The Faculty of Arts and Education

MASTER'S THESIS

Study program: Master of Arts English and Literacy	Spring, 2024 Open study
Author: Arifa Batool	Arifa Batool (signatur author)
Supervisor: Nadine Kolb	
Title of thesis: Cross-linguistic influence in the acquisition of English as a third language: An empirical study on Hazaragi/Norwegian bilingual heritage speakers in Norway	
Keywords: Cross-linguistic influence, heritage speakers, Hazaragi	Pages: 96 Stavanger, 2024.

University of Stavanger

NAME OF THE AUTHOR: ARIFA BATOOL
SUPERVISOR: NADINE KOLB

Cross-linguistic influence in the acquisition of English as a third language: An empirical study on Hazaragi/Norwegian bilingual heritage speakers in Norway

Master thesis [2024]

Master in English and Literacy Studies

Department of Cultural Studies and Languages

Faculty of Arts and Education

Dedication

To my adorable parents; Ali Muhammad & Ameer Begum for their unconditional love and support

Acknowledgement

With great appreciation, I would like to thank all the people whose knowledge and unwavering support helped me finish my master's thesis.

First and foremost, I would like to express my sincere gratitude to my thesis supervisor Assoc. Prof. Nadine Kolb for her invaluable guidance, unwavering support, and insightful feedback through the entire research process, without whom this thesis would have not been possible.

Similarly, I am also grateful to my instructors; Assoc. Prof. Dina Lialikhova, Prof. Oliver Martin Traxel and University Lecturer Torill Irene Hestetræet for their valuable contributions and discussions that enriched the depth of this thesis.

A huge thanks to all the participants who took part in this study, and all the Hazara families who contributed to this thesis. I extend my special thanks to my supervisor, Nadine Kolb and my sisters; Ruqia Bayat and Jamila Ali Muhammad who helped me a lot with data collection.

I would also like to acknowledge my family for their financial and emotional support specially to my brothers; Muhammad Mehdi and Muhammad Hadi. Their contributions have significantly contributed to the successful completion of this research.

Lastly, I want to express my heartfelt appreciation to my friends and my sisters; Jamila Ali Muhammad and Sadiqa Ali Muhammad for their motivation throughout this academic journey.

Thank you all for being an integral part of this thesis!

Arifa Batool

Stavanger, May 2024.

Contents

1. Introduction 9

2. Theoretical Background 12

2.1. Heritage Speakers 12
2.2. Cross-Linguistic Influence 13
2.3. Cross-linguistic variation in Hazaragi, Norwegian and English word order 14
2.3.1 Non-subject initial declaratives 14
2.3.2 Adverb placement 15
2.4. Third Language Acquisition 16
2.5. L3 Acquisition Models 17
2.5.1. L1 Transfer 17
2.5.2. The L2 Status Factor 18
2.5.3. Cumulative Enhancement Model 19
2.5.4. Typological Primacy Model 20
2.5.5. Linguistic Proximity Model 21
2.5.6. Scalpel Model 21
2.5.7. The Language of Communication Model 22
2.5.8. Cumulative Input Threshold Hypothesis 22
2.6. Literature Review 23
2.6.1. Westergaard, Mitrofanova, Mykhaylyk & Rodina (2017) 23
2.6.2. Hopp (2019) 24
2.6.3. Stadt, Hulk & Sleeman (2018) 25
2.6.4. Stadt, Hulk & Sleeman (2020) 25
2.6.5. Listhaug, Busterud & Dahl (2021) 26
2.6.6. Dahl, Listhaug & Busterud (2022) 27
2.6.7. Kolb, Mitrofanova & Westergaard (2022) 28
2.6.8. Abdollahi Dehooei (2022) 28
2.6.9. Jensen, Mitrofanova, Anderssen, Rodina, Slabakova & Westergaard (2023) 29
2.6.10. Saraeva (2023) 30
2.6.11. Busterud, Dahl, Kush & Listhaug (2023) 30
2.6.12. Lorenz, Kolb, Jensberg & Osch (2023) 31

3. Research question and Predictions 33

3.1. Research question 33
3.2. Predictions 33

4. Methodology 35

4.1. Participants 36
4.2. Procedure 37
4.2.1. Q-BEx questionnaire 38
4.2.2. Sentence ordering task in English 39
4.2.3. Sentence ordering task in Norwegian 39
4.2.4. Norwegian proficiency task 40
4.2.5. Vocabulary task in English (English proficiency test) 41
4.2.6. English forced choice task 42
4.2.7. Forced choice task in Hazaragi as a heritage language 42
5. Results 44
5.1. Sentence ordering task in English 44
5.2. Sentence ordering task in Norwegian 48
5.3. Norwegian proficiency task 53
5.4. Vocabulary task in English (English proficiency test) 55
5.5. English forced choice task 57
5.6. Forced choice task in Hazaragi as a heritage language 60
6. Discussion 63
7. Conclusion 70
References 72
Appendix 1 77
Appendix 2 89
Appendix 3 89

List of Tables

Table 2.1: Overview of Cross-linguistic variation in Hazaragi, Norwegian and English Word Order…….13

Table 4.1: Overview of Participants…….36

Table 5.1: Individual Word Order Preference in English- Heritage Language Speakers…58

Table 5.2: Individual Word Order Preference in English- Majority Language Speakers…59

Table 5.3: Individual Word Order Preference in Heritage Language- Heritage Language Speakers……61

List of Figures

Figure 4.1: Q-BEx Questionnaire……37

Figure 4.2: Sentence Ordering Task in English……...38

Figure 4.3: Sentence Ordering Task in Norwegian…….39

Figure 4.4: Norwegian Proficiency Task……39

Figure 4.5: Vocabulary Task in English…….40

Figure 4.6: Forced Choice Task in English…….41

Figure 4.7: Forced Choice Task in the heritage language……...42

Figure 5.1: Sentence Ordering Task-English Results by Group-Non-Subject Initial Declaratives…….43

Figure 5.2: Sentence Ordering Task-English Results by Group- Adverb Placement…….44

Figure 5.3: Sentence Ordering Task-English Individual Results- Heritage Language Speakers- Non-Subject Initial Declaratives…….45

Figure 5.4: Sentence Ordering Task- English Individual Results- Majority Language Speakers- Non-Subject Initial Declaratives……45

Figure 5.5: Sentence Ordering Task-English Individual Results- Heritage Language Speakers- Adverb Placement……46

Figure 5.6: Sentence Ordering Task- English Individual Results- Majority Language Speakers- Adverb Placement……47

Figure 5.7: Sentence Ordering Task- Norwegian Results by Group- Non-Subject Initial Declaratives……...48

5.8: Sentence Ordering Task- Norwegian Results by Group- Adverb Placement……49

5.9: Sentence Ordering Task- Norwegian Individual Results- Heritage Language Speakers- Non-Subject Initial Declaratives……...50

5.10: Sentence Ordering Task- Norwegian Individual Results- Majority Language Speakers- Non-Subject Initial Declaratives……50

5.11: Sentence Ordering Task- Norwegian Individual Results- Heritage Language Speakers- Adverb Placement……51

5.12: Sentence Ordering Task- Norwegian Individual Results- Majority Language Speakers- Adverb Placement……52

5.13: Norwegian Proficiency- Results by Group……53

5.14: Norwegian Proficiency- Individual Results- Heritage Language Speakers……53

5.15: Norwegian Proficiency- Individual Results- Majority Language Speakers……54

5.16: English Proficiency- Results by Group……....55

5.17: English Proficiency- Individual Results- Heritage Language Speakers……...55

5.18: English Proficiency- Individual Results- Majority Language Speakers……...56

5.19: English Results by Group and Condition……...57

5.20: English Individual Results by Condition- Heritage Language Speakers……...57

5.21: English Individual Results by Condition- Majority Language Speakers……...58

5.22: Heritage Language Hazaragi Results by Condition……60

5.23: Heritage Language Hazaragi Individual Results by Condition……...60

1. Introduction

In an increasingly interconnected world, multilingualism is an asset, allowing individuals to communicate and interact across linguistic and cultural boundaries. Language acquisition, particularly the process of learning a third language (L3) has garnered significant attention from researchers and scholars and educators alike. One of the intriguing aspects of L3 acquisition is the phenomenon of cross-linguistic influence (CLI), where the linguistic knowledge acquired from previously learned languages influences the acquisition of new language. The process of learning a new language, especially a third language, is a complex cognitive and linguistic endeavor. The linguistic and cognitive resources learners bring from their first language (L1) and second language (L2) can profoundly impact the structure, development, and ultimate proficiency in the target language (L3).

This study investigates which language is the source of cross-linguistic influence in third language acquisition, the heritage language (HL), the majority language (ML), or both previously acquired languages. This empirical study is part of an ongoing research project on CLI in L2 and L3 English acquisition by Lorenz, Kolb, Jensberg & Van Osch (2023). This thesis adds to the current ongoing debate on how previously acquired languages affect the acquisition of a third language (e.g., Bardel, C., & Falk, Y. 2007, Rothman 2015, Westergaard 2019), with a particular focus on morphosyntactic properties.

To explain the source of cross-linguistic influence during the learning of a third language, several models have been put forth. Various factors, such as structural similarity (Westergaard, Mitrofanova, Mykhaylyk, & Rodina, 2017), typological proximity (Rothman, 2011, 2015), frequency of language use or language of communication (Fallah, Jabbari & Fazilatfar, 2018), order of acquisition (L1: Hermas, 2015; L2 status factor: Bardel & Falk, 2007; Falk & Bardel, 2011) and cumulative enhancement (Flynn, Foley & Vinnitskaya, 2004) have been found to cause CLI in L3 acquisition. These L3 models differ regarding their predictions about the source of CLI in L3 acquisition. Another feature that distinguishes L3 acquisition from L2 acquisition is the availability of numerous sources of CLI. While there is only one potential source of CLI in L2 acquisition, which is the L1, there are three potential sources of CLI in L3 acquisition: The L1, the L2 or both the L1 and the L2. For every L3 model, empirical evidence has been found. Further empirical data is required to comprehend how prior language knowledge affects the acquisition of L3.

This study explores CLI in the context of Hazaragi/ Norwegian speakers' acquisition of English as their third language. Most L3 studies investigating CLI have focused on adults and only a few L3 acquisition studies include heritage language bilinguals (e.g., Hopp, 2019; Lorenz et al., 2023; Kolb et al., 2022). The present study contributes to this debate by investigating the source of CLI on L3 acquisition of heritage bilingual speakers. A person who grows up in a country, e.g., Norway, who speaks a language at home with his or her family that differs from the majority language, e.g., Hazaragi, is referred to as a heritage speaker.

Hazaragi is an understudied language. This study fills a gap by investigating the language combination of Hazaragi, Norwegian and English as to my knowledge no other studies have examined this language combination. Norwegian and English being Germanic languages have close similarities between each other while Hazaragi is a typologically different language and belongs to the Indo-European language family's Iranian branch with a different script and writing system. Hazaragi is an Eastern variety of Persian and closely related to Dari and is spoken by the Hazara people, who mainly live in Afghanistan (predominantly in the Hazarajat) region of central Afghanistan and with a significant population in Pakistan (predominantly in Quetta).

The three languages differ regarding word order. In non-subject initial declaratives; Hazaragi follows the XSOV word order where the finite verb is positioned at the end of the sentence, Norwegian is a V2 (verb second) language, following XVSO where the finite verb is placed in the second position and English follows XSVO word order, where the finite verb is place after the subject in the third position. In sentences with adverbs; Hazaragi and English pattern similarly, with adverbs being positioned preverbally (Adv-V) while in Norwegian adverbs are in post verbal position (V-Adv). The present study examines which prior language, i.e., HL Hazaragi or ML Norwegian, is the source of CLI in the acquisition of L3 English when acquiring morphosyntactic structures, in particular word order. The properties under investigation are non-subject initial declaratives and adverb placement.

This study was conducted in Norway, in Oslo and Stavanger with a total population of 32 participants: L3 English learners (n=12) were compared with L2 English learners (n=20). The L3 English learners were Hazaragi/Norwegian bilingual heritage speakers acquiring English as their L3 and the L2 English learners were native speakers of Norwegian, acquiring English as their L2. The participants' ages ranged from 8 to 14 years with the mean age of 11 years. They were mostly students of grade 5 and grade 6 and had started learning English at the age

of six at school. The methodology of this study is based on the ongoing research project by Lorenz et al., (2023). To answer the research question, the participants completed the following tasks: Sentence ordering task in English, sentence ordering task in Norwegian, forced choice task in Hazaragi and English, proficiency measures in English and Norwegian, and the Q-BEx questionnaire to collect language background information (see chapter 4 for more details).

The main findings in the present study are that the comparison groups show similar patterns in both conditions under investigation and with high accuracy scores show almost target-like performance in both conditions in L3 English. Furthermore, there is individual variation among the L3 and L2 learners.

The present study is structured in the following way: Chapter 2 presents the theoretical framework for the morphosyntactic structures under investigation and the literature review of relevant studies investigating the acquisition of L3 English with a focus on non-subject initial declaratives and adverb placement. In chapter 3, the research question and predictions are introduced. Chapter 4 elaborates on the methodology of this study, and the results are presented in chapter 5. Chapter 6 presents the discussion, and the key findings are interpreted. The conclusion is in chapter 7. The Appendix includes all task items, the Sikt notification form and the consent form.

2. Theoretical Background

In this chapter, first heritage speakers, the target population of the present study, are defined and then cross-linguistic influence is defined and discussed. Afterwards, cross-linguistic variation among the languages involved in the present study, i.e. Hazaragi, Norwegian and English is explained with a focus on the properties under investigation, i.e., adverb placement and non-subject initial declarative. Furthermore, an overview of third language acquisition is provided including the proposed models of third language acquisition and their predictions. Finally, an overview of the previous literature in third language acquisition relevant to the present study is provided.

2.1. Heritage Speakers

Since heritage speakers are the focus of this study, it is crucial to define heritage language and its speakers here, "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" (Rothman, 2009, p.156). According to Valdés (2000), "She refers to heritage speakers as individual raised in homes where a language other than English is spoken and who are to some degree bilingual in English and the heritage language" (as cited in Polinsky & Kagan, 2007, p.369). Heritage speakers are native speakers of the heritage language, which means their interaction is usually based on naturalistic input. Growing up at home with their parents, heritage speakers typically have exposure to the heritage language at home. Research has shown that there is a high degree of individual variation among heritage speakers (e.g., Paradis, 2023; Montrul, 2011). Often exposure to the heritage language decreases over time in favor of the societal majority language. However, by the time heritage speakers grow into adulthood and in case they move to an area where the heritage language is spoken as a dominant language, exposure typically increases and often heritage speakers resemble monolinguals. Due to many factors varying from individual to individual, heritage speakers are a diverse group of learners (Rothman,2009).

Heritage speakers are a heterogeneous group of bilinguals with varying levels of proficiency in the heritage language; ranging from very low to high levels of proficiency, mostly due to social factors and language experience (Montrul, 2011). The heritage language spoken by the heritage speakers in the host country is not always the same as the language spoken in the homeland. In this study, the term heritage speaker is used for an individual who speaks Hazaragi as a heritage language at home with his/her family in Norway.

2.2. Cross-Linguistic Influence

The collection of linguistic representation is known as grammar. Sharwood Smith (2019, p.10) defines representation as a "network of features expressing some basic structural category"; in short, a learner's mental representation of a language includes its syntax, morphology, phonology and semantics. Grammar consists of language domains which are used to parse linguistic input to comprehend or produce a particular language, considering a bi- or multilingual mind in which there are two or more language representations. CLI may occur at lexical, phonological and structural levels and affect the processing and usage of a language.

By the end of the 1950s, CLI began to be identified as an important phenomenon in the studies of Weinreich and Lado (as cited in Novogradec, p. 183). Although many terms were used in the past indicating CLI, such as language transfer, linguistic interference, language mixing, influence and role of the mother tongue. CLI was first used by Kellerman and Sharwood Smith in the 1980s which included the terms transfer, avoidance, borrowing and interference. Sharwood Smith (1989) defined CLI as the various ways in which a bilingual's or multilingual's mind's language systems can affect one another including not simply transfer but also behavior like borrowing and avoiding.

