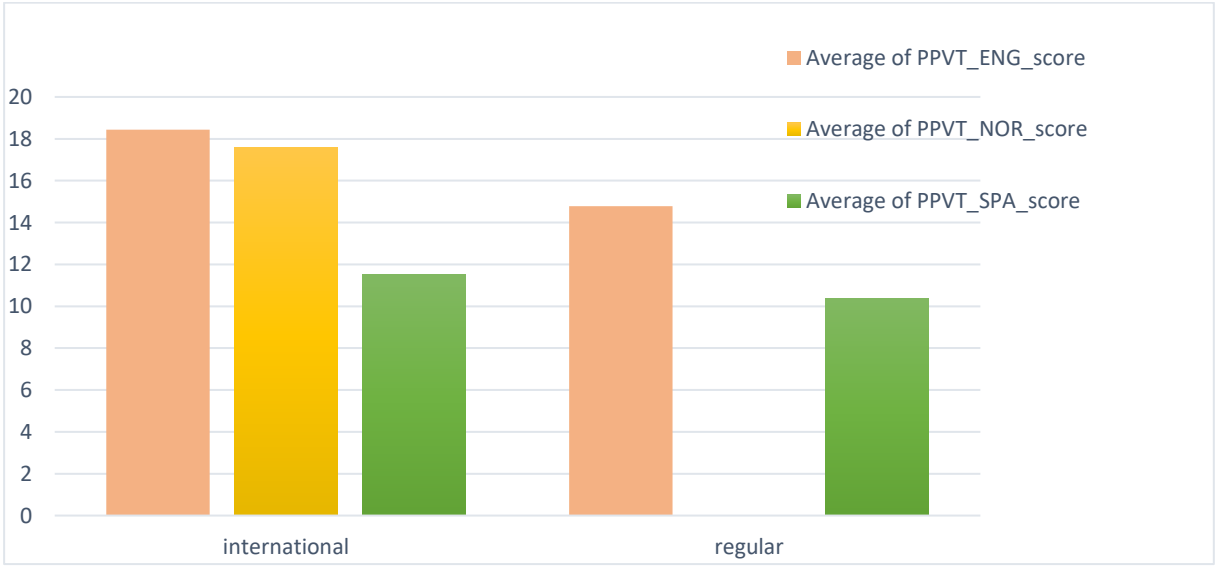


Table 10: Average and range of the PPVT scores in Spanish, English and Norwegian

	International (A=average, R=range)	**Regular (A=average, R=range)**
PPVT in Spanish	A=11.51, R=7-19	A=10.38, R=7-18
PPVT in English	A=18.44, R=15-20	A=14.78, R=11-18
PPVT in Norwegian	A=17.58, R=7-20	

As Table 10 shows, the international students score 11.51 and regular school students 10.38 on average in Spanish, the students from both groups have almost the same score. Among the students at the regular school, the highest score in Spanish is 19 and the lowest score is 7 and at the international school the highest is 18 and the lowest 7. On the other hand, the results of the English vocabulary test show the higher English proficiency of the international group (mean score= 18.44) than the regular school group (mean score= 14.78). Compared with the range of the score in English at the international school (R= 15-20), that of L1 Norwegian group shows the lower level (R=11- 18). Finally, the Norwegian proficiency of the international students is revealed almost as high as English. Although some students have the maximum score in both English and Norwegian, most of them show a slightly lower score of Norwegian than English.

6.2 Gap filling task in Spanish

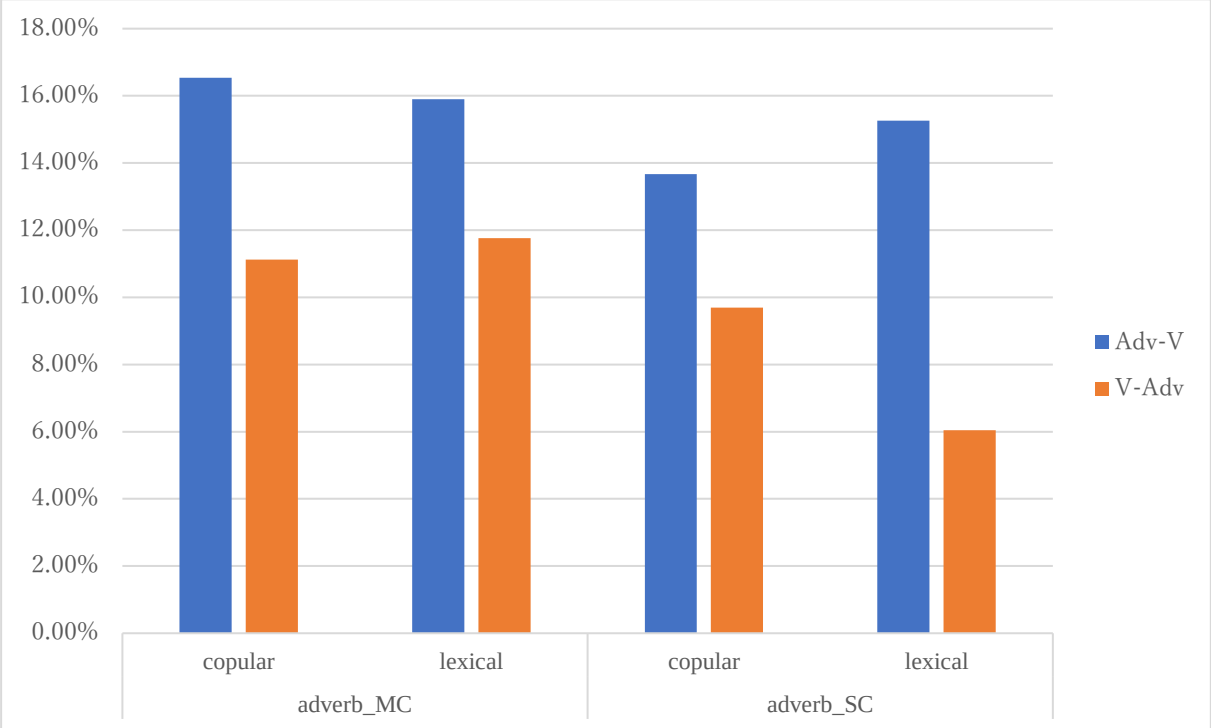
The results of the gap filling task in L3 Spanish by all the participants (N=29) is illustrated in Table 11 and Figure 16.

.

Table 11: L3 Spanish results of Adv-V and V-Adv word order by condition for all the students

Clause type / Verb type	Adv-V	V-Adv
Main / Copular (MC)	16.53%	11.13%
Main / Lexical (ML)	15.90%	11.76%
Subordinate / Copular (SC)	13.67%	9.70%
Subordinate / Lexical (SL)	15.26%	6.04%
Total	**61.37%**	**38.63%**

Figure 16: L3 Spanish results of Adv-V and V-Adv word order by condition for all the students



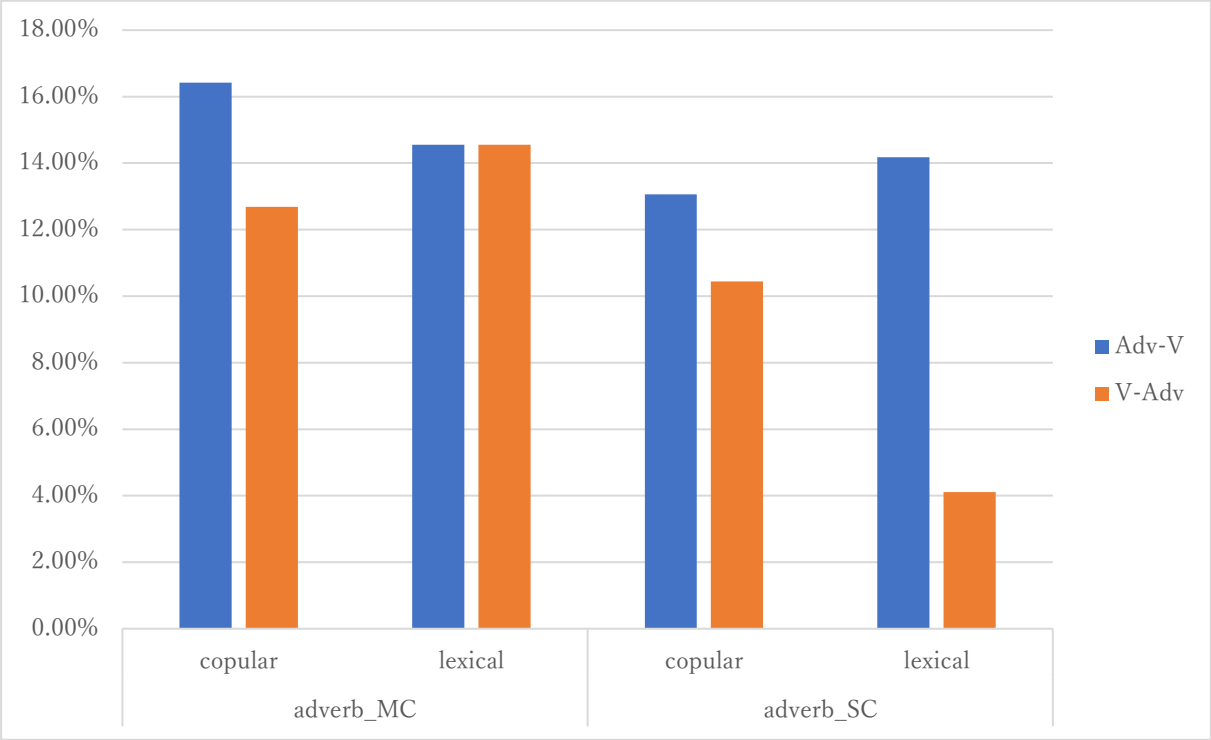
The data of all four conditions from the students at the regular and international school show that the students have the overall preference for Adv-V word order. In the condition of the main clause copular condition (MC), Adv-V word order is preferable even though both Norwegian and English have V-Adv word order. The main clause lexical condition (ML) also

shows the superiority of Adv-V word order which is the same word order as English. In the subordinate clause copular condition (SC), on the other hand, the participants' preference tends to be the same word order of Norwegian; Adv-V word order. Finally, the last condition, the subordinate clause lexical condition (SL), shows the preference for Ad-V word order, which is the same structure in both Norwegian and English.
Table 12 and Figure 17 visualize the results only from the participants at the regular school.