CLI and transfer are terms often used interchangeably as synonyms in the L3 literature. Sharwood Smith (2021) described transfer as a metaphor, which is a misleading term in describing the concept. According to him, transfer means movement of grammatical features from one language to another, and the host grammar is deprived of these features. Transfer has been argued to be a misleading term to describe the process because it means switching from one place to another. Therefore, the term cross-linguistic influence has been proposed but often transfer and CLI are used interchangeably. In this study, cross-linguistic influence is used. One of the most important factors influencing L3 acquisition appears to be CLI, and it is uncontroversial that CLI occurs in L3 acquisition while the factors leading to CLI are controversially discussed.

CLI can be facilitative or non-facilitative. CLI is supposed to be facilitative when properties that exist in one or both previous languages share structural similarity in the third language. Then the learner tries to parse the input and produce grammatical speech in the third language. Whereas, negative CLI is said to be non-facilitative when the structure or property in one or both previous languages do not have resemblance in the third language. The learner

may have misinterpreted the input which leads to issues with comprehension and production (Westergaard, 2021).

2.3. Cross-linguistic variation in Hazaragi, Norwegian and English word order

The three languages under investigation are Hazaragi, Norwegian and English. The three languages differ regarding word order. The present study focuses on non-subject initial declaratives and adverb placement.

Table 2.1 provides an overview of cross-linguistic variation in Hazaragi, Norwegian and English word order. Verb second (V2) word order is a characteristic shared by most of the Germanic languages. It is generally accepted that this results from shifting the finite verb to the second position in main clauses. Modern English is an exception, with SVO word order. Hazaragi, with a different script follows SOV word order. This study investigates V2 word order in two types of declaratives sentences: non-subject initial declaratives and subject initial declaratives adverb placement.

Conditions	Hazaragi	Norwegian	English
Non-subject initial declaratives	یالی بچه گیتار بازی مونه. (XSOV)	Nå spiller gutten gitaren. (XVSO)	Now the plays the guitar. (XSVO)
Adverb placement	سگ همیشه استخو ره پوټ مونه. (SAOV)	Hunden skjuler alltid beinet. (SVAO)	The dog always hides the bone. (SAVO)

Table 2.1. Overview of Cross-linguistic variation in Hazaragi, Norwegian and English-Word Order

The grammar of the language attributes in each of the three languages will be thoroughly explained in the section that follows.

2.3.1 Non-subject initial declaratives

Norwegian is a V2 language where the finite verb is placed in second position in a sentence. Hence, in Norwegian XVSO is the word order in non-subject initial declaratives, see example [1]. However, XVSO word order in non-subject declarative sentences is generally considered ungrammatical in English. Consequently, in non-subject initial declarative sentences, English preserves XSVO word order even when the sentence does not start with a subject, see example [2]. In Hazaragi, XSOV word order in non-subject initial declarative sentences is followed where a finite verb follows the subject and is positioned at the end of the sentence, see example [3].

[1] Nå spiller gutten gitaren. Norwegian (XVSO)

X V S O

now plays boy the guitar the

'Now the boy plays the guitar.'

[2] Now the boy plays the guitar. English (XSVO)

X S V O

[3] .یالی بچه گیتار بازی مونه Hazaragi (XSOV)

V O S X

Yali bacha guitar bazi muna.

X S O V

'Now the boy plays the guitar.'

2.3.2 Adverb placement

As Norwegian is a V2 language, in subject initial declaratives with adverbs, it demonstrates verb-adverb word order where the adverb follows the lexical verb, see example [4]. Adverbs are typically positioned before lexical verbs in English, creating an adverb-verb word order, see example [5]. Hazaragi somehow patterns with English where adverbs of frequency are positioned before lexical verbs and follows the subject, see example [6].

[4] Hunden skjuler alltid beinet. Norwegian (SVAO)

S V A O

Dog the hides always bone the.

'The dog always hides the bone.'

[5] The dog always hides the bone. English (SAVO)

S A V O

[6]سگ همیشه استخو ره پوٹ مونه Hazaragi (SAOV)

V O A S

Sag hamasha istagho ra pot muna.

S A O V

‘The dog always hides the bone.’

2.4. Third Language Acquisition

Third language acquisition is a relatively new field within linguistics that has developed very rapidly over the last couple of years, built on previous studies within second language acquisition. Especially important is the debate about the initial state of second language acquisition and how much is transferred from the first language into the second language. The two models of second language acquisition argue that transfer is either complete or partial: Full Transfer/ Full Access (Schwartz & Sprouse, 1996) argues that the initial state of second language acquisition is based on the complete first language grammar, and Minimal Trees (Vainikka & Young-Scholten, 1996) argues that transfer is partial, only parts of the first language grammar is transferred.

In L3 acquisition there is a debate on which factors lead to cross-linguistic influence. L3 acquisition is a more complex field L2 acquisition as, in L2 acquisition the L1 is the only possible source of influence but in L3 acquisition there are two languages present to the learner. L3 acquisition is studied from various linguistic point of view, such as sociolinguistic and psycholinguistic perspectives (Rothman & Cabrelli Amaro, 2009). From a sociolinguistic perspective, the global spread of English, the rising mobility of the global population, and the acknowledgement of minority languages have resulted in social and educational environment in which acquisition of more than two languages is not uncommon. From a psycholinguistic perspective, L3 acquisition research demonstrates various characteristics that arise from the fact that L3 learners are experienced learners because bi- and multilinguals have various forms of competence in comparison to monolinguals (Cenoz, Hufeisen & Jessner, 2001).

In L3 acquisition, the source of CLI is an important aspect under investigation; whether the influence is from the L1, L2, or both previously acquired languages. This study focuses on a psycholinguistic aspect in L3 acquisition which is CLI.

2.5. L3 Acquisition Models

Several theories of L3 acquisition have been proposed in the last two decades concerning the source of CLI, i.e., whether CLI is from the L1, the L2 or both previously acquired languages. These theories have often been called 'models of L3 acquisition', and they aimed to represent influence from previously acquired languages in the process of L3 acquisition. Rothman and Halloran (2013) surveyed that there can be four logical situations for the source of CLI at the initial stages:

"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, p. 31).

Different L3 models have been developed, and empirical evidence has been found for each of the L3 models. The L3 models will be presented in the following subsections (sections 2.5.1-2.5.8).

2.5.1. L1 Transfer

The first language is assumed to be one possible source for CLI and L1 transfer argues that the L1 is the only source of CLI in L3 acquisition (Hermas, 2010), which means that the native language of the learner is the main source of influence. In accordance with Hermas (2010), the L1 is often seen as the dominant source of transfer, compared to the effects of linguistic proximity and psychotypology, both facilitative and non-facilitative CLI can occur. Although a model of L1 transfer has not yet been proposed formally, there are some studies suggesting a privileged status for the L1 in the process of L3 acquisition (e.g., Jin, 2009; Hermas, 2010, 2015; Na Ranong & Leung, 2009). These studies argue that the L1 is the complete source of influence in the L3 acquisition as the learners might be more proficient in their L1 and then make it approachable for CLI.

Na Ranong & Leung (2009) examined L3 learning of null objects in L1 Thai, L2 English and L3 Chinese learners. The authors observed that the L3 Chinese learners showed higher sensitivity to the distribution of overt and null objects than the L1 Thai speakers. As beginners, they had been studying Chinese for 1.5 (one and half) years. Thai and Chines exhibit the same pattern in the distribution of overt and null objects which differs from

English. The authors interpreted this as evidence of L1 influence in L3 acquisition. However, they also acknowledged the difficulty in differentiating between L1 effects and language typology due to the order in which the language triad was acquired.

Jin (2009) investigated L1 influence in L3 acquisition and provided evidence for complete L1 transfer. The study investigates the role of L1 Chinese and L2 English in the L3 acquisition of Norwegian in Norway. The learners were proficient learners of L2 English. Norwegian and English, being part of the same Germanic language family, are subject-prominent languages where a referential noun or pronoun phrase is necessary to occupy the object position. In contrast, Chinese is a topic-prominent language that utilizes null objects. The results of sentence correction and grammatical judgement tasks showed differences between the L2 and the L3 regarding the rejection of null objects. The results of the study showed that Chinese learners rejected English null objects with high frequency (72%). It was also observed that over 50% of the participants analyzed and corrected English null objects at a level comparable to the native speakers. However, Chinese learners had trouble rejecting Norwegian null objects, indicating that the L1 Chinese was not facilitating their learning. As a result, the author found that whereas the L2 English had no effect, the L1 Chinese had a significant negative impact on the L3 learning of Norwegian objects.

Furthermore, Hermas (2010) examined the acquisition of L3 English verb movement by L1 Arabic L2 French adult bilinguals. They were beginners in learning L3 English. The participants were tested through acceptability judgement tasks and preference tests to assess their knowledge about this parameter. While both Arabic and French exhibit verb movement, English does not. In French, adverbs typically follow verbs, whereas in English, adverbs precede verbs. In Arabic, adverbs can appear before or after the verbs. Results of both the tests demonstrated that the accuracy of L3 English learners is affected by their L1 Arabic, which indicated L1 influence in early stages of L3 English acquisition.

2.5.2. The L2 Status Factor

The L2 status factor (L2SF; Bardel & Falk, 2007; Falk & Bardel, 2011), as the name indicates, argues that the L2 plays an important role as a source of CLI at early stages of L3 acquisition. This model is based on experimental evidence proposing that native and non-native grammar have different places in memory, the former is in procedural memory and the latter is in declarative memory (Paradis, 2009). Hence, acquisition of the L3 and the L2 are in the same manner, both are stored in declarative memory, which makes CLI easier from the L2 to the L3 than from the L1 to the L3.

Bardel and Falk (2007) investigated the placement of sentence negation in the L3 acquisition of Dutch or Swedish by adult speakers with different L1s and L2s. The study focused on word order. The study consisted of various previously acquired languages; Dutch, Swedish, German, Italian, Albanian and English. German, Dutch and Swedish are V2 (verb second) languages, while English, Italian and Albanian are non- V2 languages. According to the researchers, each participant was guaranteed to have one V2 and one non-V2 language as their L1 or L2 language. Swedish lessons had ten sessions which were recorded on video and audio. The results of oral data showed that participants with a V2 language as their L2 performed better in learning Swedish or Dutch than those participants with a V2 language as their L1. The findings of the study suggested that the L2 acts like a filter to stop the influence of L1 on the L3 acquisition.

Further evidence in favor of the L2SF was presented by Falk & Bardel (2011) in their study on object pronoun placement in L3 German. The research focused on intermediate-level proficiency in L3 learners. This study contained two Germanic languages, i.e., English and German and one Romance language, i.e., French. The three languages have similarities and differences in grammar. The participants were divided into two groups: one group consisted of L1 English L2 French speakers and the other group of L1 French L2 English speakers. Being Germanic languages, English and German place object pronouns post-verbally as they have similar structures in the main clauses. But French and German have similar structures in subordinate clauses as both languages place object pronoun pre-verbally. The findings of the study demonstrated that intermediate level of proficiency of both the groups were affected by their L2. As the L2 French participants accepted placement of object pronouns pre-verbally in both main and subordinate clauses and the L2 English participants accepted post-verbal object pronouns.

2.5.3. Cumulative Enhancement Model

The cumulative enhancement model (CEM; Flynn et al., 2004) marked a shift regarding the perception of the role of previously acquired languages. In comparison to absolute L1 transfer and L2SF, the CEM argues that language acquisition is gradual and cumulative, and any prior language knowledge can either enhance the target language acquisition or have no effect. This means that influence is facilitative and non-facilitative CLI should not occur. This model is based on a study by Flynn et al., (2004) in which the production of restrictive relative clauses by different language groups was examined. The comparison groups of the study were; L1 Kazakh, L2 Russian of L3 English, and L1 Spanish, L2 English and L1 Japanese, L2 English

learners. Spanish, English and Russian are similar as they are head-initial languages and Kazakh and Japanese are head-final languages. The results demonstrated that while the L1 Japanese group performed differently, the bilingual group, i.e., L1 Kazakh, L2 Russian and the L1 Spanish group functioned similarly. The authors deduced from this that the L1 Spanish group and the bilingual group outperformed the L1 Japanese group with the head-final parameter because they had previously learned a language (L1 or L2) with the head-initial parameter. Overall, the result revealed that each prior language plays a role in learning the target language.

2.5.4. Typological Primacy Model

The typological primacy model (TPM; Rothman, 2011, 2015; Rothman et al.,2010) is another model of L3 acquisition. This model argues that L1 or L2 can be the potential source of CLI at the initial stage of L3 acquisition. The learner copies the whole linguistic system of the typologically closer language, which then composes the grammar of the third language. Typological similarity determines the source of influence from the previously acquired languages to the target language. Therefore, the TPM resembles the CEM as both the models consider the source of influence to be either the L1 or the L2, but not both the prior languages. Unlike the absolute L1 transfer and the L2SF, which place significant emphasis on the acquisition sequence, overall typological similarity is regarded as a source of influence in the TPM. The influence can be facilitative or non-facilitative. Rothman (2013) presented a hierarchy of properties through which the parser determines typological similarity. The order of hierarchy: 1) lexicon, 2) phonology, 3) morphology and 4) syntax. This hierarchy of properties allows the parser to determine the most similar property of the L3 to one of the previously acquired language to select a source of influence. In case the parser finds insufficient similarity at a given level, the parser proceeds to the subsequent level and so on.

In 2010, Rothman et al., presented evidence about TPM which was based on empirical study collected from two groups if initial learners of the L2 and the L3, who were studying either French or Italian. The TPM was basically introduced in this study by Rothman and Cabrelli Amaro (2010). The two groups consisted of; L1 English, L2 Spanish, and L3 French and L1 English, L2 Spanish, and L3 Italian. It is noteworthy that the participants had constant L1 and L2 in both groups, i.e., L1 English and L2 Spanish. The study investigates null-subject property where the participants were tested through grammatical judgement/correction task and context/sentence matching task. As per the expected results of the study, the L2 group

was influenced by their L1, English, which was the only source of influence and the L3 group was influenced by their L2, Spanish into L3 French.

Rothman (2015) further described that from the point of view of cognitive economy, wholesale CLI has reason since, when it happens in one fell swoop, each attribute does not need to be compared to two highly active languages. Inhibition is also necessary to limit the activation of other languages, along with other executive control systems that are necessary in a multilingual mind. Thus, overall typological similarity between the target language and other grammars would indicate that wholesale influence would be more effective. However, it was suggested in other studies by Rothman (2015) and Rothman et al., (2019) that property-by-property influence is possible before and after the wholesale CLI, particularly in L4 acquisition.

2.5.5. Linguistic Proximity Model

According to the linguistic proximity model (LPM; Westergaard et al., 2017; Westergaard, 2019) CLI is a phenomenon that happens property-by-property and can have both facilitative and non-facilitative influence. The source of CLI can be either one or both previously acquired languages. Moreover, this theory states that CLI occurs when there is an abstract structural similarity between a linguistic property in the target language and a property in the previous languages. Hence, the LPM is like the TPM since both models suggest structural similarity, however, the LPM rejects the idea of wholesale CLI. The LPM further elaborates that the learners have access to their previous knowledge in L3 acquisition and all their prior learned grammars are active and available to them in acquiring L3.

Furthermore, Westergaard (2019, p.389) argues for property-by-property influence, Full Transfer Potential (FTP) that claims that “anything may transfer” not that “everything does transfer”. This is a learning by parsing process; the parser uses the properties of previously acquired languages and if the parser finds similar structures this leads to facilitative CLI. While non-facilitative influence is the result of misinterpreting the L3 input, which will lead to producing non target structures. Westergaard et al. (2017, p.670) argue that cognitively, property-by-property CLI is an effective process as “this would reduce the amount of effort required to unlearn incorrectly transferred properties”.

2.5.6. Scalpel Model

The scalpel model (Slabakova, 2017) is another model of L3 acquisition that argues that CLI occurs property-by-property when learning the target language, and influence is both

facilitative and non-facilitative. According to the scalpel model, both previously acquired languages act with a scalpel-like precision which means that the L1 and the L2 grammars are active while the learner is learning the target language. This model shares several significant claims with the other L3 models; e.g., along with the LPM, it argues that acquisition is property-by-property and with the LPM and the TPM, it suggests that influence is both facilitative and non-facilitative. While along the LPM, it argues that multilingual grammar is advanced enough to not require wholesale CLI at the initial stages as the multilingual brain is operating with multiple grammars.