Table 12: L3 Spanish results of Adv-V and V-Adv word order by condition for regular school students

Clause type / Verb type	**Adv-V**	**V-Adv**
Main / Copular (MC)	16.42%	12.69%
Main / Lexical (ML)	14.55%	14.55%
Subordinate / Copular (SC)	13.06%	10.45%
Subordinate / Lexical (SL)	14.18%	4.10%
Total	**58.21%**	**41.79%**

Figure 17: L3 Spanish results of Adv-V and V-Adv word order by condition for regular school students



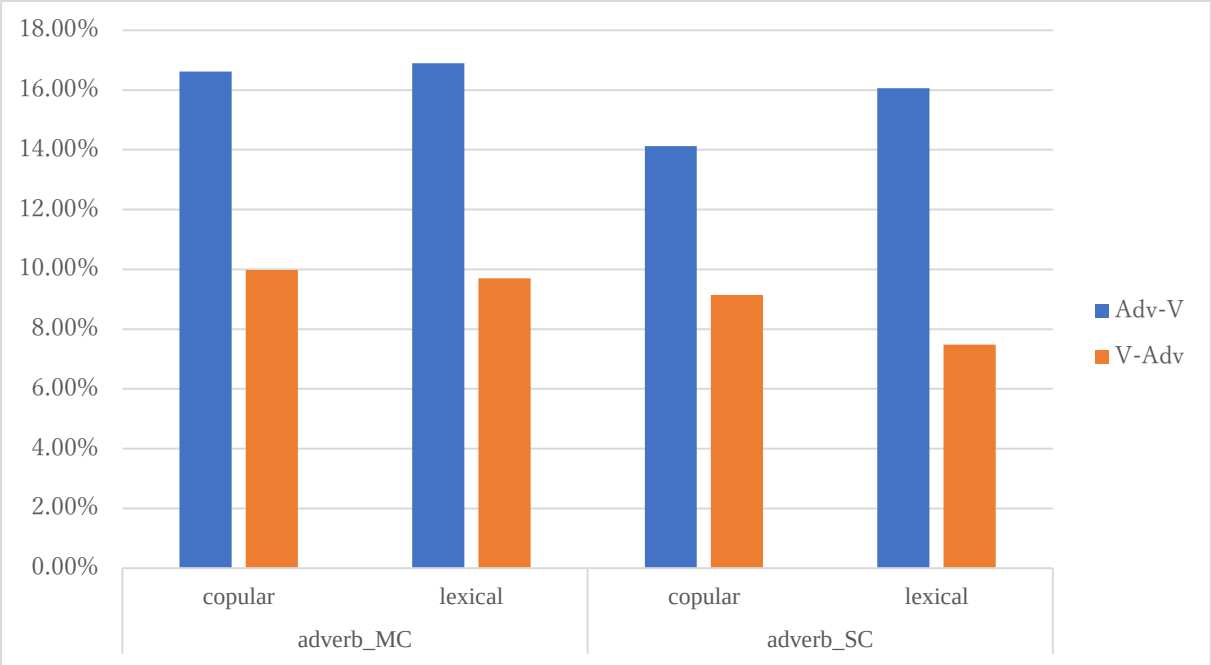
Although the results at the regular school also indicate the overall tendency of the Adv-V preference, the ML condition has the same score in both word orders (Adv-V =39, V-Adv = 39). In addition, the gap between the frequency of Adv-V and that of V-Adv in the SL condition is greater than the data from all the participants.

Finally, Table 13 and Figure 18 show the results only from the participants at the international school.

Table 13: L3 Spanish results of Adv-V and V-Adv word order by condition for international school students

Clause type / Verb type	Adv-V	V-Adv
Main / Copular (MC)	16.62%	9.97%
Main / Lexical (ML)	16.90%	9.70%
Subordinate / Copular (SC)	14.13%	9.14%
Subordinate / Lexical (SL)	16.07%	7.48%
Total	**63.71%**	**36.29%**

Figure 18: L3 Spanish results of Adv-V and V-Adv word order by condition for international school students



In line with both Figures 16 and 17, the international students prefer Adv-V word order in general. Although the overall graph of the international school students shows a strong similarity to the results by all (international and regular school) students in Figure 18, the gap

between Adv-V and V-Adv word order in each condition by the international school students is slightly bigger than that by all the students.

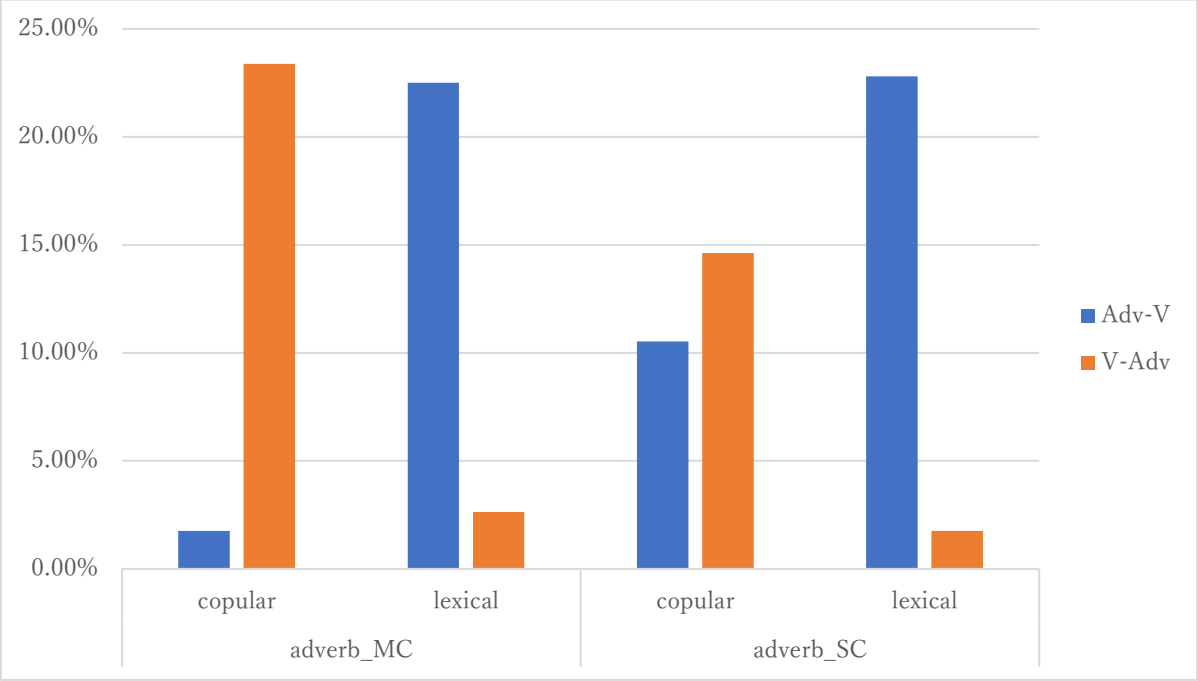
6.3 Gap filling task in English

The results of the mini version of the GFT in English by all the participants are illustrated in Table 14 and Figure 19.

Table 14: HL/L2 English results of Adv-V and V-Adv word order by condition for all students

Clause type / Verb type	Adv-V	V-Adv
Main / Copular (MC)	1.75%	23.39%
Main / Lexical (ML)	22.51%	2.63%
Subordinate / Copular (SC)	10.53%	14.62%
Subordinate / Lexical (SL)	22.81%	1.75%
Total	**57.60%**	**42.40%**

Figure 10: HL/L2 English results of Adv-V and V-Adv word order by condition for all students