2.5.7. The Language of Communication Model

The language of communication is considered another factor that might be the source of influence in L3 acquisition. The study by Fallah & Jabbari (2016) provided evidence about the language of communication model which stated that regardless of its status as L1 or L2, the dominant language of communication determines the source of CLI at the early stage of L3 acquisition. Fallah et al. (2016, p.226) defined language of communication as "the spoken language used more frequently by the participants at home, at schools and in social context". The aim of the study was to investigate English possessives at the initial stages of L3 acquisition by Mazandarani- Persian bilinguals. The study's findings revealed that language of communication is the main source of influence at the initial stages of L3 acquisition.

2.5.8. Cumulative Input Threshold Hypothesis

The cumulative input threshold hypothesis (CITH; Cabrelli & Iverson, 2023) suggests that non-facilitative influence from the L2 can be overcome faster than non-facilitative influence from the L1. This is the first hypothesis focusing on L3 development. According to this hypothesis, to overcome a potential non-facilitative influence, a language learner will require more cumulative input in the new language the more cumulative input they have in the prior language. To test this, an acceptability judgement task was conducted with one control group and four comparison groups. Two groups consisted of L1 English proficient speakers and L2 Spanish learners pursuing L3 Brazilian Portuguese (BP). These two groups differed in that one was beginning the process of acquiring an L3, while the other group already possessed advanced L3 proficiency. The following two participant groups were chosen based on the same L3 proficiency requirements, but they were paired with mirrored language pairing according to the order in which they had previously learned the languages, i.e. they were L1 Spanish advanced L2 English speakers. The control group comprised of native Brazilian Portuguese speakers. Differential object marking (DOM) was the morphosyntactic structure

under investigation. Spanish has DOM but neither English nor Brazilian Portuguese do. According to the authors' findings, the participants in the mirror image language groups exhibited similar patterns at the beginning. Cabrelli & Iverson (2023) noted several non-target-like answers from the L3 initial learners. This could be a sign of early influence from Spanish, a language that is not facilitative but is typologically more similar. The advanced L3 learner groups' results varied from one another. The L2 Spanish advanced L3 Brazilian Portuguese speakers performed more accurately and on par with the L1 Brazilian Portuguese control group, while the L1 Spanish L3 Brazilian Portuguese advanced proficiency group modeled with the initial stage groups. The results, according to the authors, indicate that while the role of L1 or L2 may not determine CLI during the early stages of acquisition, it does appear to matter whether L1 or L2 is causing non-facilitative influence at later stages of L3 development. According to the study's findings, cross-linguistic influence is significantly influenced by the frequency and relative proportions of linguistic input.

2.6. Literature Review

Several empirical studies have been conducted on CLI in L3 acquisition with a focus on word order. Studies which share similarity in linguistic properties with the present study are discussed in this section, presented in chronological order.

2.6.1. Westergaard, Mitrofanova, Mykhaylyk & Rodina (2017)

Westergaard et al. (2017) investigated CLI in the acquisition of a third language. The focus of the study was simultaneous bilinguals learning L3 and effects of CLI in L3 acquisition. The study aimed to examine whether both the prior languages contribute to CLI in L3 acquisition or one of the languages is chosen as the sole source of influence. CLI is from typologically close language, and whether CLI is facilitative or non-facilitative. This experimental study involved simultaneous bilinguals (2L1) Norwegian and Russian learning L3 English. The linguistic properties under consideration of this study were two-word order conditions and both are related to verb movement: adverb placement in declaratives and subject- auxiliary inversion in question. The experiment was conducted with three groups of 11- 14 years old, and the population were; 22 Norwegian-Russian bilinguals, 46 Norwegian monolingual speakers and 31 Russian monolingual speakers. The first two groups, Norwegian-Russian bilinguals and Norwegian monolinguals were recruited in Norway, Russian monolinguals were recruited in Russia. The participants were based on the results of a short vocabulary test. The participants were tested through an acceptability judgement task and through which the study focused on grammatical properties for which the languages differ from each other.

English and Norwegian being Germanic languages have lexical and structural similarities, while Russian being a Slavic language is distant from English with regards to vocabulary and morphosyntax. The task was conducted with two conditions, declaratives with adverb (Adv-V) and questions with auxiliaries (Aux-S) and generalized linear mixed effects logistic regression was used to estimate the effects of condition (Adv-V, Aux-S). According to the findings of the study, English and Russian have similar patterns for the first property (Adv-V), while Norwegian and English have similar patterns for the second property (Aux-S). The results of acceptability judgement task confirm the study's hypothesis: 2L1 Norwegian-Russian participants notice these errors significantly more frequently than L1 Norwegian participants, which the authors argue is due to the facilitating influence of Russian. L1 Norwegian participants over-accept grammatically incorrect sentences in English with a word order equivalent to Norwegian V2 (V-Adv). In addition, 2L1 Russian participant's grammatical tests produce lower scores than L1 Russian participants, indicating non-facilitative presence of Norwegian influence.

2.6.2. Hopp (2019)

Hopp (2019) investigated CLI at early stages of L3 acquisition of grammar. The study focused on heritage speakers, HL Turkish and ML German speakers, learning L3 English as a foreign language at school. The aim of the study was to examine whether heritage speakers were influenced by the heritage language or the societal majority language when learning the grammatical properties of a foreign language (English) at early stages. The study included a comparison group comprising Turkish-German bilinguals and monolingual German children in the early stages of learning English. The study population consisted of 31 Turkish-German bilinguals and 31 monolingual German children in third and fourth grades, all residing in Germany. Participants underwent testing via sentence repetition tasks and picture story retelling tasks (oral sentence production) to assess their receptive and productive English grammar skills. The focus of the study was on grammatical aspects that differ between Turkish and English (such as verb-complement order, subject and article placement) or between English and German (verb-second and adverb placement), given the differences in underlying word order among the three languages. The findings of the study revealed that CLI was from L2 German in both groups, which can be deduced of CLI from the typological closer language to the target language (English). Furthermore, the findings also revealed indistinguishable performance by the heritage speakers and majority speakers, and both groups show CLI of grammatical properties from German. Hopp (2019) observed that L3

learners had a greater tendency towards German as opposed to Turkish, which could potentially impact transfer pattern. The fact that English was taught in a constructed environment using German, the language of the majority, may also had contributed to the participants' influence from German, as they noticed similarities between the two languages over time.

2.6.3. Stadt, Hulk & Sleeman (2018)

In a longitudinal study by Stadt et al., (2018) investigated the development of the influence of L1 Dutch and L2 English on L3 French in the initial stages of L3 acquisition in a Dutch/ English secondary immersion school. The study's objective was to enhance the current understanding of the functions of the L1 and the L2 in various phases of L3A. The aim was achieved by examining the degree and stage at which the L2 becomes the primary source of influence from the L1 during the L3 learning process. The study focused on word order constructions in declarative root clauses, particularly examining V-to- C movement, which sticks to the V2 rule in Dutch but not in French, and V-to- T movement, where the finite verb moves to T in French but not in English. This study was conducted among third-year bilingual students in the initial stages of L3 acquisition over two years where the participants were tested three times. The average age of the year one participants was 12.8 in the first week of the bilingual program, year two participants were at 13.8 average age and the year three participants' average age was 14.9. Participants had to be native speakers of Dutch with a bilingual parent. Data was collected by grammatical judgement task and gap filling tasks. The first-year participants were tested in their first regular school week, second-year participants were tested at the start of second year and the third-year testing took place at the start of third year. The results of both the tasks showed that there was a significant Dutch influence in the early stages of L3 French acquisition, but there was also a greater English influence at somewhat later stages when students' proficiency in English got higher. The L3 learners were influenced from the L1 Dutch in the first year of learning French, which decreased in the following years. Moreover, the effect of the L2 English increased and remained consistent in the later years, which was not much active in the first year of the L3 acquisition. It was determined how L2 affected the structure of the V-to- T movement, which was present in Dutch and French but not in English.

2.6.4. Stadt, Hulk & Sleeman (2020)

The study by Stadt et al., (2020) is in line with the study discussed above Stadt et al., (2018) which gives better understanding of the influence on L3 acquisition. The study's focus was on

how much L1 and L2 CLI happens to first year secondary school students who had just began their bilingual L1 Dutch or L2 English education and were beginning to learn French or were in the early stages of L3 acquisition. Adverb and verb placement (word order) of L1 Dutch and L2 English in L3 French were investigated in this study. The data was collected amongst Dutch secondary school students who were at the initial stages of L3 French acquisition. The population was 23 students L3 French learners between the age of 11-13 years. The study used two linguistic tasks: grammatical judgement task and gap filling task to test the participants. The study's findings indicated L1 transfer during the initial interaction with the L3, perhaps because of the students' perception that Dutch and French have the same word order prior to receiving any L3 morphosyntactic input. Moreover, this study did not find L2 influence in the later stages of L3 acquisition when the participants were exposed to L2 English which was found in (Stadt et al., 2018) where L2 English played a significant role in the later stages. The authors argued that this results from both the critical early L1 influence and the need for sufficient L2 activation for the L2 to suppress the L1.

According to later research (Dahl et al., 2022; Listhaug et al., 2021), CLI in L3 developed property-by-property rather than being based on a broad or predominate influence from one previously acquired language. CLI of both previously acquired languages was also conceivable.

2.6.5. Listhaug, Busterud & Dahl (2021)

Two types of sentences were examined in the study by Listhaug et al. (2021): adverb placement and non-subject initial declaratives. L1 French, L2 English, and L3 Norwegian were the languages investigated with Norwegian context. Norwegian and French have a linguistic mismatch when it comes to non-subject initial declaratives. Norwegian is a V2 language, meaning that the finite verb must rise to C, but French only allows it to move to I, giving this structure a V3 word order. In both English and French, non-subject initial declaratives have a corresponding surface word order (V3). English retains the V3 word order in this situation, while Norwegian and French have the same surface word order when the adverb is placed in the second constituent position of the finite verb. There were five participant groups in the study. Participants included L3 French university students and high school students in years one, two, four, and five. During the first two years of L3 acquisition, the participants did not exhibit a clear preference for either word order and instead accepted and rejected the V2 and V3 word orders equally frequently. The authors concluded there was no proof of a wholesale influence of a previously learned language during the early stages of

L3 acquisition due to this lack of preference. Moreover, the authors discovered that for the two sentence types they studied, there were differences in the trajectory towards target-like judgement. When it came to non-subject initial declaratives, learners in years four, five, and university showed a significant difference in their judgement of grammatical V2 compared to ungrammatical V3, but university learners showed a significant difference in their judgement of grammatical V2 compared to ungrammatical V3. It seems easier to learn a structure that does not require verb movement. The present study's outcomes bear resemblance to the research conducted by Dahl et al. (2022) on "The role of L1 Norwegian and L2 English in the acquisition of verb placement in L3 German." Additionally, the study's findings did not reveal any indication of L1 or L2 influence during the initial stages of L3 acquisition.

2.6.6. Dahl, Listhaug & Busterud (2022)

To better understand CLI, L3 development trajectories, and the impact of L2 proficiency on the acquisition of L3 verb placement, Dahl et al. (2021) conducted a study titled "The role of L1 Norwegian and L2 English in the acquisition of verb placement in L3 German." The study involved high school students who had been exposed to L3 German for one, two, four, or five years, and whose L1 was Norwegian and L2 was English. A self-assessment test and the participants' academic results were used as an equivalent measure for proficiency. Acceptability judgement task was used to collect data for German and English to investigate possible L1 and L2 influence effects and finite verb placement was studied, which is different in English but follows the same pattern in German and Norwegian. Target-like performance in this structure would indicate influence from L1 Norwegian, whereas non-target-like evaluations might indicate influence from L2 English. There were 48 items in each of the L2 English and L3 German in acceptability judgment task. Of the fillers, half had grammatical sentences and the other half had non-grammatical sentences. According to the results of acceptability judgement task in German, the learners in their first and second year did not show a preference for the V2 or V3 word order, either individually or as a group. These findings reject the notion of a wholesale influence from the L1. Target-like performance would have resulted from the start of a wholesale influence from L1. On the other hand, participants in years four and five indicated a preference for grammatical V2 over ungrammatical V3, but there was no correlation between the two structures under study's development toward target-like word order. Even though German uses a V2 word order and English uses a V3 word order, the data also revealed a correlation between higher accuracy on the German acceptability judgement task and higher scores on the English acceptability

judgement task. This finding might suggest that the non-facilitative influence on L3 German could be reduced if the structures under study had been learned properly in English. Additionally, the authors discovered that across all participant groups, higher self-rated proficiency was correlated with more target-like performance, indicating that as L3 proficiency increases, CLI from the L2 reduces. This might be the consequence of specific factors that made it easier to acquire the L2 e.g., metalinguistic knowledge, also showing an effect in the acquisition of the L3. Alternatively, it could be due to the improved ability to inhibit CLI from English at higher proficiency levels. The authors concluded there was no proof of a wholesale influence of L1 or L2 during the initial stages of L3 acquisition.

2.6.7. Kolb, Mitrofanova & Westergaard (2022)

The study by Kolb et al. (2022) investigates the factors leading to CLI in child third language acquisition, and the focus of the study was whether CLI from one or both previously acquired languages results from structural similarity at later stages of acquisition. The L2 and L3 English learner groups were matched based on proficiency, age of onset in L3 English and age at testing (10-12 years old). The participants were German-Russian bilinguals who were learning English as their L3. The researchers compared this group to two other groups of children who had German or Russian as their L1 and were learning English as their L2. The L3 learners were also tested in both prior learned languages. An acceptability judgement task was conducted to test the properties under investigation; subject-auxiliary inversion, determiner use, adverb placement and non-subject initial declaratives. While the first two properties in English resembles German structurally and the last two properties in English are like Russian. The study found that the determining factors leading to CLI was structural similarity. L3 English was simultaneously influenced by the typologically closer language (German) and the more distant language (Russian), both of which had facilitative and non-facilitative effects depending on the structural similarity on a property-by-property basis.

2.6.8. Abdollahi Dehooei (2022)

Abdollahi Dehooei (2022) conducted a study on CLI in child L3 acquisition. The study's aim was to examine the source of CLI, whether it is the L1 or the L2, or both the prior language and to investigate whether CLI occurs as a wholesale or property-by-property basis. The study focused on Persian-Norwegian heritage bilinguals learning L3 English. Five linguistic properties were employed to test the participants, i.e. adjective placement, adverb placement in subject-initial declaratives, subject-verb word order in non-subject initial declaratives, definiteness and gender. The study consisted of three comparison group with various number

of populations, i.e., 29 Persian-Norwegian bilingual heritage speakers, 24 Persian speaker and 29 Norwegian speakers and the participants were learning English as L3 and L2 respectively at school. Acceptability judgement task and self-paced reading task were used for the experiment and the participant were tested in Iran and Norway with 11-14 age range. The findings of the study revealed that no grammatical effects were seen in the three groups using self-paced reading task and hence the reaction time between the grammatical and ungrammatical sentences in any of the properties did not show any significant difference. Moreover, due to orthographic differences between the language triad, Persian speakers had slow reading speed in compared to Norwegian and English speakers. The results of the acceptability judgement task showed that Norwegian language was the source of both facilitative and non-facilitative CLI and Persian language had no influence in L3 acquisition therefore the authors concluded that CLI was wholesale phenomena as the L3 group and Norwegian group patterned similarly in all the linguistic properties and the Persian group was neutral.

2.6.9. Jensen, Mitrofanova, Anderssen, Rodina, Slabakova & Westergaard (2023)

In a study by Jensen et al. (2023), cross linguistic influence was investigated in L3 acquisition of English across linguistic modules by Russian-Norwegian bilinguals. The study examined that how the previously acquired languages, Russian and Norwegian, influenced the L3 acquisition of English at the developmental stage. Seven linguistic properties within three linguistic modules; morphology, syntax and syntax-semantics were focused. In morphological properties, subject-verb agreement and the use of copula in the present tense was tested. In syntactic domain, word order was tested and in syntax-semantics properties, definiteness and genericity was tested. The L2 learners had at least one property like their L1, and one was different within each module. The L3 learners always had problems between their L1s. The study tested 31 Russian-Norwegian bilinguals, 90 L1 Norwegian speakers and 74 L1 Russian speakers and L1 Norwegian and L1 Russian speakers were recruited in Norway and Russia respectively. The age range of the participants were between 11-13 and they all had started learning English in school around age six. Three tasks were used to test the participants: acceptability judgement task, lexical proficiency task and a background questionnaire. The study used generalized linear mixed effects logistic regression model for the statistical analysis of the results and summed up that there was cumulative influence on L3 learners from both previously acquired languages and L3 learners did not select one primary source of influence. The authors concluded that there was constant facilitative and non-facilitative

influence and cross linguistic influence was found in all linguistic domains, but the developmental stages of the participants for the linguistic properties were not equal due to the linguistic complexity and saliency factors. These factors affected the participants' accuracy scores, which the authors suggested to be considered in future for the investigation of CLI.