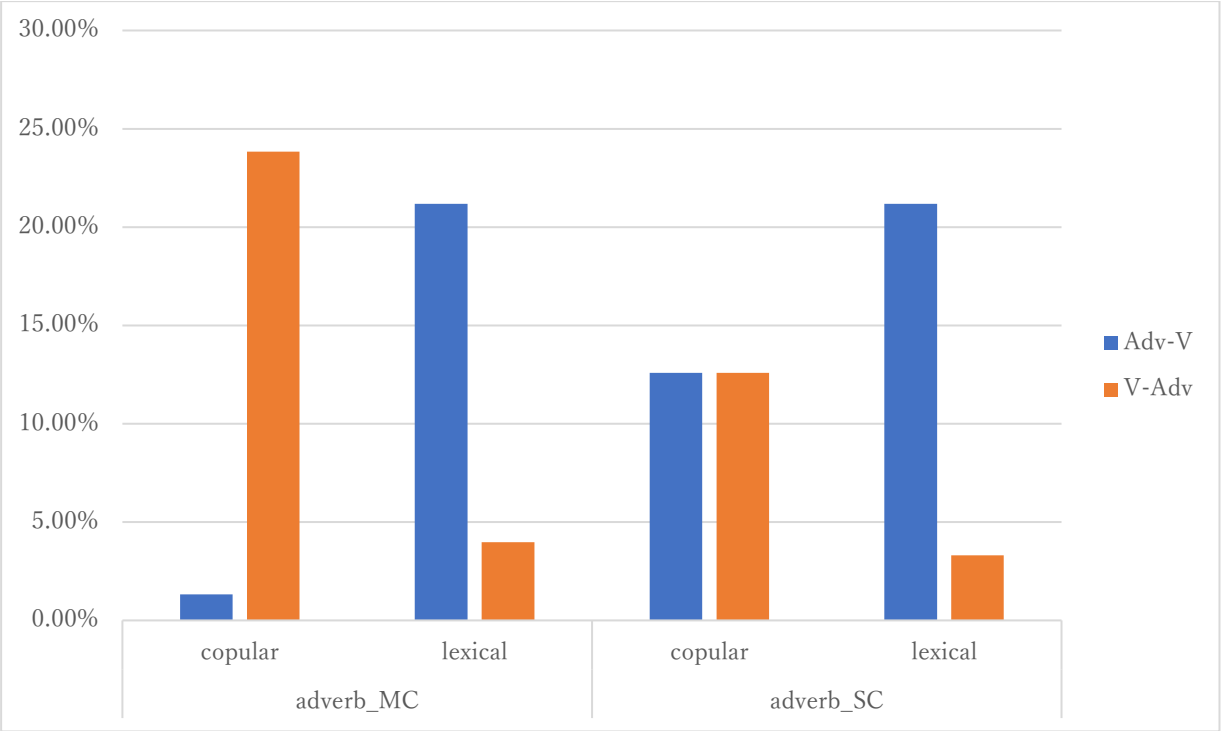
The data show the overall tendency in all the conditions follow the grammatical structure of English, particularly in the MC, ML and SL conditions. The SC condition, however, has some ungrammatical choices compared to other conditions.

The data from a regular school is summarized in Table 15 and Figure 20.

Table 15: L2 English results of Adv-V and V-Adv word order by condition for regular school students

Clause type / Verb type	**Adv-V**	**V-Adv**
Main / Copular (MC)	1.32%	23.84%
Main / Lexical (ML)	21.19%	3.97%
Subordinate / Copular (SC)	12.58%	12.58%
Subordinate / Lexical (SL)	21.19%	3.31%
Total	**56.29%**	**43.71%**

Figure 20: L2 English results of Adv-V and V-Adv word order by condition for regular school students



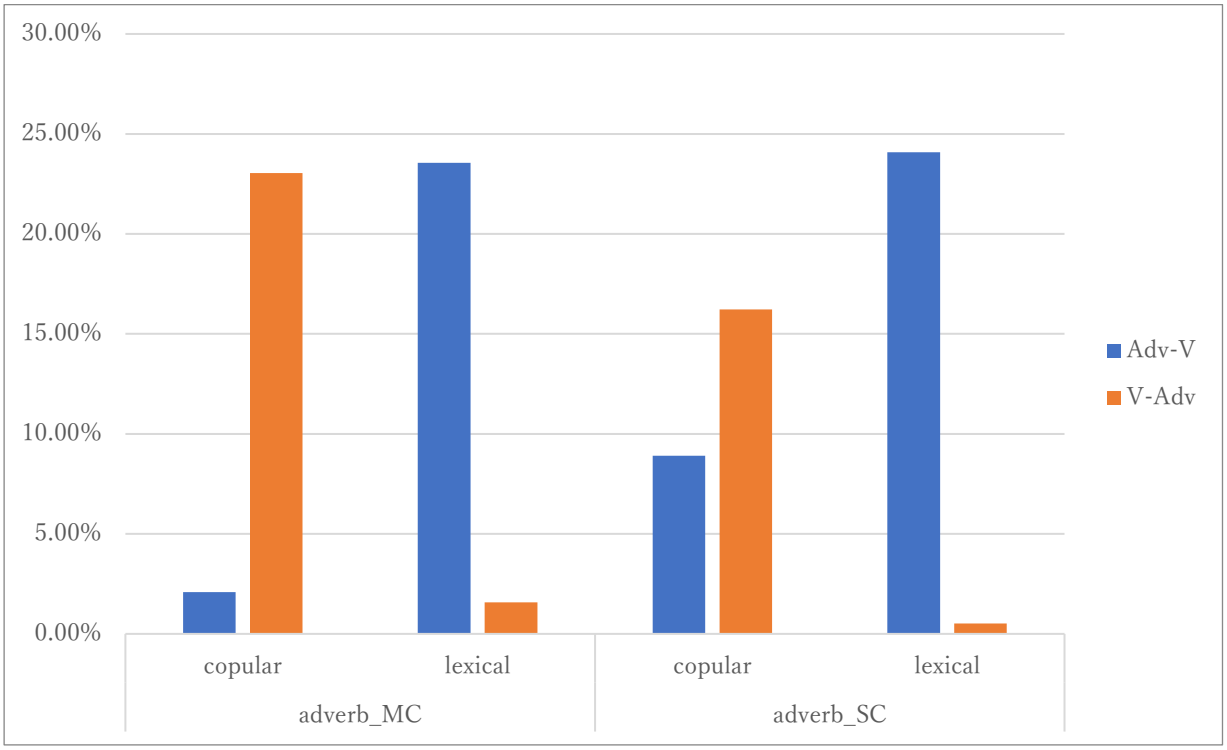
The choice of the word order by the regular school students is mostly appropriate in the MC, ML, and SL conditions. The interesting difference between these groups is shown in the accuracy of Adv-V word order in the SC condition, in which the data indicate the same score (N=19) both in the grammatical (V-Adv) and ungrammatical (Adv-V) choices. Although the ML and SC conditions in Norwegian do not share the same word order with English, most of the students in the L1 Norwegian group correctly choose Adv-V word order in the ML.

Finally, the data from the international students of the GFT in English is summarized in Table 16 and Figure 21.

Table 16: HL English results of Adv-V and V-Adv word order by condition for international school students

Clause type / Verb type	Adv-V	V-Adv
Main / Copular (MC)	2.09%	23.04%
Main / Lexical (ML)	23.56%	1.57%
Subordinate / Copular (SC)	8.90%	16.23%
Subordinate / Lexical (SL)	24.08%	0.52%
Total	**58.64%**	**41.36%**

Figure 25: HL English results of Adv-V and V-Adv word order by condition for international school students



Overall, the data show the accurate tendency in all the conditions. Particularly, the frequency of the correct word order is quite high in the MC, ML, and SL conditions. As seen in the data of the L1 Norwegian group, the SC tends to have some ungrammatical choices compared to

other conditions. However, the frequency of the incorrect word order (Adv-V) by the regular school students is higher than the international school students.

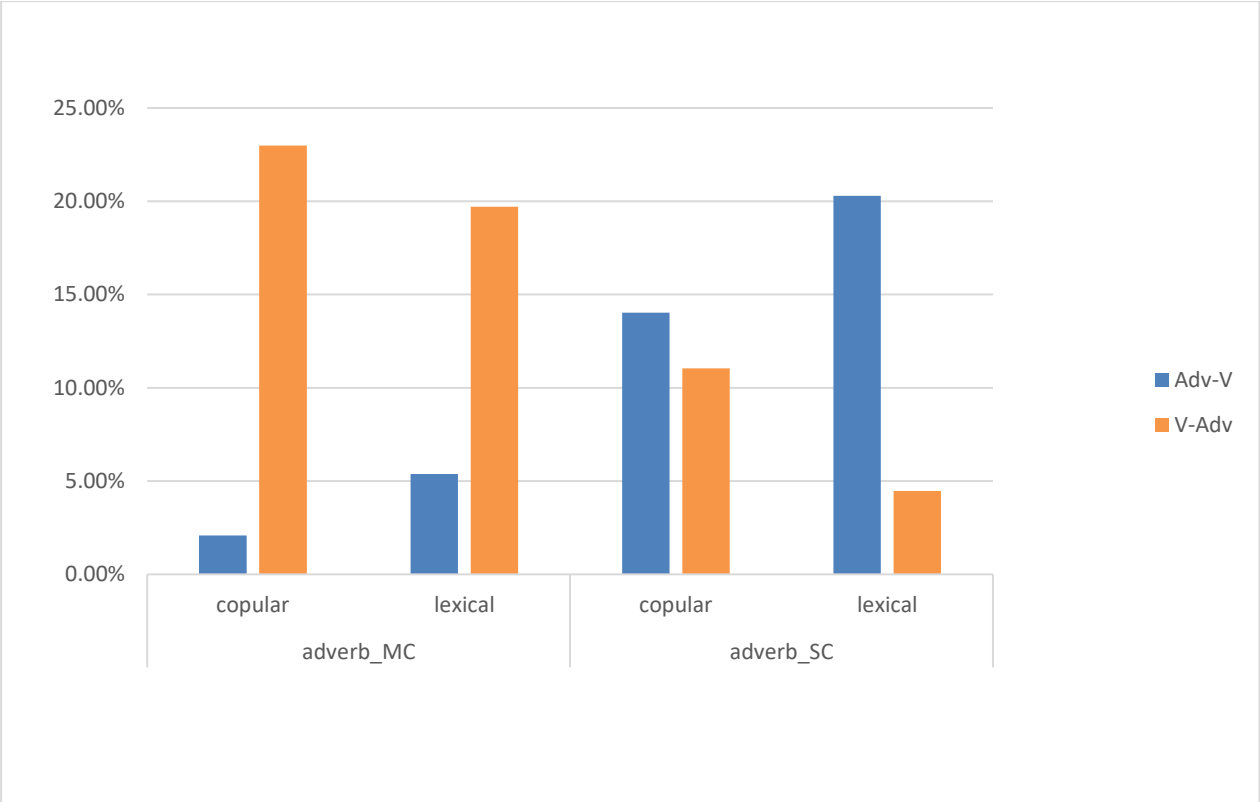
6.3 Gap filling task in Norwegian

As the last language the GFT in Norwegian is conducted after Spanish and English. As well as English, the task in Norwegian is a shorter version of the one in Spanish. The results by all the students are illustrated in Table 17 and Figure 22.

Table 17: L1/L2 Norwegian results of Adv-V and V-Adv word order by condition for all students

Clause type / Verb type	**Adv-V**	**V-Adv**
Main / Copular (MC)	2.09%	22.99%
Main / Lexical (ML)	5.37%	19.70%
Subordinate / Copular (SC)	14.03%	11.04%
Subordinate / Lexical (SL)	20.30%	4.48%
Total	**41.79%**	**58.21%**

Figure 22: L1/L2 Norwegian results of Adv-V and V-Adv word order by condition for all students



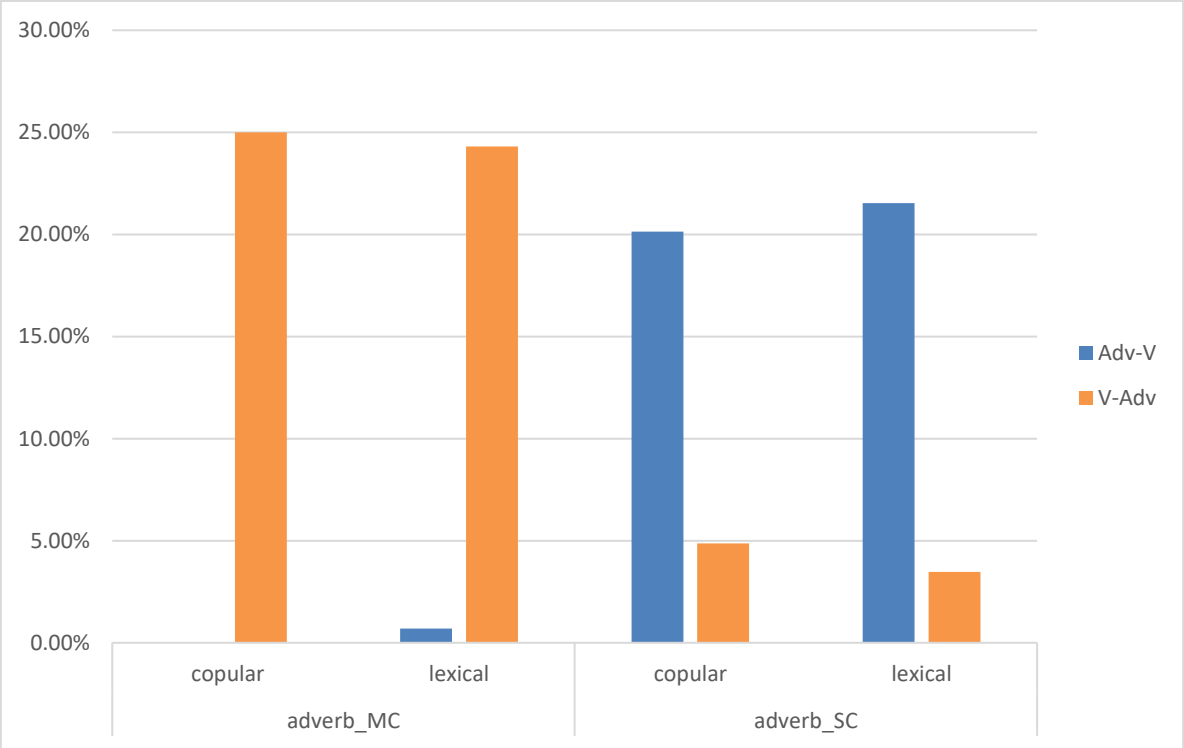
In general, the data in all the conditions indicate the correct word order like the GFT in English. In addition, the tendency that the only SC has more ungrammatical choices than the other conditions is in line with the results from the GFT in English by all the participants (see section 5.2). This characteristic of the SC is also seen in the results by van Osch et al. (2024) with the wider range of the students at both regular and international school students.

The L1 Norwegian group, the students at the regular school, shows the tendency as following Table 18 and Figure 23.

Table 18: L1 Norwegian results of Adv-V and V-Adv word order by condition for regular school students

Clause type / Verb type	Adv-V	V-Adv
Main / Copular (MC)	0.00%	25.00%
Main / Lexical (ML)	0.69%	24.31%
Subordinate / Copular (SC)	20.14%	4.86%
Subordinate / Lexical (SL)	21.53%	3.47%
Total	**42.36%**	**57.64%**

Figure 23: L1 Norwegian results of Adv-V and V-Adv word order by condition for regular school students



The L1 Norwegian group clearly shows the appropriate choices of word order in all the conditions, particularly in the MC and ML. Although there are a few ungrammatical V-Adv

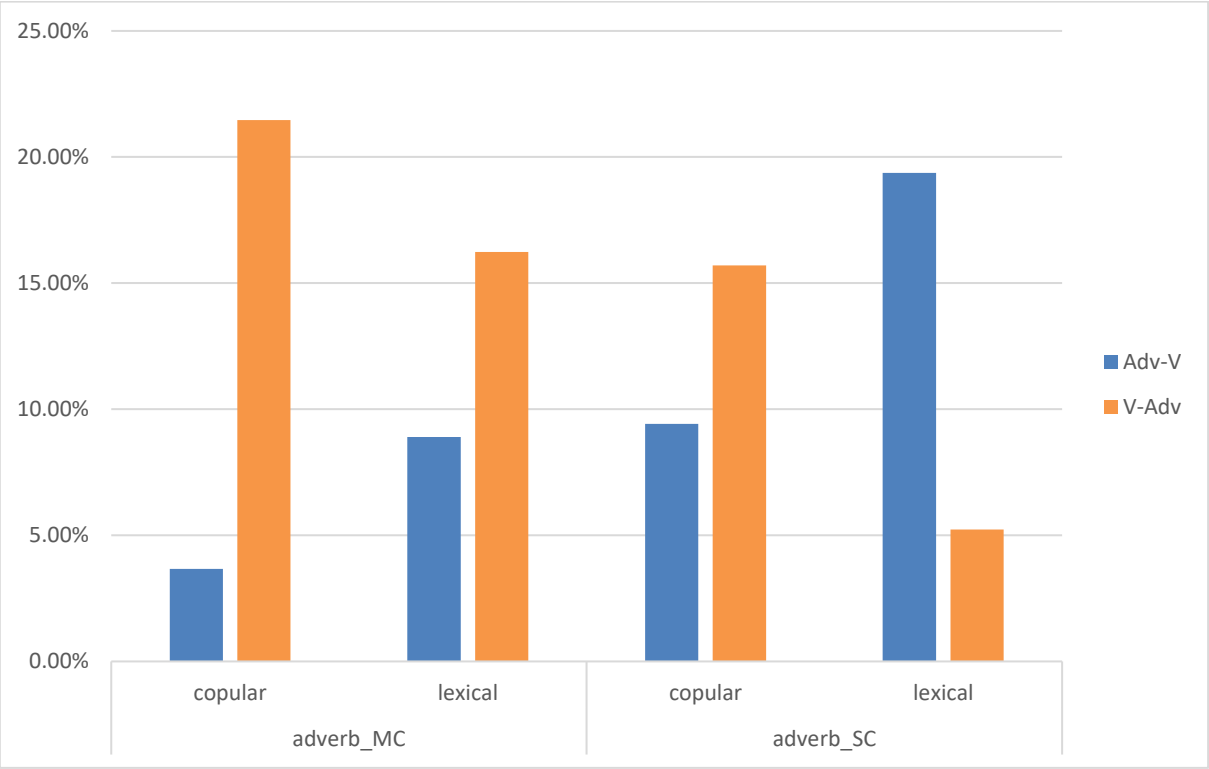
word orders in the SC and SL, the accuracy rate is still high compared with the results from the GFT in English.

The last results of the GFT in Norwegian by the international students are summarized in Table 19 and Figure 24.

Table 19: L2 Norwegian results of Adv-V and V-Adv word order by condition for international students

Clause type / Verb type	**Adv-V**	**V-Adv**
Main / Copular (MC)	3.66%	21.47%
Main / Lexical (ML)	8.90%	16.23%
Subordinate / Copular (SC)	9.42%	15.71%
Subordinate / Lexical (SL)	19.37%	5.24%
Total	**41.36%**	**58.64%**

Figure 24: L2 Norwegian results of Adv-V and V-Adv word order by condition for international students



The overall accuracy in all the conditions is also seen as well as all the results by the L1 Norwegian group. However, the accuracy rate per all the conditions by the international school students is slightly lower than the regular school students, particularly in the ML and SC conditions which have the different word order from English. One notable difference from the L2 GFT in English by the regular school students is that the ungrammatical frequency in the ML is as high as in the SC whereas the ML in the L2 English GFT is obviously more accurate than the SC.