2.6.10. Saraeva (2023)

Saraeva (2023) investigated cross linguistic influence by child heritage speakers of Russians in L3 acquisition of English in Norway. The focus of the study was to examine how previously acquired languages; Russian and Norwegian influence the acquisition of L3 English. Russian-Norwegian bilingual heritage speakers learning L3 English were the target population of the study. Subject-verb agreement and article system were the properties investigated by the author using subtractive language group where the performance of bilingual heritage speakers; Russian-Norwegian (n=19) were compared with the performance of two monolingual control groups; L1 Russian (n=106) and L1 Norwegian (n=20). A common quantitative module for L3 acquisition, acceptability judgement task was used to test the participants of the three groups, Oxford proficiency test was used for the proficiency in English and for the heritage language background questionnaire was used. The results of the study revealed that influence can be from both prior languages and can be facilitative and non-facilitative. Moreover, the study's findings show that while structural similarity is a major factor in L3 acquisition, CLI can be predicted by other factors. The process of learning a new language is also influenced by other elements such as linguistic salience, complexity, dominance and usage. It is critical to understand that language acquisition is a complicated process that is impacted by each learner's individual prior linguistic experiences, which makes generalization difficult.

2.6.11. Busterud, Dahl, Kush & Listhaug (2023)

Busterud et al. (2023) examined whether economy influences L3 acquisition and to what extent underlying language-specific syntactic properties were factor for CLI. The study focused on two L3 learner groups that had various L3s. The participants were learning English as their L2, Norwegian as their L1, and German or French as their L3 respectively. Verb placement in non-subject initial declaratives and adverb placement in declaratives were the syntactic structures examined. The data was examined through acceptability judgement task that included items of the corresponding L3 structures that were both grammatical and non-grammatical. The total population of the study was 455 participants, and the participation was voluntary, and 279 participants were included in the study where (n=125) were L1

Norwegian learners of either L3 French or (n=154) learners of L3 German. The rest of the participants were excluded either due to low competence or other reasons. The participants were at upper secondary level schools, aged 16-17, and recruited through their teachers. They were in their first, second, fourth and fifth years of acquiring their L3 and they had learned L2 English since age 6. The findings demonstrated that L3 French learners outperformed the L3 German group in the structure non-subject initial declaratives. Compared to the non-subject initial declarative items, the L3 German learners tended to judge items with adverb placement more accurately. The usage of English-like structures, according to the authors, may not be caused by the sequence of acquisition but rather by the characteristics of English, i.e., the fact that English's underlying structure is the most affordable and practical choice. According to the authors' hypothesis, CLI is influenced by the economy of the language-specific syntactic properties.

2.6.12. Lorenz, Kolb, Jensberg & Osch (2023)

The present is part of the ongoing study by Lorenz et al. (2023) which focuses on CLI in L2 and L3acquisition of English in Norwegian and Norwegian-heritage bilingual children. The aim is to investigate which previously acquired language is the source of CLI in the acquisition of English as an L2 or L3. L1 Norwegian L2 English learners are compared to heritage bilinguals who are L3 English learners. The L2 and L3 groups are compared. Furthermore, the L3 groups are divided into subgroups based on structural similarity for each condition between English and Norwegian and English and the various heritage languages. Adverb placement and non-subject initial declaratives are the grammatical conditions under investigation. The study employed the following methodology: sentence ordering tasks in English and Norwegian, acceptability judgement task in English, proficiency measures in English and Norwegian, forced choice task in English and the heritage language, and the Q-BEx questionnaire to collect language background variables. Data collection is ongoing.

Chapter Summary

This chapter introduced the target population of the present study, namely heritage speakers of Hazaragi, and discusses the concept of cross-linguistic influence (CLI), which refers to the influence of one language on another. Furthermore, it explores cross-linguistic variation among the three languages in the triad: Hazaragi, Norwegian, and English.

The field of L3 acquisition, where two prior languages are present to the learner as sources of influence in learning L3, is also examined. The chapter then presents the L3 acquisition models and focuses in particular on the factors leading to CLI.

Both L1 transfer and the L2SF argue that the order of acquisition influences the choice of CLI source. While the absolute L1 transfer posits that the L1 has a greater influence on the L3, the L2SF claims the opposite by positing that the L2 is the source of CLI. Empirical evidence has been found for both models. However, other L3 models argue that order of acquisition is not the determining factor leading to CLI. The TPM introduces a hierarchy of properties, wherein the parser selects the language (L1 or L2) most typologically similar to the target language as the sole source of CLI. In contrast, the LPM posits that CLI results from the co-activation of preceding grammars. The Scalpel model argues for property-by-property influence, while the language of communication model asserts that the primary source of CLI is the language used for communication.

Lastly, this chapter includes literature review. The reviewed studied share language properties and/or contextual background (i.e., Norway) with the present study.

3. Research question and Predictions

In this chapter the research question and predictions are presented.

3.1. Research question

This study which investigates word order in non-subject initial declaratives and adverb placement in heritage language Hazaragi and majority language Norwegian speakers acquiring L3 English, addresses the following research question:

RQ: Which language is the source of cross-linguistic influence in third language acquisition, the heritage language, the majority language, or both previously acquired languages?

3.2. Predictions

In this study, the language triad for both conditions under investigation exhibits distinct structural patterns. Hazaragi, the heritage language, Norwegian, the majority language, and English, the third language, differ in both conditions. This enables us to test predictions made by the L3 acquisition models. Since this study focuses on Hazaragi/Norwegian bilinguals, order of acquisition cannot be tested in the present study. Thus, predictions, by the L1 transfer and the L2 status factor models cannot be tested. Furthermore, the present study investigates L2 and L3 learners at later stages of acquisition and cannot test predictions by L3 models on early stages such as the CEM and the TPM. Even though the study investigates later stages of acquisition, the study does not focus on L3 development per se and can therefore not test the predictions by the CITH. To test the LPM and the SM, the subtractive language group design would be ideal (see Westergaard et al., 2023 for more details). In the subtractive language group design, L3 learners are compared to two L2 learner groups with the same language combinations. In the present study, the L3 English group (HL Hazaragi, ML Norwegian) is compared with one L2 English group (L1 Norwegian). The other comparison group (L2 English, L1 Hazaragi) could not be added as part of this MA thesis project due to feasibility. In consequence, the LPM and SM can only be tested to some extent. Furthermore, a study design with structural similarity with English and Hazaragi for one property and English and Norwegian for the other would have been ideal. However, this study is part of a large study by Lorenz et al. (2023) which compares L3 English learners in Norway with varying heritage languages which differ with regards to the conditions under investigation. Thus, the conditions for this study were not flexible. Furthermore, the heritage language under investigation, i.e., Hazaragi, is a language spoken by the researcher. Including an additional comparison group would have been beyond the scope of this MA thesis project.

Various levels of syntactic operations in the language combinations are required for the conditions that are being studied. Since, the majority language Norwegian is a V2 language, the finite verbs in declarative clauses must move for the proper surface word order to appear. However, in the target language English finite verbs in declarative clauses stay in verb position and no movement is required for the proper surface word order. In non-subject initial declaratives V2 word order might create problems as it is a costly operation. Therefore, the verb must move for the target word order in English and higher accuracy rates. The target word order in adverb placement in English might be challenging as in English the adverb is placed preverbally, while in the majority language, the adverb is placed post verbally.

The predictions:

H1: If CLI occurs from the majority language Norwegian only, XVSO and V-Adv word order in L3 English is predicted to some extent. Furthermore, it is predicted that the heritage language speakers and the majority language speakers will not differ because of CLI from Norwegian for both groups.

H2: If CLI occurs from the heritage language Hazaragi, XSOV and Adv-O-V word order in L3 English tasks is predicted to some extent. Furthermore, it is predicted that the heritage language speakers will differ from the majority language speakers as the majority language speakers do not have influence from Hazaragi.

H3: If both comparison groups (heritage language speakers and majority language speakers) perform target-like in L3 English, XSVO and Adv-V word order in L3 English is predicted due to learning. Furthermore, it is predicted that the heritage language speakers and the majority language speakers will do differ due to learning.

H4: If CLI occurs from both previously acquired languages, Hazaragi and Norwegian, XVSO, XSOV and XSVO are all predicted in the non-subject initial declarative condition and V-Adv, Adv-O-V and Adv-V in the adverb placement condition due to CLI from Norwegian and Hazaragi and due to learning of L3 English. These predictions are in line with the LPM and SM which claim that all the previously learned languages are activated and available to the L3 learners and both previously acquired languages are the source of CLI.

4. Methodology

In chapter 4, the methodology of the present study is described thoroughly with all the test designs used by the researcher for both the comparison groups.

In the following, the participants who took part in the study and the methodology are presented. The present study employs a quantitative research design to address the research question that enables a systematic investigation of the participants' proficiency level. More specifically, a quantitative approach gathers numerical data that can be analyzed statistically to look for trends or commonalities in the observations in addition to descriptive or casual patterns (Johnson, 2008). This approach is widespread in linguistic research, particularly in the generative tradition, because it provides insight into the language system of the learners and allows us to learn more about the mental grammar of second language learners (Sprouse & Almeida, 2011). In this thesis, due to feasibility, descriptive statistics are used rather than inferential statistics.

In this study, data was collected by means of a language background questionnaire, a written production task, i.e., a sentence ordering task, and three comprehension tasks, i.e., a forced choice task, a (receptive) vocabulary task and a multiple-choice task as proficiency measures. A linguistic production task usually refers to an experimental design used to investigate language production. In response to certain cues, participants are asked to produce spoken or written language. In the present study, sentence ordering tasks in both English and Norwegian serve as the experimental tasks used for written production. Participants were provided with sentence chunks and asked to produce a written sentence in English and Norwegian for the non-subject initial declarative and adverb placement conditions. In other words, in this production task, participants' word order preferences were investigated for both conditions. In general, the use of production tasks provides valuable insights into the cognitive processes involved in producing linguistic output, as well as how language is produced and organized in mind.

A comprehension task in linguistics is an experimental technique used to investigate language comprehension. It involves providing participants with language input, such as passages or sentences, and evaluating their understanding of the content or judgement of acceptability. In this study, forced-choice tasks in both English and the heritage language Hazaragi are employed as experimental techniques for the comprehension task. In these tasks, participants are presented orally with short sentences in both languages for both conditions and the

participants' task is to rate the sentences as "good" or "bad" on a 4-point Likert scale. This technique is popular due to its simplicity and natural way to evaluate sentences (Dabrowska, 2010:8). This technique, however, has certain drawbacks. The first concern relates to the classification of the Likert scale as a variable. The scale uses numbers (or smileys in the case of the present study) to represent levels or categories, so while it is numerical, it is not fully quantitative. The scale is non-measurable because the time intervals between each level are not always the same (Dabrowska, 2010:9). Overall, to improve our knowledge of how learners process and comprehend language, comprehension tasks play an important role. They offer important insights into the factors that affect successful interpretation of linguistic input and cognitive processes underpinning language comprehension.

4.1. Participants

This study comprises of two comparison groups; the heritage language speakers with HL Hazaragi, ML Norwegian and L3 English and the majority language speakers with L1 Norwegian and L2 English. The bilingual heritage speakers of Hazaragi living in Norway who acquire English as an L3, are compared to age- and proficiency- matched majority speakers of Norwegian who acquire English as an L2. The heritage language speakers were either born in Norway or migrated to Norway as a child at the age of two or three. These heritage speakers grow up speaking Hazaragi at home and, they are exposed to Norwegian outside of home, e.g., in kindergarten, but the beginning of their kindergarten differs. Few started going to kindergarten at the age of 1, some at the age of 2 and few started going to kindergarten at the age of 3. Table 4.1 provides a description of the participants. This language background information presented in Table 4.1 was retrieved through the Q-BEx questionnaire. The total population of this study consists of 32 children with 12 bilingual heritage speakers (n=12) who are L3 English learners and 20 Norwegian native speakers (n=20) who are L2 English learners (see column 3 in Table 4.1). The age of testing ranged from 8 to 14 years for the heritage language speakers and 11-12 years for the majority language speakers (see column 4 in Table 4.1). Participants are mostly grade 5 and grade 6 primary school students. The heritage language speakers (HL speakers) have started learning Hazaragi from birth (see column 5 in Table 4.1). The majority language speakers (ML speakers) have started learning Norwegian from birth, while the heritage language speakers have mostly started learning Norwegian from kindergarten (see column 6 in Table 4.1). All the participants have started learning English at the age of six at school (see column 7 in Table 4.1). Out of 12 HL speakers, 10 participants were females, 2 were males and out the

total population of ML speakers i.e., 20 children, 9 participants were females, 4 were male participants and 7 participants have not participants in the task. Hence, most of the participants were females (see column 8 in Table 4.1). The participants are at later stages of L3 English acquisition.

Groups	Target language	N	Age at testing (in years): Range (M)	Age of onset in Hazaragi	Age of onset in Norwegian	Age of onset in English	Gender
Heritage language speakers	L3 English	12	8-14 (11)	Birth	Kindergarten	6 years	Female
Majority language speakers	L2 English	20	11-12 (11.5)	NA	Birth	6 years	Female

Table 4.1. Overview of Participants

4.2. Procedure

This study has been registered and approved by the Norwegian Agency for Shared Services in Education and Research (Sikt, see the Notification Form in Appendix 2). Participation was voluntary. The parents' consent was given prior to participation. The consent form included an information section with relevant details about the study (see Consent Form in Appendix 3). The HL speakers were given instructions in Hazaragi and the ML speakers were instructed in English and Norwegian after they completed the consent form. The study included three types of tasks: Q-BEx questionnaire, a written productive task, and a comprehension task in English, Norwegian and Hazaragi. The same set of tasks was administered in the class and individually for both the comparison groups. Participants were recruited via the university school and the researcher's network. Data is collected at a primary school or individually in a public space such as the library in two testing days. The HL speakers began the tasks with the Q-BEx questionnaire then written productive task and then the comprehension task, while order of tasks for the ML speakers differed, they started with written productive task then the comprehension task and then the QBE-x questionnaire. For the ML speakers, the data was collected at school hours. At school, tasks were conducted with the whole class. The tasks as paper and pencil versions were distributed to the whole class at the same time. The vocabulary task was displayed on the projector for the whole class and the answers were written on the answer sheet. The forced choice task in Hazaragi and the Q-BEx questionnaire

were administered individually. All the tasks paper, and pencil based. The HL data which was collected individually is complete i.e., all children participated in all tasks. However, due to time constraints at school, the participants in the ML speaker group were not able to complete all tasks. The researcher was allowed a limited time slot, i.e. the English class, to collect the data. While all participants in the ML speaker group completed the sentence ordering task in English (n=20), not all participants completed the sentence ordering task in Norwegian (n=4), the Norwegian proficiency task (n=7), the forced choice task in English (n=8) and the Q-BEx questionnaire (n=7). To address the research question, this study follows the methodological design by Lorenz et al. (2023), who developed the sentence ordering task. This is an overview of the tasks used;

4.2.1. Q-BEx questionnaire

The Q-BEx questionnaire (De Cat et al., 2022) was administered as the language background questionnaire in form of an interview for the HL speakers and the ML speakers in grade 5, and in a web based format for ML speakers in grade 6. The participants' background data was collected (see Table 1 in Appendix 1 for a list of all questions asked). We asked participants to indicate their gender and age. In addition, they were asked to respond to questions about their language background, including how much and in what context they had previously learned a language, as well as how proficient they felt they were in each language. The participants also provided their self-rated L3 proficiency and the duration of their exposure to L3 English. Figure 4.1 is a screenshot of the starting page of the Q-BEx questionnaire.