7. Discussion

In this chapter, I discuss the results mentioned in the chapter 6 and analyze CLI based on the research questions. In addition, the comparison to the study by van Osch et al. (2024) and the limitation of this study are also presented.

7.1 Influence from L1 or L2

In this section, I argue the first research question with the analysis of the data of L3 Spanish by both groups. The first research question and prediction are repeated:

RQ1: Does crosslinguistic influence occur from either or both previously acquired languages in L3 Spanish?

Prediction: With a reference to Stadt et al. (2018a, 2020), L1 has a superior role to L2 as the reliable resource at the initial stage of L3 learning. Thus, the students at a regular school more rely on L1 Norwegian as their preference in L3 Spanish word order than L2 English whereas those at an international school more on L1 English than L2 Norwegian.

First, the data of the frequency by all the participants (see Figure 16), by regular school students (see Figure 17), and by the international school students (see Figure 18) indicate the influence from both Norwegian and English. From Figure 16, English-like word order is observed in the ML condition and Norwegian-like word order is seen in the SC condition as the general preference for this experiment. The SL condition, on the other hand, has the same word order with both Norwegian and English whereas the MC condition does not have the influence from both previous acquired languages, which is discussed later in this chapter. That is, the overall frequency of adverb placement under the target conditions reflects CLI from Norwegian and English.

Focusing on the data of all the conditions from the participants at the regular school, their choice of adverb placement indicates transfer from L1 Norwegian, and possibly from L2

English as well. The results from the SC condition show the preference for Norwegian-like word order while the ML condition has the same score in Adv-V (English-like) and V-Adv (Norwegian-like) word order, which might be the indication of CLI from both previous acquired languages. The effect on the superior choice of Adv-V word order in the SL condition is unable to be determined since both Norwegian and English have Adv-V word order. However, it is suggested that either or both languages have CLI to some extent. As well as the score of the whole results by all the students, the preference for adverb placement in the MC condition is led by neither L1 Norwegian nor L2 English. There is also no data that reflects only English-like word order in all the conditions. To conclude, the results by the L1 Norwegian group show transfer from both previously acquired languages and L1 Norwegian seems to have slightly stronger influence than L2 English.

The results from the L1 English group, on the other hand, show the different tendency of CLI from the L1 Norwegian group although they also indicate transfer from both previously languages. The results of the ML condition reflect the same word order of English so that CLI is observed from L1. Although the SL condition also presents the same word order of English, it is uncertain which language is more influential since Norwegian shares the same structure as well. The SC conditions, however, exhibits the Norwegian-like word order as their preference for adverb placement. As well as the regular school students, there is no transfer in the MC condition from English nor Norwegian. Overall, it is only the ML condition which is predominantly influenced by L1 English. Table 20 summarizes the influential language under the target conditions with both groups.

Table 20: Language which share the same structure with the frequency by both groups

	Regular (L1 Norwegian)	**International (L1 English)**
MC	None	None
ML	Norwegian/English	English
SC	Norwegian	Norwegian
SL	Norwegian/English	Norwegian/English

As Table 20 illustrates, L1 Norwegian is influential under the three conditions in the results from the L1 Norwegian group while the same word order of L1 English is observed under the two conditions from the data of the L1 English group. Therefore, it is predicted that in this study L1 Norwegian plays more important role for the regular school students than L1 English for the international school students.

The syntactic characteristic that adverb placement in Norwegian relies on the clause type is not observed in the results of the GFT in L3 Spanish by the L1 Norwegian group. Their different scores of V-Adv in the SC (N=28) and in the SL (N=11) clearly indicate that the rule from Norwegian of changing adverb placement depending on the clause type is not reflected on L3 Spanish. This suggests the possibility that beginner learners have less a cognitive awareness of the linguistic knowledge as Stadt et al. (2018a, 2020) discuss. The L1 English group, on the other hand, might be conscious of metalinguistic aspects from the tendency of their choice in L3 Spanish. Since adverb in English is placed before or after the verb depending on the verb type, the lexical verb should have the same adverb placement both in the main and subordinate clause, and vice versa in the case of the copular verb. The data of their preference under the same verb type conditions show the almost similar scores (Adv-V of the lexical verb: Main=61, Subordinate=58 / V-Adv of the lexical verb: Main=35, Subordinate= 27). The copular verb type shows this tendency in the same way (Adv-V of the copular verb: Main=60, Subordinate=51 / V-Adv of the copular verb: Main=36, Subordinate=33). However, the difficulty still underlies to assume these English-like choices as the determiner of L1 English transfer since their stable data also indicate the effects of the decision-making led by the clause type, which is the characteristic of Norwegian syntax. In the choices of both Adv-V and V-Adv word orders, the main clause has the quite similar scores regardless of the verb type (Adv-V of the main clause: Lexical=61, Copular=60 / V-Adv of the main clause: Lexical=35, Copular= 36). The subordinate clause also has the same tendency (Adv-V of the subordinate clause: Lexical=58, Copular=51 / V-Adv of the subordinate clause: Lexical=27, Copular= 33). Since the statistics by the international school students in L3 Spanish are almost invariable in all the conditions as Figure 18 illustrates, the data of this study cannot ascertain which linguistic syntax has more influential, L1 English or

L2 Norwegian. However, the fact that the syntactic structures from both languages are observed is a new finding in this study. In contrast to the data from the L1 Norwegian group, this fact suggests that their higher language proficiency in L1 and L2 of the L1 English group indicated by their PPVTs may lead to the awareness of the syntax of Norwegian and English. In addition, their lots of exposures of not only English at a school and home, but also Norwegian as their societal language may prevent a reliance only on single language.

In conclusion as the research question 1, CLI occurs from both previously acquired languages by both L1 Norwegian and L1 English groups. However, the degree of which language has the stronger influence can differ depending on the groups, which can be caused by some determiners of transfer such as order of acquisition, language proficiency, metalinguistic aspect, exposure and so on. These factors of the determiners are discussed in the following 7.2 and 7.3 sections.

7.2 Role of English

In this section, in accordance with the research question 2, I discuss the role of English as L1 and L2 on L3 Spanish in order to investigate the predominant role of English of no verb movement on lexical verbs that Busterud et al. (2023) propose. I repeat the research question 2 and the prediction for convenience.

RQ2: Does the role of English change depending on whether it is L1/HL or L2?

Prediction: English has a predominant role as L1 and L2 for both groups as Busterud et al. (2023) suggest its syntactic superiority. Since the role of L1 is privileged at the onset of L3 learning (Stadt et al., 2018a, 2020), the international students show more influence from L1 English although the effects from L2 English by the regular school students can be also seen to some extent.

First, I analyze the influence of English from the whole data of L3 Spanish by the participants at the regular school. Their results show there is no condition in which only the English-like

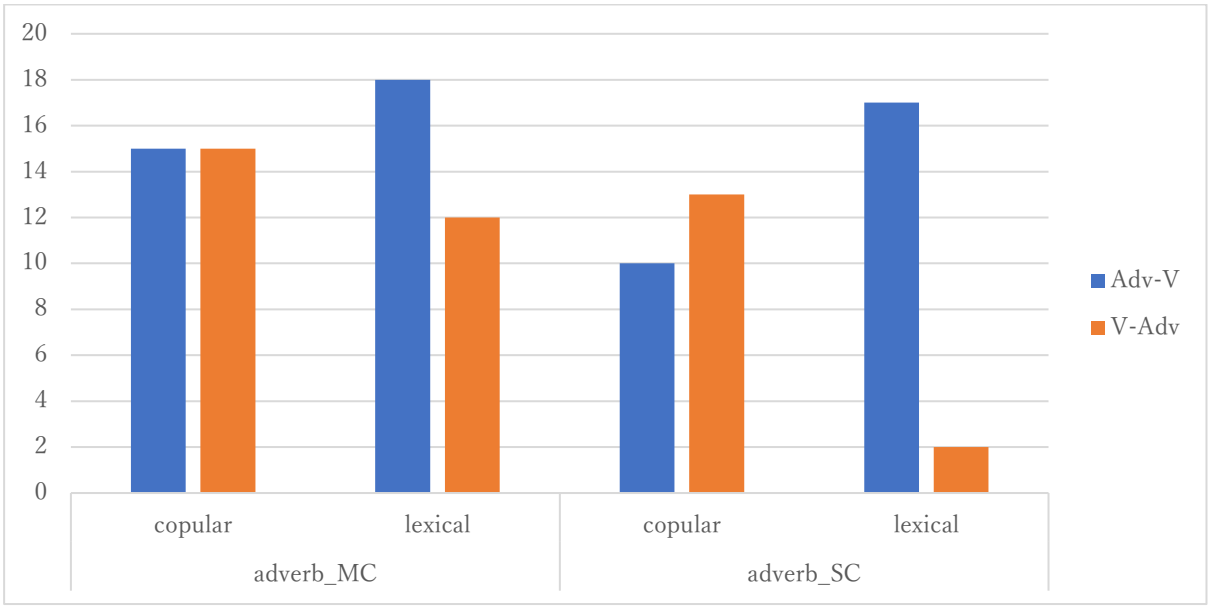
word order is superior. The SL condition has the preference for Adv-V word order which is shared both with Norwegian and English, so that it is unsure which language or both CLI occurs from. Although the ML condition also seems to be affected by English-like word order to some extent from the score of Adv-V word order (N=39), the same score of V-Adv word order (N=39) indicates the influence from Norwegian as well. These results propose a possibility that the L1 Norwegian group does not predominantly rely on L2 English in general, and L1 Norwegian plays a central role as the source of transfer. On the contrary, the data from the L1 English group show the equal CLI from Norwegian and English. As Table 20 clearly indicates, among four conditions they have one dominant influence from English (ML), one from Norwegian (SC), one from both (SL), and one from none of them (MC). Interestingly, their statistics of each condition show almost the same gap between the superior word order and the other (see Figure 18). In addition, it is always Adv-V word order when English structure is dominant, which suggests a possibility of the strong effect of Adv-V word order itself as the determiner of transfer. The discussion of Adv-V word order is addressed in the next section 7.3. There is also the argument that English-like word order is superior under the conditions of lexical verbs (ML and SL). In conclusion, although in this study the international group does not preferentially rely on English structure in the decision of adverb placement, Adv-V word order or English under the conditions with lexical verbs seems to have the influence.

Busterud et al. (2023) claim that the strong role of English as its syntactic properties of no verb movement of lexical verbs not only in their study but also in a number of other studies as they suggest “a preference for the less costly option is a more convincing explanation of the predominant role of English (p.27).” The finding of this study is partially in line with this statement from the higher frequency of English-like word order under all the conditions with lexical verbs from both groups, which requires no verb movement. However, in the result of the ML by the L1 Norwegian students, it is doubtful that the less costly option from CLI of English affects their preference because the frequency of V-Adv word order is as high as Adv-V word order and is the highest among all V-Adv word orders of all the conditions. Except the ML condition by the L1 Norwegian group, none of the data from this study denies the possibility that the predominant role of English with no movement of lexical verbs is

influential on L3 as Busterud et al. (2023) propose. At the same time, this study lacks of the evidence to identify the overall preference for Adv-V word order under the ML and SL only as the less costly option from English structure.

It is also important to indicate that in general the choice of V-Adv word order from the L1 Norwegian group is relatively higher than that from the L1 English group, and more unstable through the four conditions. The only SL condition indicates the stronger preference for Adv-V word order, which is predicted as CLI from both previously acquired languages. Indeed, the scores of V-Adv word order with copular verbs (MC and SC) by the L1 Norwegian group are higher than those by the L1 English group even though that structure is shared with English syntax. This tendency is in line with the argument by Listhaug et al. (2021) that the lower English proficiency may lead to more transfer with the less sensitivity of metalinguistic knowledge from their PPVT of L2 English (N=14.78) in contrast to that of L1 English by international students (N=18.44). The graph of Figure 25 visualizes the GFT in L3 Spanish only from the regular school students with the lower score of L2 English PPVT than the average among the regular school.

Figure 25: GFT scores in L3 Spanish only from regular school students with the lower score of the PPVT in L2 English than the average



The graph obviously illustrates the higher frequency of V-Adv word order in the conditions with copular verbs than the whole data of the GFT in L3 Spanish from all the students at the regular school. Additionally, all the four conditions reflect the preference for English-like word orders although the MC has the same score. This strengthens that the lower L2 proficiency leads to more transfer from L2.

Combined this tendency to the idea of the less costly option from English, the preference for Adv-V word order with lexical verbs seems to be driven by English structure itself rather than the costliness of English from the students with lower English proficiency. As the L1 English group shows the preference for Adv-V word order under the ML and SL, there is a possibility that the less costly option as the source of transfer may at least require the higher language proficiency, that is, metalinguistic knowledge.

In conclusion, although the role of English is not predominant for both groups, it shows different aspects depending on the groups, and in particular the L1 Norwegian students who have lower proficiency of English tend to imitate the same structure of L2 English into L3 Spanish. On the other hand, the L1 English students possibly make use of the costliness of English with lexical verbs into L3 Spanish. However, the usage of the syntactic properties seems to require higher proficiency of English.

7.3 Factors of CLI on L3 Spanish

As the last research question, I discuss the determiners of CLI on L3 Spanish from the data of the L1 Norwegian group and the L1 English group separately. The research question 3 and prediction are repeated as following.

RQ3: Which factors lead to crosslinguistic influence in the initial stages of L3 acquisition?

Prediction: Based on the findings by Busterud et al. (2023), principle of economy plays an important role as the determiner of transfer. The overall preference for adverb is predicted to

be the same placement under four conditions since the participants tend to avoid costly choices.

The notable characteristic which is shared both with the L1 Norwegian group and the L1 English group is the overall preference for Adv-V word order under all the conditions. Interestingly, this tendency is also observed in the data of adverb placement by native Spanish speakers although the target participants of this study are unlikely aware of this connotation. Indeed, both groups prefer to choose Adv-V word order in the MC condition in which both Norwegian and English have V-Adv word order. These results suggest that the dominance of Adv-V word order is possibly the more influential factor in their decision of adverb placement in L3 Spanish than the structures of previously acquired languages.

The possible reason of the overall preference for Adv-V word order can be partially linked with the core idea of principles of economy from Busterud et al. (2023). That is, the students tend to choose the less complex option of the same placement of adverb: before the verb. The less complex and easy choice is a possible explanation for their stronger preference for Adv-V word order in the MC condition even though it is the ungrammatical choice in both Norwegian and English. In addition, the unique characteristic of Spanish as its flexibility can cause the same word order in all the conditions since this tendency is not found in other languages, such as German, French and Arabic from previous literatures (e.g., Stadt et al., 2018a, 2020; Listhaug et al., 2021; Busterud et al., 2023, Harmas, 2010, Falk, 2010). However, it is uncertain if the participants of this study are aware of the flexibility of Spanish considering their age of onset of Spanish and their L3 proficiency.

Furthermore, this trend is more obvious in the L1 English group than the L1 Norwegian group from their stable gap between Adv-V word order and V-Adv word order in all the conditions. Although the data of this study do not have enough evidence of what leads to this tendency, there are some potential reasons such as their unconscious awareness of linguistic features of Spanish led by their higher proficiency of L1 English and L2 Norwegian and the partially transferred linguistic properties of their L1 English: no verb movement. There will still need

another combination of languages to investigate the overall preference for Adv-V word order in L3 Spanish.

Since the dominant influence from English and Norwegian is not seen in the results by the international school students, the main determiner of transfer does not seem to be order of acquisition in this study. The results by the regular school students, on the other hand, show a slight flexibility depending on the conditions, particularly from their more scores in V-Adv word order than by the international school students in the ML and MC conditions. It suggests that their preference for Norwegian-like word order in the main clause type by some students may be led by L1 Norwegian transfer. This explanation is in line with the finding by Listhaug et al. (2021) of the reliance on more L1 with the lower L2 proficiency from their PPVT score in English (N=14.78).

In conclusion, as the possible answer to the research question 3, the core idea of the principle of economy, that is, the preference for the less complex option can be partially related to one of the determiners of CLI from their overall frequency of the same word order by all the participants in this study. However, the hypothesis by Busterud et al. (2023) as their principles of economy cannot be simply adapted to the results of this study since the syntactic differences caused by another language combinations, such as verb movement in this case, may have the impact on the finding. At least the data from this experiment suggest the possibility that the tendency to choose the costless option can be shared among the beginners of L3 to some extent. In addition, the fact that the reliance on L1 gets stronger as their L2 proficiency gets lower strengthens the idea of Stadt et al. (2018a, 2020) that L3 beginners have more L1 transfer in their L3. Therefore, language proficiency can be the determiner of CLI particularly in the initial stage of L3 learning. This study also suggests the strong relationship between language proficiency of previous acquired languages and CLI in terms of cognitive awareness of linguistic properties and the reliance on L1.

7.4 Comparison to the study of van Osch et al. (2024)

In this section, I compare the results of this study with the findings by van Osch et al. (2024). This study narrows down the conditions of their participants, who only live in Stavanger and have the same age of onset of learning L3 Spanish.

First, I discuss the same tendency of this study with van Osch et al. (2024). The overall preference for Adv-V word order in all the conditions by the regular school and international school students is shared with both studies. In addition, the fact that the regular school students have the more rates of V-Adv word order in all the conditions than the international students is almost the same. That is, it is generally suggested that in L3 Spanish the students with L1/L2 Norwegian and English have the tendency of the same adverb placement in any conditions regardless of their age of onset of learning Spanish, and the regional difference. There is one more similarity that the SL condition has the lowest preference for V-adv word order by all the participants. That is, among the all conditions the SL condition, which has the same structure both in Norwegian and English, is the highest frequency of Adv-V word order. This suggests the hypothesis that the overall preference for the same adverb placement is strengthened by not only beginners but also intermediate learners in L3 if that word order is also shared with both previously acquired languages.

However, the finding by van Osch et al. (2024) that the effect of the verb type on their choice of adverb placement only by the international school students is not seen in this study either by the regular school or the international school students. Since the overall preference for Adv-V word order is stable all the time and the gap between Adv-V and V-Adv word order by the international school students in this study is almost the same under the all conditions, there is no indication of any other determiners, such as the verb type and clause type, having any effects on their frequency. Although it is quite difficult to identify the factor to differentiate the influence of English verb type from the international school, the possibility may underlie in the different conditions of this study from van Osch et al. (2024): language proficiency of L3 Spanish, English as L1 or Ln, age or place of learning.

In conclusion, the results of this study mostly overlap the main findings by van Osch et al. (2024) such as the overall preference for Adv-V word order and the influence both from previously acquired languages. However, the extent of the influence from English by the international school students might differ in this study possibly due to their order of language acquisition or exposure of English.