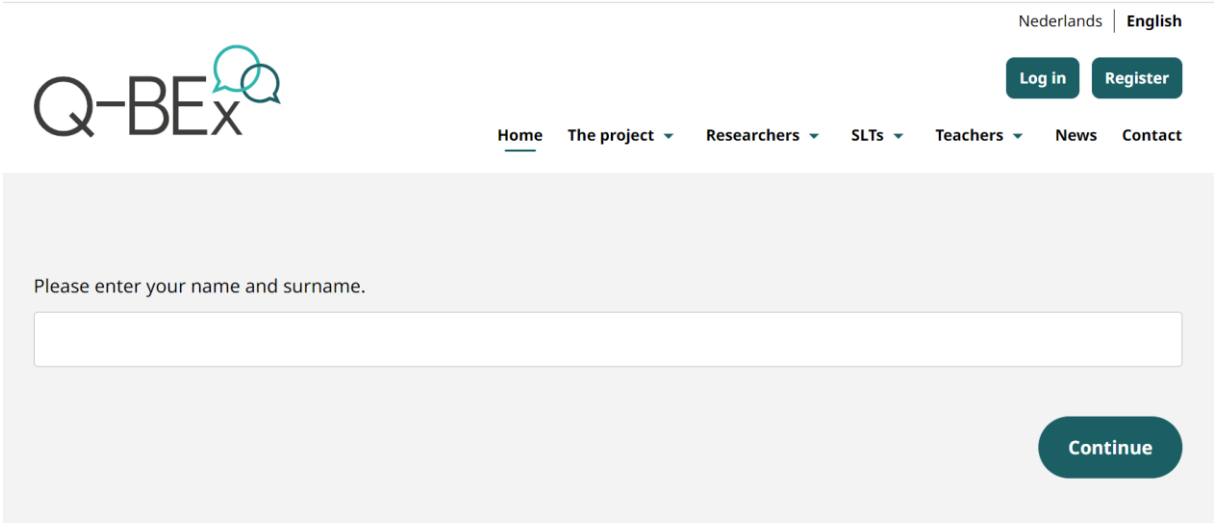


Figure 4.1. Q-BEx Questionnaire

4.2.2. Sentence ordering task in English

This test is a paper-pencil task with 20 test items conducted individually with the HL speaker group and individually in class with the ML speaker group. It has been developed by Lorenz et al. (2023) who adapted items from Hopp (2019) and Walla (forthc). Two conditions are tested: Non-subject initial declarative (XSVO/XVSO), and Adverb placement (V-Adv/Adv-V), each condition carries10 test items i.e., 10 test items for non-subject initial declarative and 10 test items for adverb placement. The participants were presented with chunks rather than words (see Figure 4.2 for an example). The participants are asked to use all the given words to build a sentence without adding or changing words and the students were not supposed to look at other student's test or to go back again once they have completed a sentence and turned the page. The goal is to learn about the participants' word order preference in L3 English.

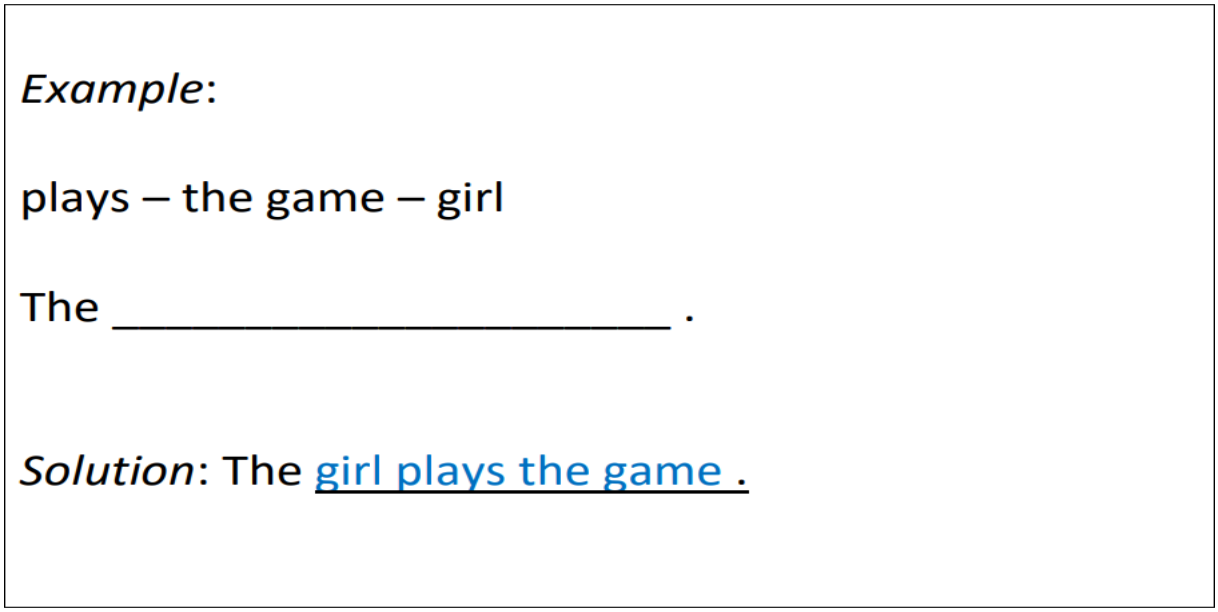


Figure 4.2. Sentence Ordering Task in English

4.2.3. Sentence ordering task in Norwegian

This task is the shortened form of the sentence ordering task in English or a mini sentence ordering task in Norwegian. It is also a paper-pencil task but only with 10 test items which was conducted individually with the HL speaker group and individually in class with the ML speaker group. It includes the same two conditions; no-subject initial declaratives (XSVO/XVSO) and adverb placement (V-Adv/Adv-V) with 5 test items for non-subject initial declarative and 5 test items for adverb placement out of 10 test items. This task is

developed by Lorenz et al. (2023). The participants were supposed to put the words in the right order to create a 'good' sentence (see Figure 4.3 for an example). The goal is to control whether the students have acquired the two conditions to a target-like level in Norwegian.

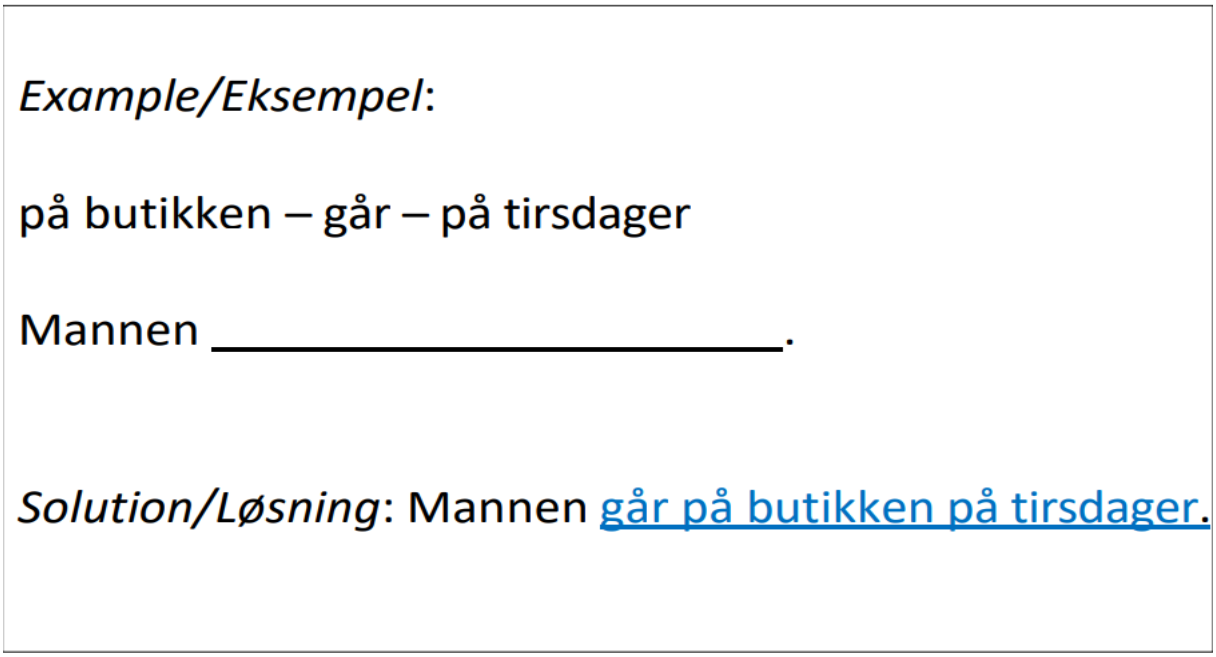


Figure 4.3. Sentence Ordering Task in Norwegian

4.2.4. Norwegian proficiency task

This task is a paper-pencil based task with 28 test items conducted individually with the HL speaker group and individually in class with the ML speaker group. The learners were supposed to select the correct choice from the given multiple options for the gap in the sentence (see Figure 4.4 for an example). The goal is to measure the participants' proficiency level in Norwegian.

Example: Jeg ___ i Tromsø.

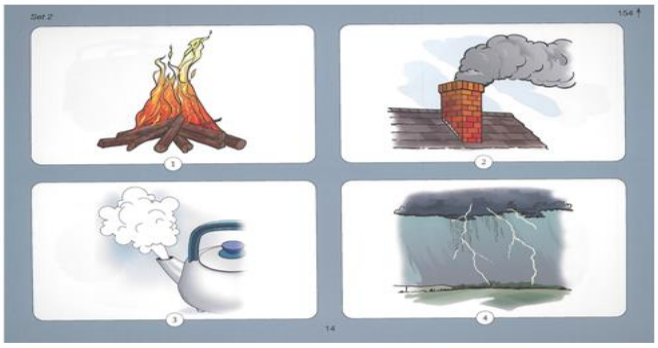
- ☐ bo
- X bor
- ☐ bu
- ☐ er
- ☐ I don't know

Figure 4.4. Norwegian Proficiency Task

4.2.5. Vocabulary task in English (English proficiency test)

This is a paper-pencil task with 20 test items. Four pictures were shown while the participants hear a word that they were asked to match to one of the items, named auditorily (see Figure 4.5 for an example). The learners listen to the word and select one of the given pictures that matches the word on the answer sheet which is provided to them (see Table 5 in Appendix 1). This task is a shortened version of the British Picture Vocabulary Scale (BPVS) adapted from Dunn et al. (2009). This task is used as a proficiency measure to match the heritage language speakers and the majority language speakers learning the L3 English.

Training: Fire



	Word	Pictures			
Ex. 1.	Fire	1	2	3	4

Figure 4.5. Vocabulary Task in English

4.2.6. English forced choice task

This is a comprehension paper-pencil-based task conducted individually. This task has 6 pairs of short sentences recorded by a native speaker. The goal of this oral task is to test the participants' word order preference for the two conditions: non-subject initial declaratives (XSVO/XVSO) and adverb placement (V-Adv/Adv-V) in English. The participant listens to the recorded sentences and circles the smiley that fits best to the sentence as a good or bad English sentence on the answer sheet provided to him/her (see Figure 4.6). "Now the boy plays the guitar." And "Now plays the boy the guitar." are the examples of sentences 1A and 1B (see Table 6 in Appendix 1).

Setning #	A	B
1		
2		
3		
4		
5		
6		

Figure 4.6. Forced Choice Task in English

4.2.7. Forced choice task in Hazaragi as a heritage language

This task is an individual task, only for the Hazaragi-Norwegian heritage bilinguals (the target population of the study). This task consists of 6 times three sentences that the participants listens. The sentences have been recorded by a native speaker of Hazaragi. It is an oral task where the participants' word order preference is tested based on their comprehension. The same two conditions are included: non-subject initial declaratives (XSVO/XVSO/XSOV) and adverb placement (SVAO/SAVO/SAOV). The learners listen to the recorded sentences and

circle the smiley that fits best on the answer sheet provided to him/her. The participants are asked to rate the sentence as a good or bad sentence in Hazaragi on a 4-point Likert scale (see Figure 4.7). The goal of this task is to investigate whether the participants have acquired the properties to a target-like level in Hazaragi.

#	A	B	C
1			
2			
3			
4			
5			
6			

Figure 4.7. Forced Choice Task in Heritage Language

5. Results

In this chapter, the results in English, Norwegian and Hazaragi are presented. The results are presented in the same sequence as in the previous chapter i.e., chapter 4 methodology. The results of each task are presented for both the HL speaker and the ML speaker group and for each condition under investigation: non-subject initial declaratives and adverb placement. The results are presented both as group results and as individual results.

5.1. Sentence ordering task in English

The sentence ordering task in English was a paper-pencil task with 10 test items for each condition under investigation, i.e., non-subject initial declaratives and adverb placement, in total 20 test items for this task.

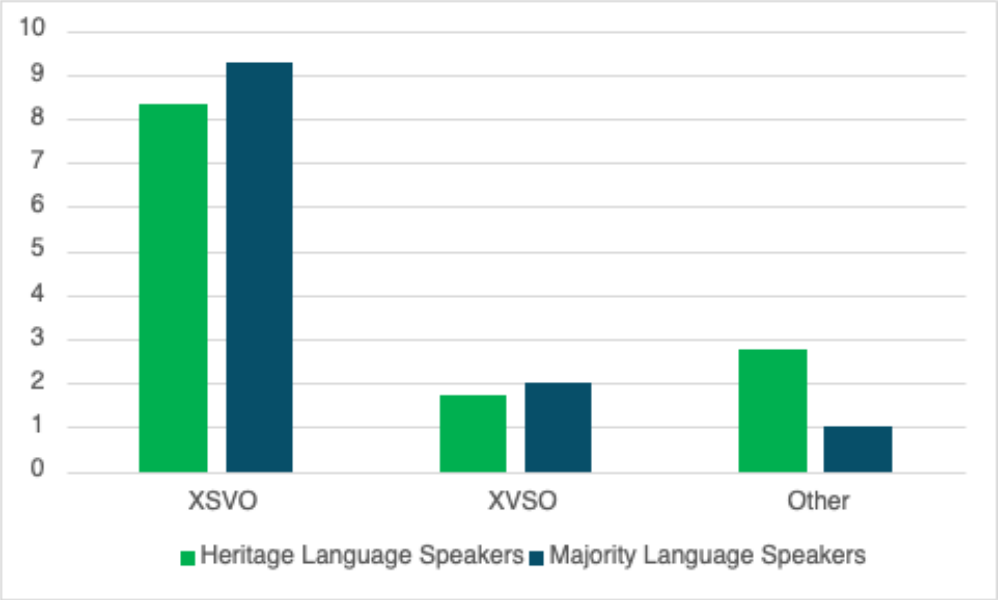


Figure 5.1. Sentence Ordering Task – English Results by Group – Non-Subject Initial Declaratives

Figure 5.1 illustrates the group results of the heritage language speakers and majority language speakers in the sentence ordering task in English for the non-subject initial declarative condition. Both groups have a strong preference for XSVO word order, which is the target word order in English. The ML speakers have a slightly stronger preference for this word order (9.3/10) than the HL speakers (8.3/10). The preferences are the same for both groups for the XVSO word order (2/10 versus 1.75/10), which is the target word order in Norwegian. However, the HL speaker group chose a completely different word order more often (2.75/10) than the ML speaker group (1/10), mostly XOVS, e.g., “Every day the bus

take the sisters to school." instead of the target word order XSVO, e.g., "Every day the sisters take the bus to school.". Only two participants in the HL group for one item each produce XSOV, e.g., "On Monday the actor at the theater works.", which is the target word order in Hazaragi.

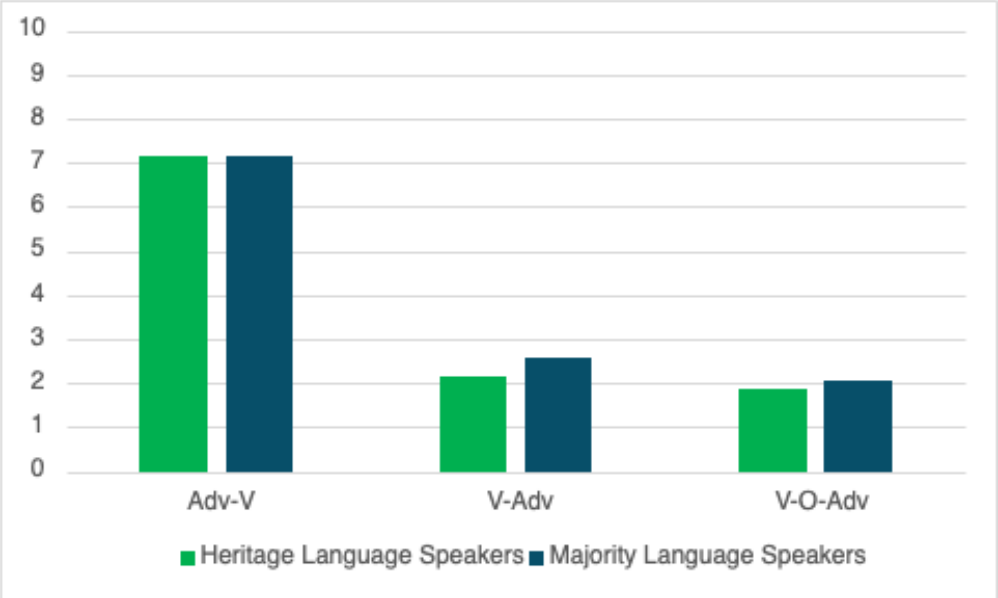


Figure 5.2. Sentence Ordering Task – English Results by Group – Adverb Placement

Figure 5.2 presents the group results of the heritage language speakers and the majority language speakers in the sentence ordering task in English for the adverb placement condition. The groups do not differ from each other for this condition. Both have a strong preference for Adv-V word order (7.5/10 versus 7.17/10), which is the target word order in English. Both groups have equal word order preference for V-Adv, e.g., The girl builds often the castle, which is the target word order in Norwegian, and V-O-Adv, e.g., The girl builds the castle often. No participant produced the Adv-O-V word order, which is the target word order in Hazaragi.