7.5 Limitations

Finally, I discuss the limitations this study holds. Although the proficiency of each language is assessed based on the PPVT, the total amounts of questions in each language is 20, which is not enough to investigate the participants' exact levels of language proficiency. Therefore, the additional task except the vocabulary examination will be needed to clarify the relationship between CLI in L3 and language proficiency in previously acquired languages. The more precise examination of language proficiency will be key to ascertain the hypothesis by Stadt et al. (2018a, 2020) of the metalinguistic aspects led by language proficiency as the determiner of transfer which this study cannot reach. Furthermore, this study has the small number of the participants in each group due to the limited conditions. This means the investigation with the larger groups is necessary to strengthen the findings of this study.

There is also a necessity to use different methodologies than the gap-filling task in order to reinforce the proposal of this study and investigate the proper determiners of CLI. Since the results of this study cannot reveal which factor is more influential on their overall preference for Adv-V word order, having the same or different results by other methodologies can be a solution to identify the determiner. Moreover, the similar results of the high frequency of Adv-V word order in L3 Spanish with another language combinations of L1 and L2 will strengthen the hypothesis by Busterud et al. (2023) of the less costly option.

8 Conclusion

This thesis investigated cross-linguistic influence in L3 Spanish at the initial stage with Norwegian-English bilinguals on adverb placement. Following by van Osch et al. (2024), the target conditions are divided into the clause and verb type in which Spanish, Norwegian and English respectively show different placements of adverb. The focus of this study is to examine the influence on L3 from either or both previously acquired languages and to consider the possible determiners which lead to CLI with the comparison of the results by the L1 Norwegian / L2 English group and by the L1 English / L2 Norwegian group based on the hypothesizes of previous researches.

The answers for each research question are summarized based on the discussion:

> RQ1: Does crosslinguistic influence occur from either or both previously acquired languages in L3 Spanish?
>
> Answer: CLI occurs from both previously acquired languages by both L1 Norwegian and L1 English groups. However, the degree of which language has the stronger influence can differ depending on the groups, which can be caused by some determiners of transfer such as order of acquisition, language proficiency, metalinguistic aspect, exposure and so on.
>
> RQ2: Does the role of English change depending on whether it is L1 (HL) or L2?
>
> Answer: Although the role of English is not predominant for both groups, it shows different aspects depending on the groups, and in particular the L1 Norwegian students who have lower proficiency of English tend to imitate the same structure of L2 English into L3 Spanish. On the other hand, the L1 English students possibly makes use of the costliness of English with lexical verbs into L3 Spanish. However, the usage of the syntactic properties seems to require higher proficiency of English.

RQ3: Which factors lead to crosslinguistic influence in the early stages of L3 acquisition?

Answer: the core idea of the principle of economy, that is, the preference for the less complex option can be partially related to one of the determiners of CLI from their overall frequency of the same word order by all the participants in this study. However, the hypothesis by Busterud et al. (2023) as their principles of economy cannot be simply adapted to the results of this study since the syntactic differences caused by another language combinations such as verb movement in this case, may have the impact on the finding. At least the data from this experiment suggest the possibility that the tendency to choose the costless option can be shared among the beginners of L3 to some extent. Therefore, language proficiency may be the determiner of CLI particularly in the initial stage of L3 learning.

As a part of the project by van Osch et al. (2023), the overall findings of this empirical study follow the results of the study of L3 Spanish by van Osch et al. (2024) excluding the statistical analysis. The first finding in this experiment is that both L1 and L2 are influential on L3 in accordance with the proposal by the CEM and LPM. Furthermore, since the non-facilitative impact of L1 or L2 is also seen as well as facilitation, the statement of the LPM that both L1 and L2 affect positively and negatively is strengthened by this study rather than the CEM. The second finding is that both groups have the overall preference for the same word order under all the conditions. The same tendency under all the conditions by different L1/L2 combination groups is a new finding among the previous L3 experiments. This is possibly due to the flexibility of Spanish on adverb placement accepting any word order, which differentiates any L3s such as German (e.g., Busterud et al., 2023, Falk, 2010), French (e.g., Listhaug et al., 2021, Stadt et al., 2018a, 2020, Busterud et al., 2023) and English (e.g., Hermas, 2010) of the literature revie ws in section 2.4. Although the study cannot empirically determine the reason of this overall preference, the suggestion of the findings of this study is the correlation between economy and the frequent use of the same word order. A further investigation would strengthen principles of economy with the similar results of this study.

Several studies on adverb placement in L3 with various language combinations contribute to the current discussion in L3 field of how previously acquired languages are interacted in L3 in terms of the incoherence of adverb placement depending on languages. As a part of the project on this condition, the current study shows the unique result as the same tendency by both L1/L2 groups unlike previous researches. The comparison of the results by another L3 under the same condition will facilitate the further discussion of the effects by previously acquired languages and factors of cross-linguistic influence. As a multilingual society, it is necessary for teachers in Norway to be aware of the fact that there is a difficulty of acquiring a certain structure depending on CLI of L1/L2 and which structure is more difficult. The knowledge of CLI will provide the efficient instruction and the proper understanding of each students' situation in a multilingual classroom setting.

9. References

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10. Appendix

Table 21: Gap filling task—overview of test items in Spanish

Item	Sentences	Condition	Structure
1	Aqui esta Marco. El ……. cada dia ……. en el jardin. (camina)	ML	Adv-V/ V-Adv
2	Yo no se donde ……. Elena ……. . (vive)	SL	Adv-V/ V-Adv
3	Mi amigo Adriano, quien ……. cada noche ……., esta activo. (baila)	SL	Adv-V/ V-Adv
4	Aqui esta Pablo. El ……. siempre ……. activo. (esta)	MC	Adv-V/ V-Adv
5	Mi vecino Roberto, quien ……. siempre ……. en la escuela ……., esta positivo. (trabaja)	SL	Adv-V/ V-Adv
6	Cadan oche ……. Roxana ……. en el mar. (nada)	ML	Adv-V/ V-Adv
7	Aqui esta Nocolas. El ……. a menudo ……. en el parque. (camina)	ML	Adv-V/ V-Adv
8	Mi vecino jose, quien ……. a menudo ……. activo ……., camina cada noche. (esta)	SC	Adv-V/ V-Adv
9	Yo no se donde ……. Monica ……. durante las vacaciones ……. . (nada)	SL	Adv-V/ V-Adv
10	Aqui esta Antonio. El ……. siempre ……. positivo. (esta)	MC	Adv-V/ V-Adv
11	Mi abuelo Jorse, quien ……. a menudo ……. karaoke ……., esta feliz. (canta)	SL	Adv-V/ V-Adv
12	Durante el fin de semana ……. Luisa ……. en casa. (juega)	ML	Adv-V/ V-Adv

13	Aqui esta Ramon. El ……. siempre ……. en la escuela. (canta)	ML	Adv-V/ V-Adv
14	Mi tio Daniel, quien ……. siempre ……. activo ……., trabaja en la piscina. (esta)	SC	Adv-V/ V-Adv
15	Yo no se donde ……. Maria ……. cada tarde ……. . (canta)	SL	Adv-V/ V-Adv
16	Aqui esta Carlos. El ……. a menudo ……. activo. (esta)	MC	Adv-V/ V-Adv
17	Mi tio Esteban, quien ……. a menudo ……. en el parque ……., esta feliz. (juega)	SL	Adv-V/ V-Adv
18	Yo no se cuando ……. Carmen ……. en la discoteca ……. . (baila)	SL	Adv-V/ V-Adv
19	Aqui esta Matias. El ……. siempre ……. en la discoteca. (baila)	ML	Adv-V/ V-Adv
20	Mi abuelo Marco, quien ……. siempre ……. feliz ……., baila salsa. (esta)	SL	Adv-V/ V-Adv
21	Cada tarde ……. Emma ……. karaoke. (canta)	ML	Adv-V/ V-Adv
22	Aqui esta Ernesto. El ……. a menudo ……. positivo. (esta)	MC	Adv-V/ V-Adv
23	Mi profesor Francisco, quien ……. siempre ……. a casa ……., esta activo. (camina)	SL	Adv-V/ V-Adv
24	Yo no se donde ……. Sofia ……. durante el fin de semana ……. . (camina)	SL	Adv-V/ V-Adv
25	Aqui esta Guillermo. El ……. a menudo ……. en casa. (trabaja)	ML	Adv-V/ V-Adv
26	Mi amigo Enrique, quien ……. a menudo ……. feliz ……., juega en el Jardin. (esta)	SC	Adv-V/ V-Adv
27	Durante las vacaciones ……. Alicia ……. salsa. (baila)	ML	Adv-V/ V-Adv

28	Aqui esta Carlos. El ……. a menudo ……. activo. (esta)	MC	Adv-V/ V-Adv
29	Mi amigo Arturo, quien ……. a menudo ……. en el jardin ……., esta positivo. (baila)	SL	Adv-V/ V-Adv
30	Yo no se cuando ……. Mia ……. en la escuela ……. . (trabaja)	SL	Adv-V/ V-Adv
31	Aqui esta Pablo. El ……. a menudo ……. durante las vacaciones. (nada)	ML	Adv-V/ V-Adv
32	Mi hermano Alejandro, quien ……. a menudo ……. positivo ……., canta cada manana. (esta)	SC	Adv-V/ V-Adv
33	Cada manada ……. Susana ……. en el parque. (camina)	ML	Adv-V/ V-Adv
34	Aqui esta Juan. El ……. siempre ……. feliz. (esta)	MC	Adv-V/ V-Adv
35	Mi hermano Benjamin, quien ……. siempre ……. en la piscina …….., esta activo. (nada)	SL	Adv-V/ V-Adv
36	Yo no se cuando ……. Brenda ……. en el parque ……. . (juega)	SL	Adv-V/ V-Adv
37	Aqui esta Luis. El ……. siemple ……. en el jardin. (juega)	ML	Adv-V/ V-Adv
38	Mi profesor Ricardo, quien ……. siempre ……. positivo ……., nada en el mar. (esta)	SC	Adv-V/ V-Adv
39	Cada dia ……. Maria ……. en el jardin. (trabaja)	ML	Adv-V/ V-Adv
40	Aqui esta Tomas. El ……. a menudo ……. feliz. (esta)	MC	Adv-V/ V-Adv