In summary, the groups pattern is rather similar. The group results show that both groups show a strong preference for the target word order in English in both conditions. However, there is a stronger preference for the target word order in English in the non-subject initial declarative condition than in the adverb placement condition. Furthermore, the HL speaker group allows slightly more different word orders for the non-subject initial declarative condition than the ML group.

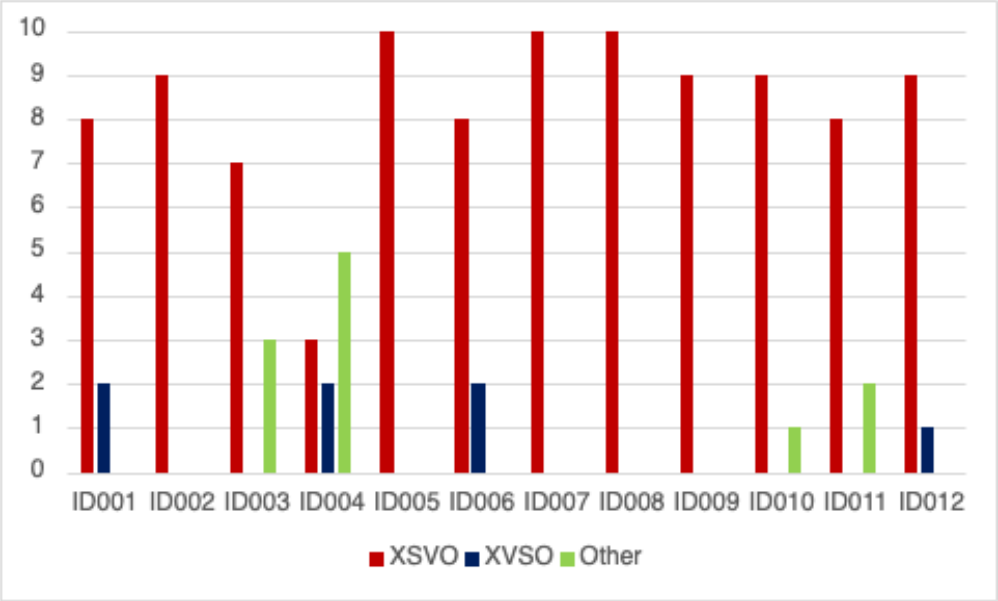


Figure 5.3. Sentence Ordering Task – English Individual Results – Heritage Language Speakers – Non-Subject Initial Declaratives

Figure 5.3 demonstrates the heritage language speakers' individual results in the sentence ordering task in English for the non-subject initial declarative condition. While most participants have a strong preference for XSVO word order, the preferences range from 3-10 out of 10 items, showing strong individual variation. Four participants use the XVSO word order for 1-2 sentences, and four participants use a different word order, e.g., XOVS as "Now the apple picks the girl.".

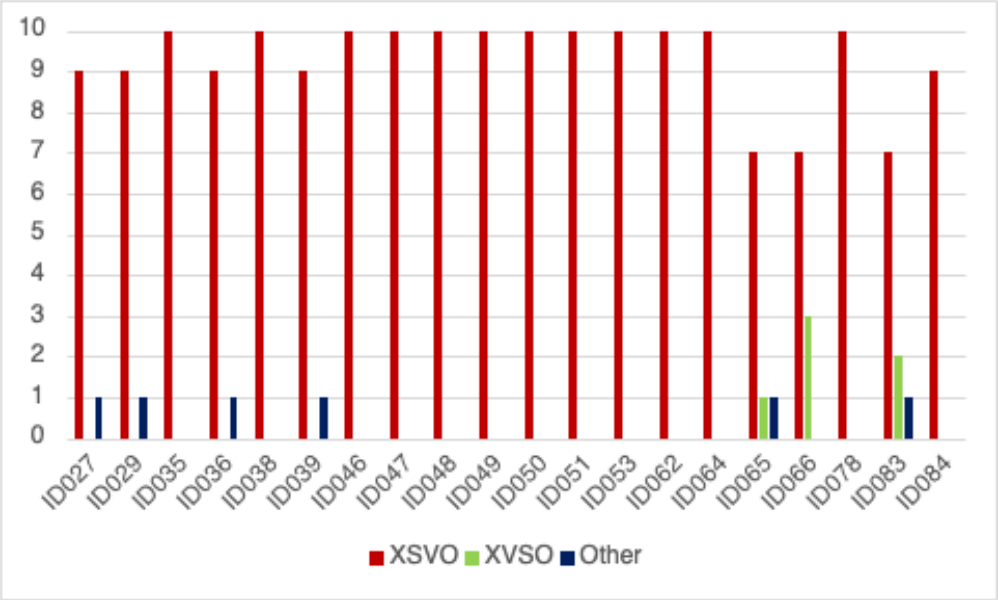


Figure 5.4. Sentence Ordering Task – English Individual Results – Majority Language Speakers – Non-Subject Initial Declaratives

Figure 5.4 shows the majority language speakers' individual results in the sentence ordering task in English for the non-subject initial declarative condition. All participants have a strong preference for XSVO, with a range from 7-10 out of 10 items. Three participants prefer XVSO word order for 1-3 sentences and six participants use a different word order for one item, e.g., "Every day the bus take the sisters to school.".

In comparison to figure 5.3, there is less individual variation for the ML speaker group than the HL speaker group.

Overall, all participants from both groups show a strong preference for XSVO word order. However, there is more individual variation in the HL speaker group for the non-subject initial declarative condition.

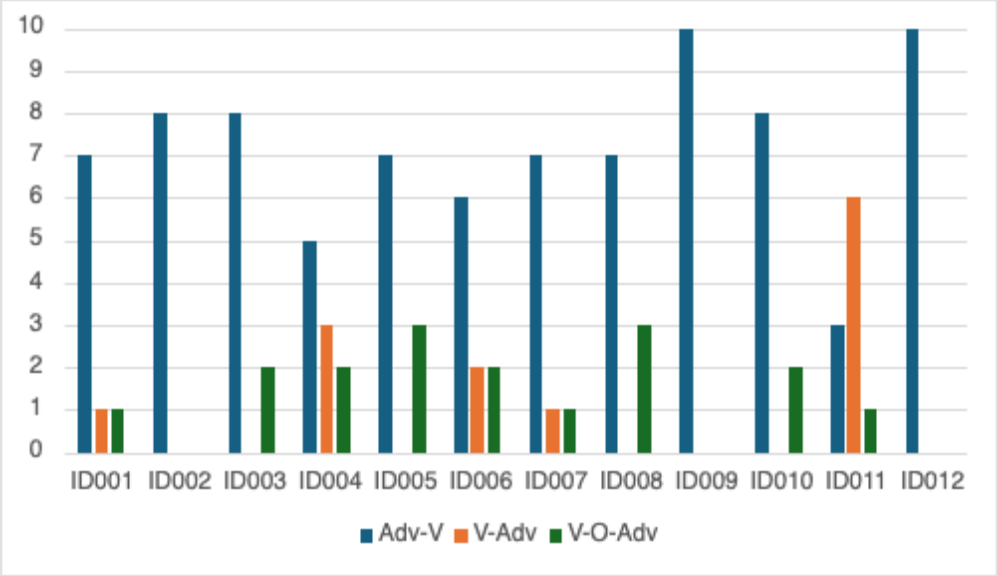


Figure 5.5. Sentence Ordering Task – English Individual Results – Heritage Language Speakers – Adverb Placement

Figure 5.5 shows the individual results of the heritage language speakers in the sentence ordering task in English for the adverb placement condition. Most of participants prefer Adv-V word order, with a range from 5-10 out of 10 items. One participant prefers V-Adv word order. V-Adv word order has been chosen by five participants for 1-5 sentences, and V-O-Adv by nine participants for 1-3 sentences.

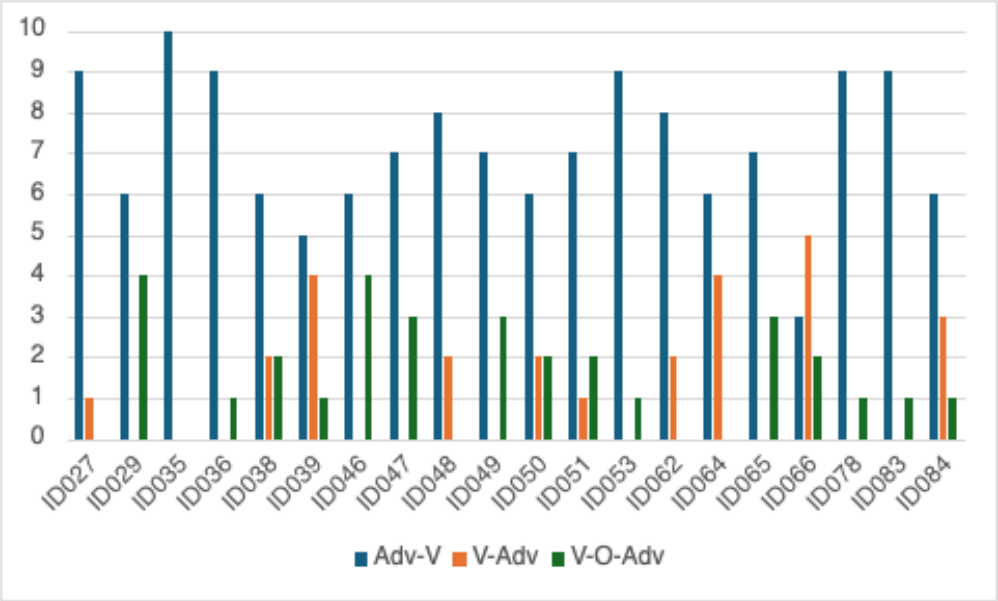


Figure 5.6. Sentence Ordering Task – English Individual Results – Majority Language Speakers – Adverb Placement

Figure 5.6 presents the individual results of the majority language speakers in the sentence ordering task in English for the adverb placement condition. Most of participants also prefer Adv-V word order, with a range from 3-10 items. Ten participants chose V-Adv word order for 1-5 sentences, and fifteen participants chose V-O-Adv for 1-4 items.

Overall, all participants from both groups show a strong preference for Adv-V word order. There is individual variation in both groups.

In summary, the patterns of both groups are very similar in both conditions. However, the HL speaker group shows more individual variation in the non-subject initial declarative condition than the ML speaker group.

5.2. Sentence ordering task in Norwegian

The sentence ordering task in Norwegian was the same task as the sentence ordering task in English but a mini version of that as it consisted of 10 test items, 5 test items per condition: non-subject initial declaratives and adverb placement. All participants were tested to ensure that they have acquired the properties to a target like level in Norwegian.

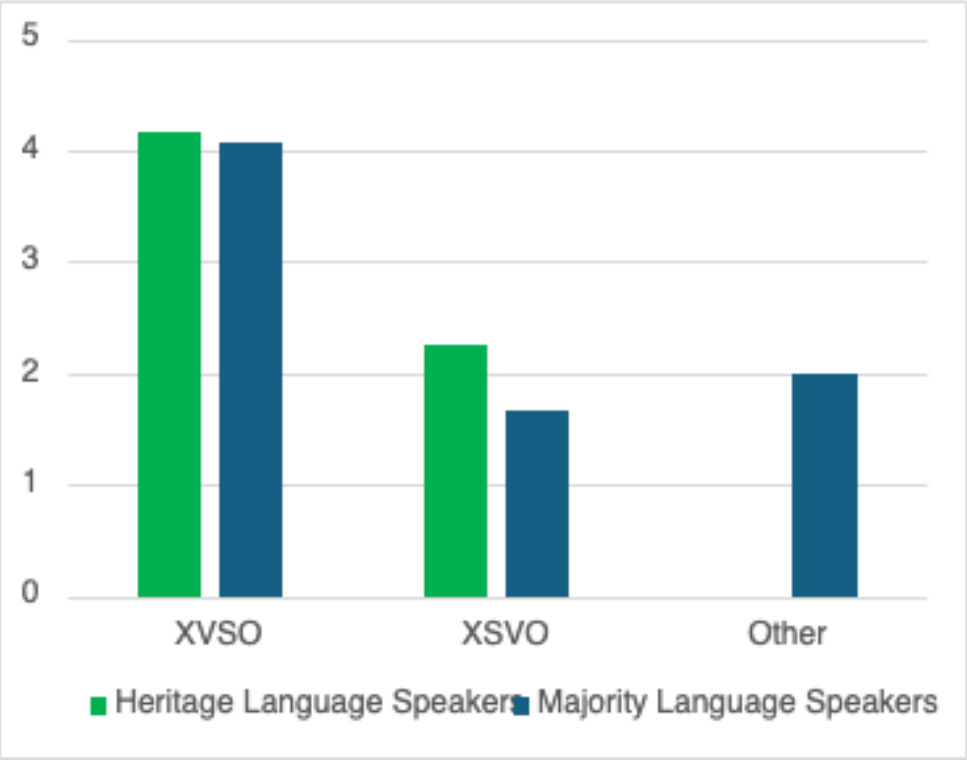


Figure 5.7. Sentence Ordering Task – Norwegian Results by Group – Non-Subject Initial Declaratives

Figure 5.7 illustrates the group result of the heritage language speakers and majority language speakers in the sentence ordering task in Norwegian for the non-subject initial declarative condition. Both groups have a strong preference for XVSO word order (4.2/5 versus 4.1/5), which is the target word order in Norwegian. The HL speaker group has a slightly stronger preference for XSVO word order (2.25/5) than the ML speaker group (1.7/5), which is target word order in English. Furthermore, the ML speaker group also chose a different word order (2/5), mostly XVOS, e.g., “Hver dag gjør sine leksene gutten.”.

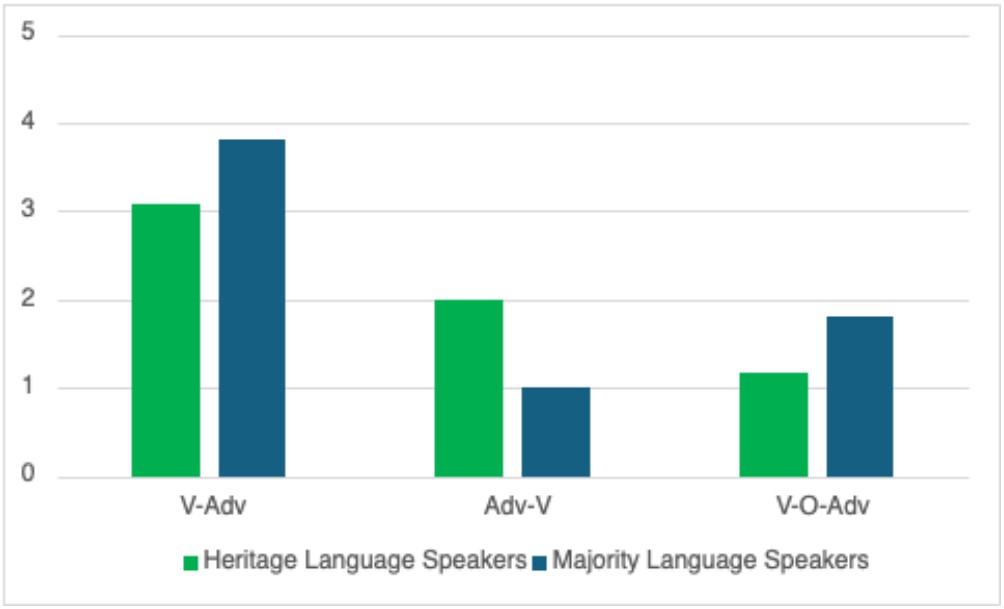


Figure 5.8. Sentence Ordering Task – Norwegian Results by Group – Adverb Placement

Figure 5.8 demonstrates the group results of the heritage language speakers and majority language speakers in the sentence ordering task in Norwegian for the adverb placement condition. Both groups have a prefer V-Adv word order (3.1/5 versus 3.8/5), which is the target word order in Norwegian. The HL speaker group produces slightly more Adv-V (2/5) than V-O-Adv (1.2/5) word order whereas the ML speaker group produces slightly more V-O-Adv (1.8/5) than Adv-V (1/5) word order. Remember that Adv-V is the target word order in English and V-O-Adv and V-Adv word orders both position the adverb post verbally. No participant produced the Adv-O-V word order, which is the target word order in Hazaragi.

In summary, the groups pattern is rather similar. The group results show that both groups show a strong preference for the target word order in Norwegian in both conditions. However, there is a stronger preference for the target word order in Norwegian in the non-subject initial declarative condition than in the adverb placement condition.

Figure 5.9. Sentence Ordering Task – Norwegian Individual Results – Heritage Language Speakers – Non-Subject Initial Declaratives

Figure 5.9 shows the individual results of the heritage language speakers in the sentence ordering task in Norwegian for the non-subject initial declarative condition. While most participants have a strong preference for XVSO word order, the preferences range from 1-5 out of 5 items, showing strong individual variation. Four participants use the XSVO word order for 1-4 sentences, which is the target word order in English.

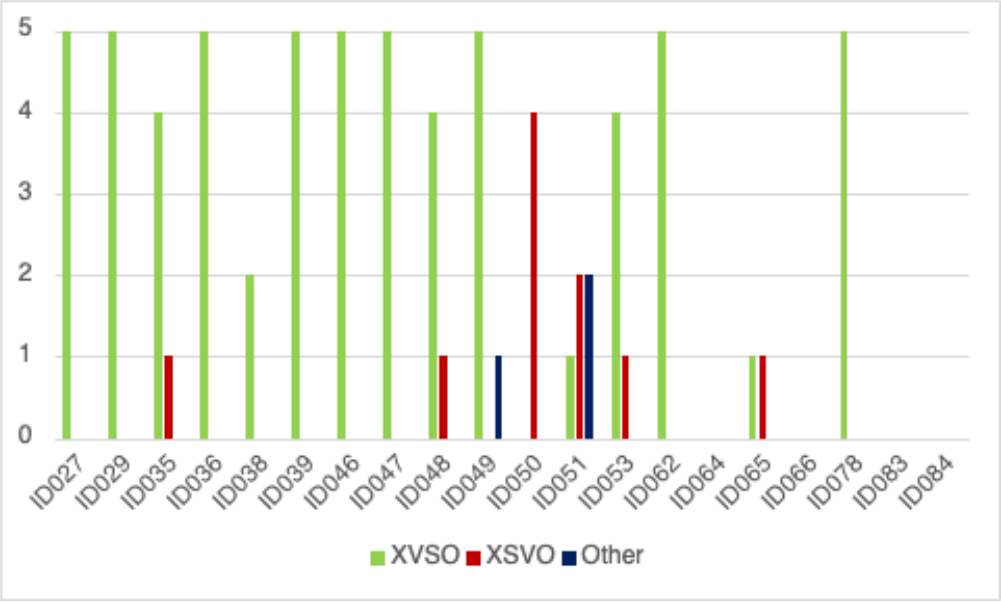


Figure 5.10. Sentence Ordering Task – Norwegian Individual Results – Majority Language Speakers – Non-Subject Initial Declaratives

Figure 5.10 demonstrates the individual results of the majority language speakers in the sentence ordering task in Norwegian for the non-subject initial declarative condition. Most participants have a strong preference for XVSO word order, the preferences range from 1-5 out of 5 items, showing strong individual variation. Six participants use the XSVO word order for 1-4 sentences. Two participants chose different word orders such as XVOS, e.g., “Hver dag gjør sine leksene gutten.”, and XSOV, e.g., “Hver dag gutten leksene sine gjør.”. Four participants did not complete this task due to time limitations, which is why there are gaps in the graph.

Overall, all participants from both groups show a strong preference for XVSO word order. However, there is more individual variation in the ML speaker group for the non-subject initial declarative condition.

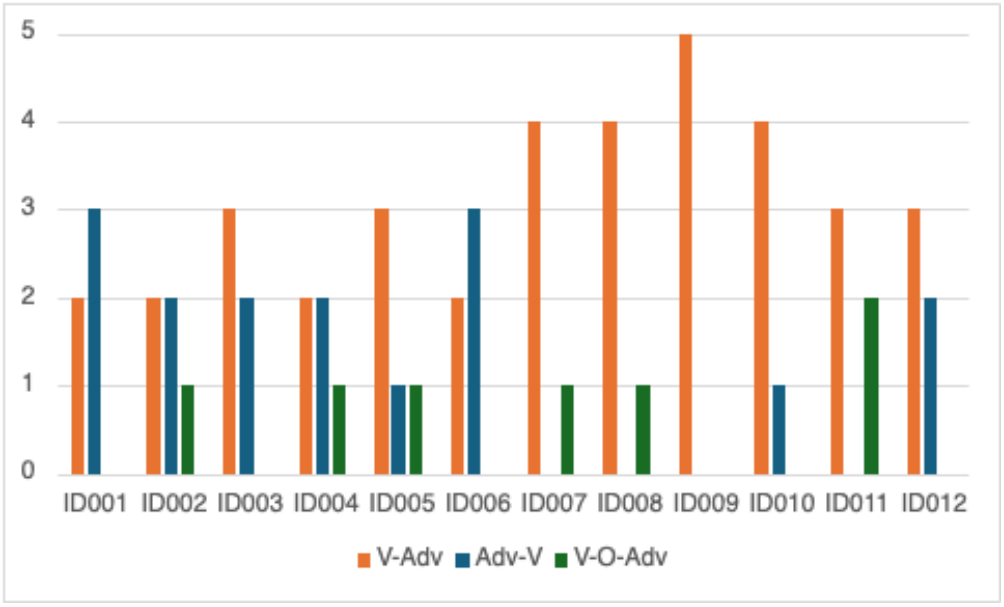


Figure 5.11. Sentence Ordering Task – Norwegian Individual Results – Heritage Language Speakers – Adverb Placement

Figure 5.11 shows the individual results of the heritage speakers in the sentence ordering task in Norwegian for the adverb placement condition. Most participants prefer the V-Adv word order, ranging from 2-5 items. However, there is individual variation. Eight participants also use Adv-V for 1-3 sentences, and six participants use V-O-Adv word order in 1-2 sentences.

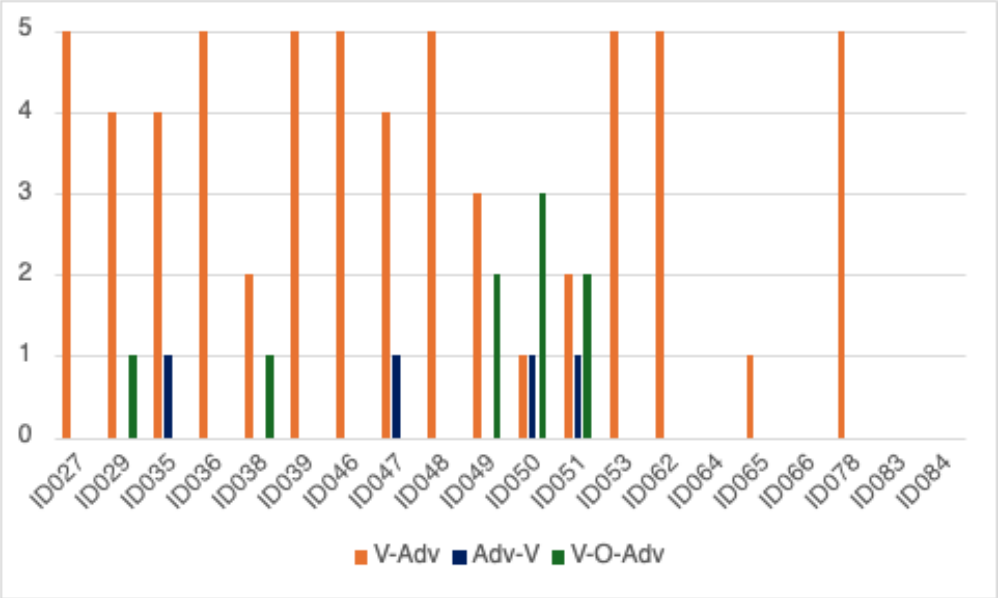


Figure 5.12. Sentence Ordering Task – Norwegian Individual Results – Majority Language Speakers – Adverb Placement

Figure 5.12 demonstrates the individual results of the majority language speakers in the sentence ordering task in Norwegian for the adverb placement condition. Most participants prefer V-Adv word order, with a range from1-5, showing strong individual variation. Four participants use Adv-V word order for 1 sentence and five participants use V-O-Adv word order for 1-3 items.

Overall, all participants from both groups show a strong preference for V-Adv word order. There is individual variation in both groups.

In summary, the patterns of both groups are very similar in both conditions. However, the ML speaker group shows more individual variation in both conditions than the HL speaker group.

5.3. Norwegian proficiency task

This was a gap filling paper-pencil task with 28 test items and both the comparison groups were tested to know their proficiency in Norwegian. In general, the heritage language speakers scored higher in comparison to the majority language speakers.

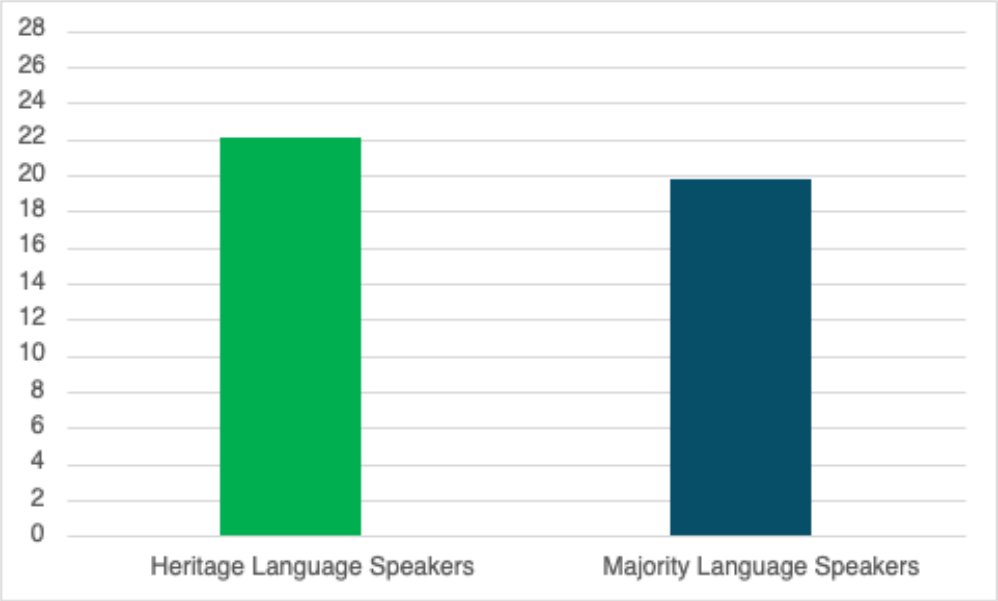


Figure 5.13. Norwegian Proficiency – Results by Group

Figure 5.13 shows the group results of Norwegian proficiency task of the heritage language speakers and majority language speakers. The mean score of the heritage language speakers is 22.0 while the mean score of the heritage language speakers is 19.76 which means the heritage language speakers scored slightly higher than the majority language speakers.

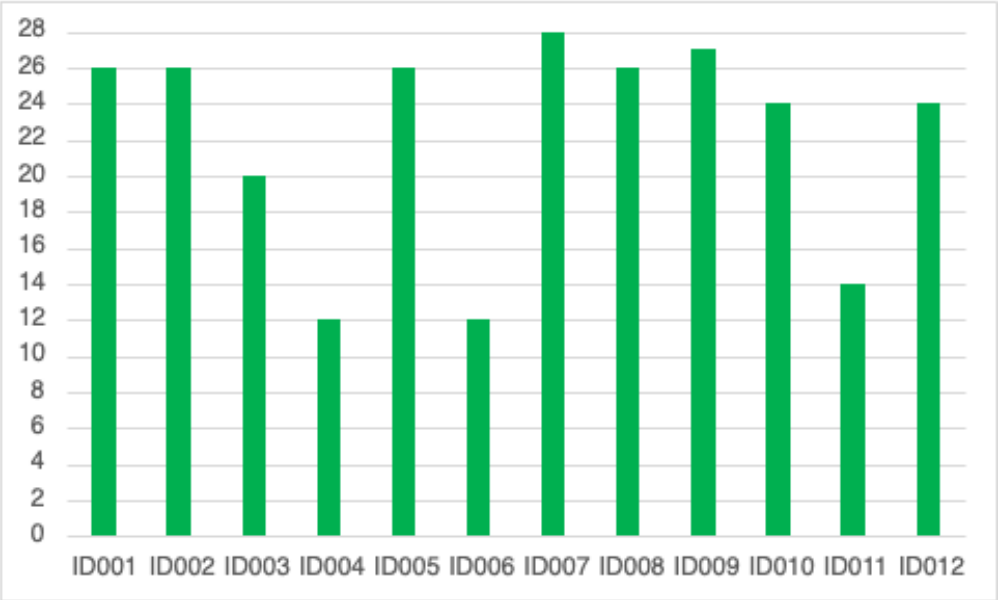


Figure 5.14. Norwegian Proficiency – Individual Results – Heritage Language Speakers

Figure 5.14 illustrates the individual results of the heritage language speakers in Norwegian proficiency task. The heritage language speakers' accuracy ranged from 12 to 28. Most of the participants scored between 24 to 28 in the test.

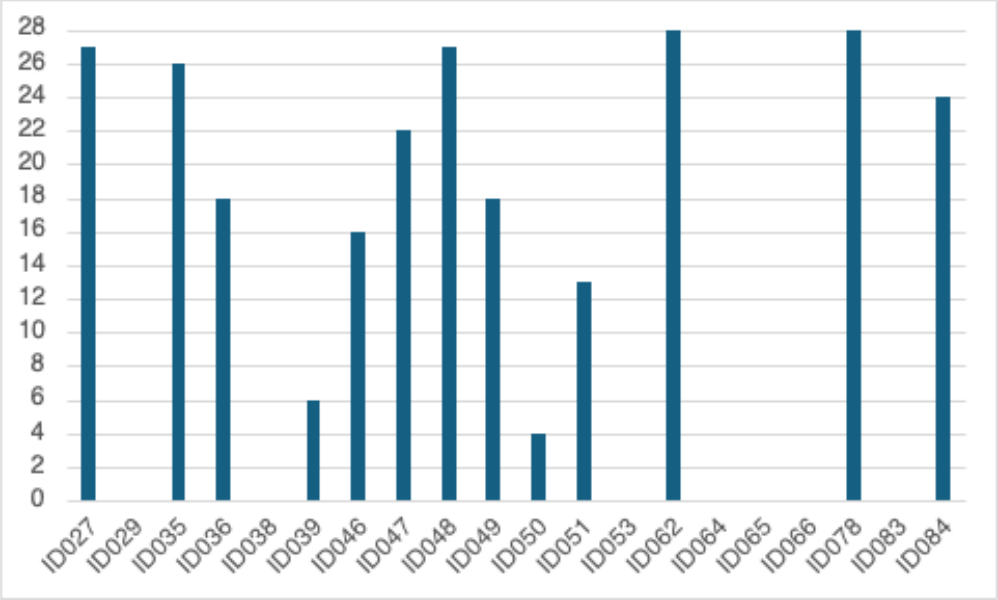


Figure 5.15. Norwegian Proficiency – Individual Results – Majority Language Speakers

Figure 5.15 demonstrates the individual results in the Norwegian proficiency task by the majority language speakers. The minimum score of the test is 4 and the maximum score is 28. The graph show that some participants did not participate in the test due to time constraints. Most of the participants scored between 22 and 28.