Table 22: Gap filling task—overview of test items in English

Items	**Sentences**	**Condition**	**Structure**
1	This is Marcus. He ……. every day ……. in the garden. (walks)	ML	Adv-V
2	I don't know where ……. Helen ……. . (lives)	SL	Adv-V
3	My friend Adrian, who ……. every evening ……. , is active. (dances)	SL	Adv-V
4	Every morning ……. Suzanne ……. in the parl. (walks)	ML	Adv-V
5	This is Palph. He ……. always ……. at school. (sings)	ML	Adv-V
6	My grandfather Martin, who ……. always ……. happy ……. . dances salsa. (is)	SC	V-Adv
7	I don't know when ……. Hanna ……. in the disco ……. . (dances)	SL	Adv-V
8	This is Eric. He ……. often ……. positive. (is)	MC	V-Adv
9	My brother Edward, who ……. often ……. in the pool ……. , is active. (swims)	SL	Adv-V
10	On the weekend ……. Louise ……. at home. (plays)	ML	Adv-V
11	This is Max. He ……. always ……. in the disco. (dances)	ML	Adv-V
12	My neighbor Joseph, who ……. often ……. active ……. , runs every evening. (is)	SC	V-Adv
13	I don't know where ……. Patricia ……. every afternoon ……. . (sings)	SL	Adv-V
14	This is Paul. He ……. always ……. active. (is)	MC	V-Adv
15	My uncle Steven, who ……. often ……. in the park ……. , is happy. (plays)	SL	Adv-V
16	Every day ……. Mary ……. in the garden. (works)	ML	Adv-V
17	My teacher Richard, who ……. always ……. positive ……. , swims in the sea. (is)	SC	V-Adv
18	This is Nick. He ……. often ……. in the park. (walks)	ML	Adv-V

19	I don't know where ……. Monica ……. during the holidays. (swims)	SL	Adv-V
20	This is Thomas. He ……. often ……. happy. (is)	MC	V-Adv
21	My neighbor David, who ……. always ……. at school ……. , is positive. (works)	SL	Adv-V

Table 22: Gap filling task—overview of test items in Norwegian

Items	**Sentences**	**Condition**	**Structure**
1	Det er Magnus. Han ……. hver dag ……. i hagen. (går)	ML	V-Adv
2	Jeg vet ikke hvor ……. Helene ……. . (bor)	SL	Adv-V
3	Min venn Gustav, som ……. hver kveld ……. , er aktiv. (danser)	SL	Adv-V
4	Hver dag ……. Guro ……. i hagen . (jobber)	ML	V-Adv
5	Det er Per. Han ……. alltid ……. på diskoteket. (danser)	ML	V-Adv
6	Min lærer Ole, som ……. alltid ……. positiv ……. , svømmer i havet. (er)	SC	Adv-V
7	Jeg vet ikke når ……. merete ……. på diskoteket ……. . (danser)	SL	Adv-V
8	Det er Lars. Han ……. ofte ……. positiv. (er)	MC	V-Adv
9	Min nabo Erik, som ……. alltid ……. på skolen ……. , er positiv. (jobber)	SL	Adv-V
10	I helgen ……. Liv ……. hjemme. (leker)	ML	V-Adv
11	Det er Jan. Han ……. ofte ……. i parken. (går)	ML	V-Adv
12	Min nabo Jon, som ……. ofte ……. aktiv ……. , løper hver kveld. (er)	SC	Adv-V
13	Jeg vet ikke hvor ……. Maria ……. i ferien ……. . (svømmer)	SL	Adv-V

14	Det er Harald. Han ……. alltid ……. aktiv. (er)	MC	V-Adv
15	Min bror Edvard, som ……. ofte ……. i bassenget ……. , er aktiv. (svommer)	SL	Adv-V
16	Hver morgen ……. Eling ……. i parken. (går)	ML	V-Adv
17	Min bestefar Knut, som ……. alltid ……. glad ……. , danser salsa. (er)	SC	Adv-V
18	Det er Håvard. Han ……. alltid ……. på skolen. (synger)	ML	V-Adv
19	Jeg vet ikke hvor ……. Marit ……. hver ettermiddag ……. . (synger)	SL	Adv-V
20	Det er Karsten. Han ……. ofte ……. glad. (er)	MC	V-Adv
21	Min onkel Bjørn, som ……. ofte ……. i parken ……. , er glad. (leker)	SL	Adv-V

Figure 26: Ethics approval by Sikt

Sikt

Notification Form

Reference number 625907

Which personal data will be processed?

- Name
- Background information that, when combined, can be used to identify an individual

Describe the background information

Age, gender, country of origin, age of arrival to Norway, language background and experience

Project information

Title

Cross-linguistic influence from English and Norwegian in L3 French, German and Spanish

Summary

This project investigates Norwegian high school students who are beginner learners of French, Spanish and German, with the aims to investigate to what extent cross-linguistic influence from Norwegian and English occurs, and also whether this influence is modulated by external factors such as the age of onset of English and Norwegian, and the amount of input and exposure to both languages.

What is the purpose for processing personal data?

The project investigates how Norwegian-English bilingual children process certain grammatical phenomena in their target languages (German, Spanish and French). We need to collect the students' names, because we will track some of the students longitudinally across several data collection sessions to be able to follow their development. One of the main question we aim to answer is to what degree language-external variables such as age, language experience, etc. can explain individual differences between speakers. Therefore, it requires detailed information about the participants' linguistic background. Given that the experiment entails reading, we ask whether they have been diagnosed with dyslexia. While we don't expect gender to have an effect on their performance on the task, we include this variable to match the groups as best as possible.

If the personal data will be used for other purposes, please describe

Names will be used to be able to follow the students up for a second data collection.

External funding

Ikke utfyllt

Type of project Research/PhD project

Data controller

Institution responsible for the project

UiT Norges Arktiske Universitet / Fakultet for humaniora, samfunnsvitenskap og lærerutdanning / Institutt for språk og kultur

Project leader

Brechje Antonet van Osch, brechje.a.osch@uit.no, tlf: +4791128556

Do multiple institutions share responsibility (joint data controllers)? Yes

Joint data controllers

Institution

Universitetet i Stavanger / Fakultet for utdanningsvitenskap og humaniora / Institutt for kultur- og språkvitenskap

Project leader

Nadine Kolb, nadine.kolb@uis.no, 4741379137, Associate Professor

Institution

, , ,

Sample 1

Describe the sample

12 to 13-year old students of Spanish, French and German in Norway.

Describe how you will identify or contact the sample
We will contact teachers/directors of various schools (ungdomsskole) in Tromsø and Stavanger.

Age group 12 -
15

Are any of these groups included in the sample?

- Vulnerable groups

Which data relating to sample {{i}} will be processed? 1

- Name
- Background information that, when combined, can be used to identify an individual

How will data relating to sample 1 be collected? Online survey

Attachment

questionnaire_ENG.docx

Legal basis for processing general personal data Consent (General Data Protection Regulation art. 6 nr. 1 a)

Who will give consent for children under 16 years? Parents/guardians

Information for sample 1

Will the sample receive information about the processing of personal data? Yes

How does the sample receive information about the processing? Written (on paper or electronically)

Information letter informed

consent_ENG.pdf

Third persons

Will the project collect information about third persons?
No

Documentation

How will consent be documented?

- Electronically (email, e-form, digital signature)

How can consent be withdrawn?
Participants and their parents can withdraw their consent verbally at any time during the experiment. Once the data has been collected, participants can withdraw their consent in writing by using the contact form on the Laboratory's website as indicated in the information letter.

How can data subjects get access to their personal data or have their personal data corrected or deleted?
Participants and their parents can request access to their personal data or request it to be corrected or deleted by using the contact form on the Laboratory's website as indicated in the information letter.

Total number of data subjects in the project 100-999

Approvals

Will any of the following approvals or permits be obtained?
Ikke utfyllt

Security measures

Will the personal data be stored separately from other data? Yes

Which technical and practical measures will be used to secure the personal data?

- Continuous anonymisation
- Encrypted transmission Restricted
- access

Where will the personal data be processed

- Hardware
- Physically isolated hardware ?
-

Who has access to the personal data?

- Project leader
- Internal co-workers
- Data processor

Which data processor will be processing/have access to the collected personal data?

The data will be collected using Gorilla (https://gorilla.sc/). Data processor agreement has been signed between our department (HSL; Gustav Jørgen Pedersen, former head of department), legal team (Silje Maria Hansen, legal advisor), and Gorilla.

Will personal data be transferred to a third country?

No

Closure

Project period

01.11.2023 - 31.12.2026

What happens to the data at the end of the project?

Personal data will be anonymised (deleting or rewriting identifiable data)

Which anonymisation measures will be taken?

- Personally identifiable information will be removed, re-written or categorized

Will the data subjects be identifiable in publications?

No

Additional information