5.4. Vocabulary task in English (English proficiency test)

This was a vocabulary test with 20 test items where the English proficiency of heritage language speakers and majority language speakers was measured.

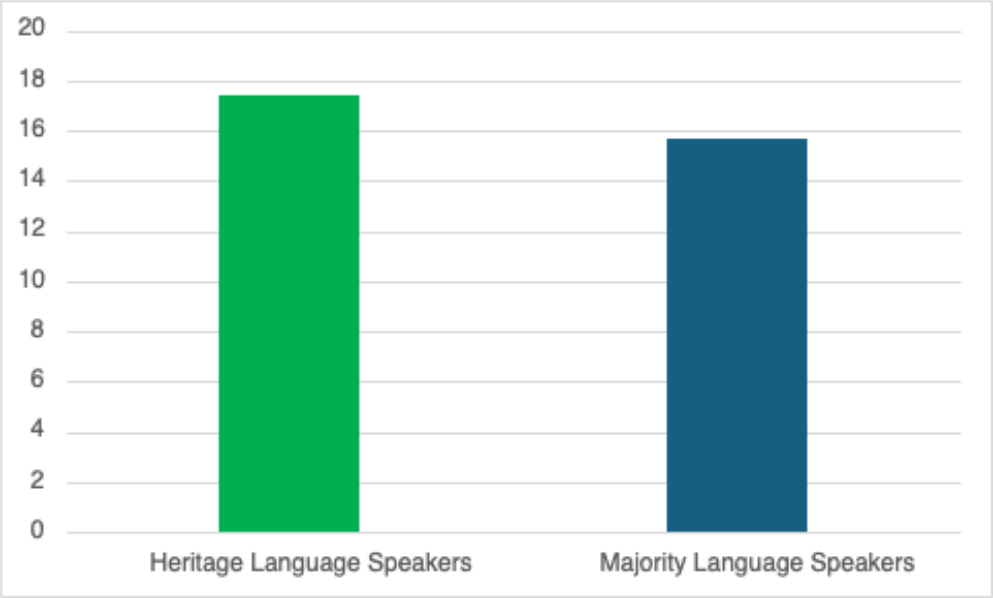


Figure 5.16. English Proficiency – Results by Group

Figure 5.16 shows the group results of the heritage language speakers and the majority language speakers in English proficiency. The average score of the heritage language speakers is 17.42 and the average score of majority language speakers is 15.68.

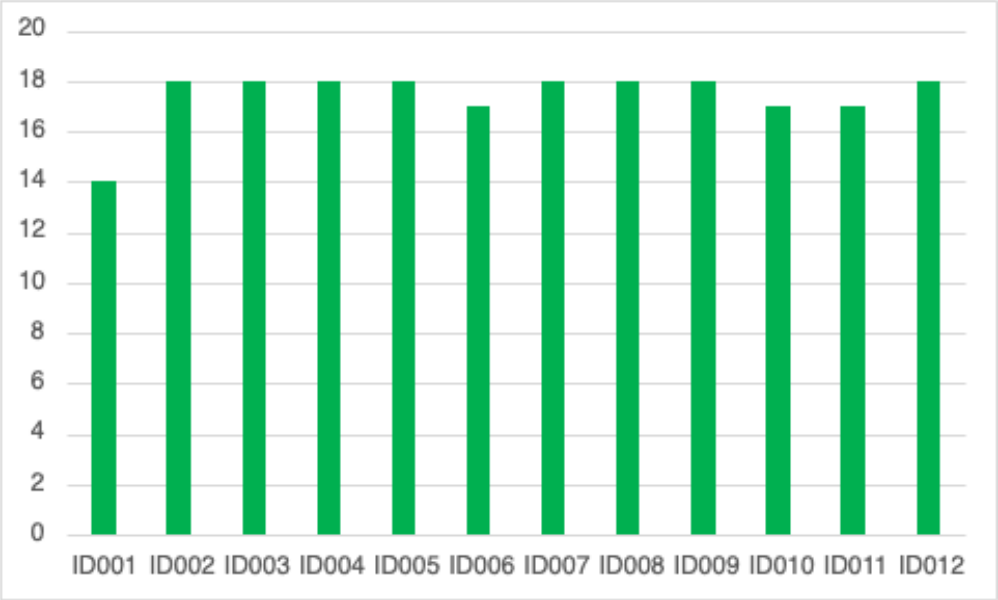


Figure 5.17. English Proficiency – Individual Results – Heritage Language Speakers

Figure 5.17 illustrates the individual results of the heritage language speakers in the English proficiency task. The graph shows that most of the participants scored 18 out of 20 test items. The test scores range from 14 to 18; 14 being the lowest test score and 18 the maximum test score.

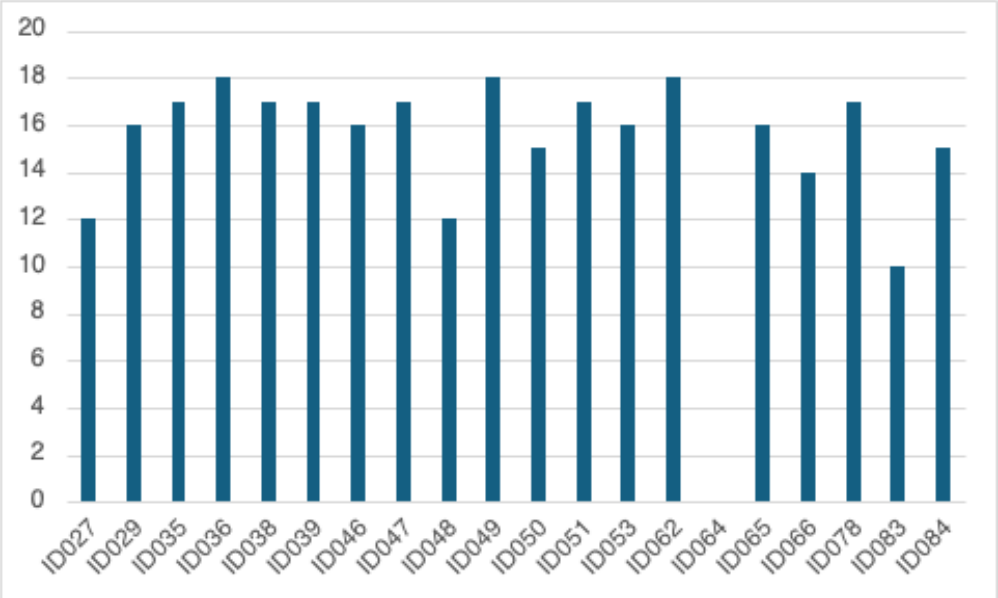


Figure 5.18. English Proficiency – Individual Results – Majority Language Speakers

Figure 5.18 shows the individual results in the English proficiency task by the majority language speakers. The range of the test score is from 10 to 18.

5.5. English forced choice task

This was a comprehension paper-pencil task with six pairs of short English sentences. Both conditions under investigation in the present study were tested to understand the word order preferences of the participants.

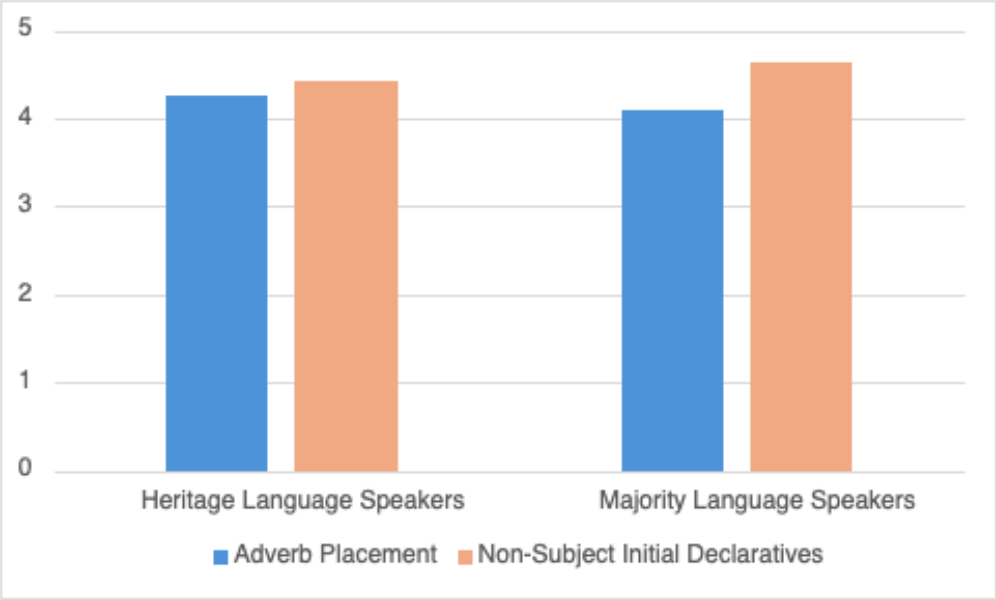


Figure 5.19. English Results by Group and Condition

Figure 5.19 shows the group results of both the comparison groups in the forced choice task in English by conditions, i.e., non-subject initial declaratives and adverb placement. The blue color indicates adverb placement, and the red color is used for non-subject initial declaratives. While the children judged the sentences on a 4-point Likert scale, the results were analyzed as binary (good or bad). Both groups pattern similarly for both conditions. The accuracy scores are high (above 4.0) for both groups and both conditions.

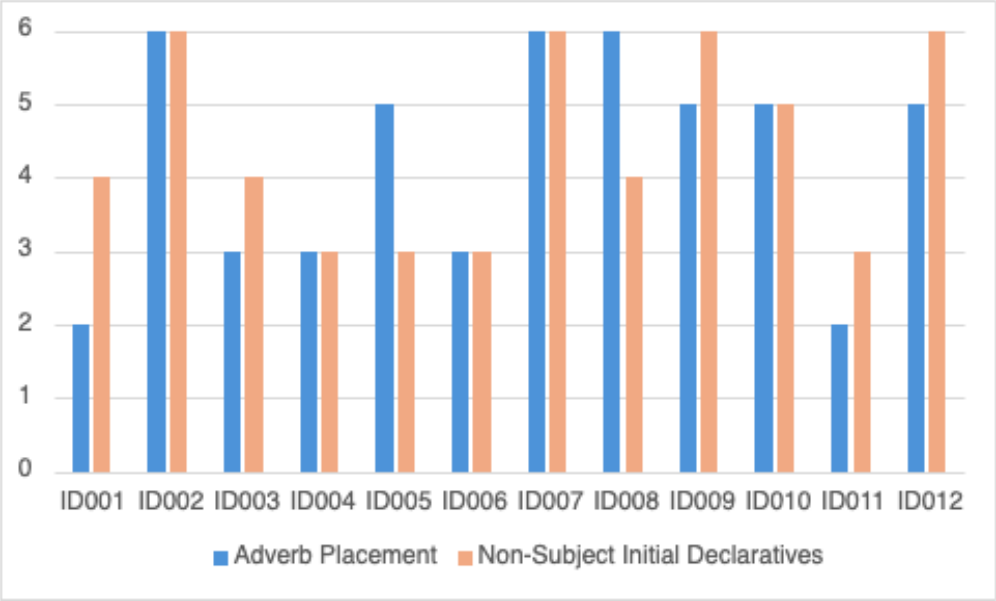


Figure 5.20. English Individual Results by Condition- Heritage Language Speakers

Figure 5.20 presents the individual results of the heritage language speakers in the English forced choice task by conditions. The accuracy scores of each of the participants in XSVO structure are presented with red color and adverb placement is presented in blue color. Figure 5.20 shows that there is individual variation for both conditions.

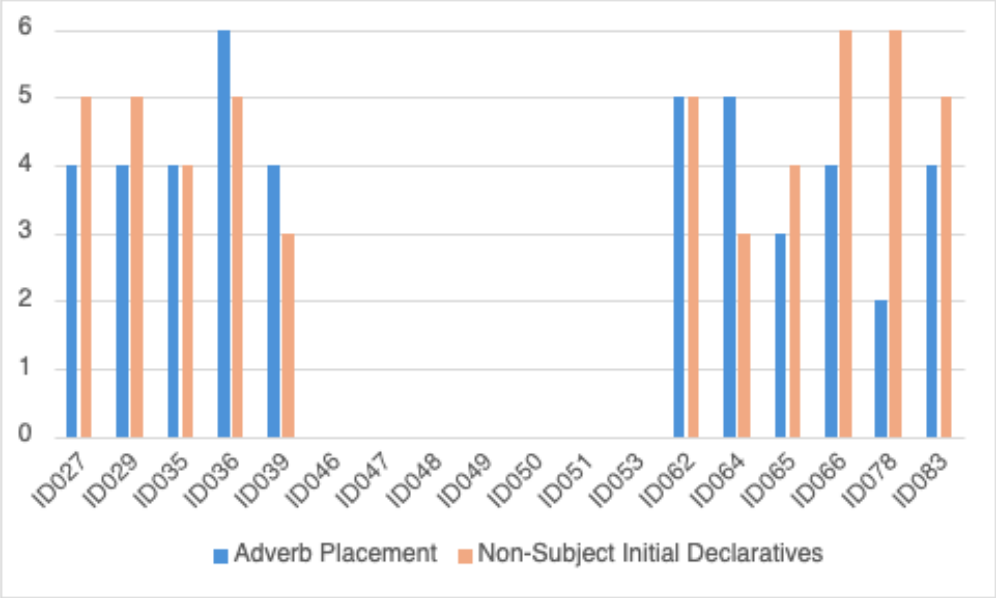


Figure 5.21. English Individual Results by Condition- Majority Language Speakers

Figure 5.21 demonstrates the individual results of the majority language speakers in the English forced choice task. The accuracy scores of the individuals in the non-subject initial

declarative are shown in red and adverb placement in blue. There is individual variation for both conditions.

	XSVO	XVSO	Adv-V	V-Adv
ID001	2	1	2	3
ID002	3	0	3	0
ID003	2	1	2	2
ID004	3	3	1	1
ID005	3	3	3	1
ID006	3	3	3	3
ID007	3	0	3	0
ID008	3	2	3	0
ID009	3	0	3	1
ID010	2	0	3	1
ID011	2	2	0	1
ID012	3	0	3	1
Mean	2.666666667	1.25	2.416666667	1.166666667

Table 5.1. Individual Word Order Preference in English- Heritage Language Speakers

Table 5.1 shows the individual results of the word order preferences for the heritage language speaker group. For non-subject initial declaratives, most participants show a strong preference for the target word order (XSVO) in English: 2.67 out of 3 sentences are rated as good. However, three participants judge both word orders as an equally good by rating all three sentences with XSVO word order and all three sentences with XVSO word order as good. For adverb placement, most participants show a strong preference for the target word order (Adv-V) in English: 2.42 out of 3 sentences are rated as good. However, three participants judge an equal amount of (or even more) sentences with V-Adv word order as good.

ID027	2	0	1	0
ID029	3	1	2	1
ID035	2	0	2	1
ID036	2	0	3	0
ID039	1	1	1	0
ID046				
ID047				
ID048				
ID049				
ID050				
ID051				
ID053				
ID062	3	0	2	1
ID064	3	3	2	0
ID065	2	1	2	2
ID066	3	0	2	1
ID078	3	0	1	2
ID083	3	1	2	1
ID084				
Mean	2.454545455	0.636363636	1.818181818	0.818181818

Table 5.2. Individual Word Order Preference in English- Majority Language Speakers

Table 5.2 shows the individual results of the word order preferences for the majority language speaker group. For non-subject initial declaratives, most participants show a strong preference for the target word order (XSVO) in English: 2.45 out of 3 sentences are rated as good. However, one participant judge both word orders as an equally good by rating all three sentences with XSVO word order and all three sentences with XVSO word order as good. For adverb placement, most participants show slightly strong preference for the target word order (Adv-V) in English: 1.81 out of 3 sentences are rated as good. However, one participant judge one sentence as an equally good by rating 2 out of 3 sentences with Adv-V word order and 2 out of 3 sentences with V-Adv word order as good. Table 5.2 shows the gaps in the individual results of the word order preference for the ML speaker group.

5.6. Forced choice task in Hazaragi as a heritage language

This task was in conducted in HL Hazaragi with six times three short sentences. The goal was to understand the word order preferences of heritage bilingual speakers for the two condition under investigation.

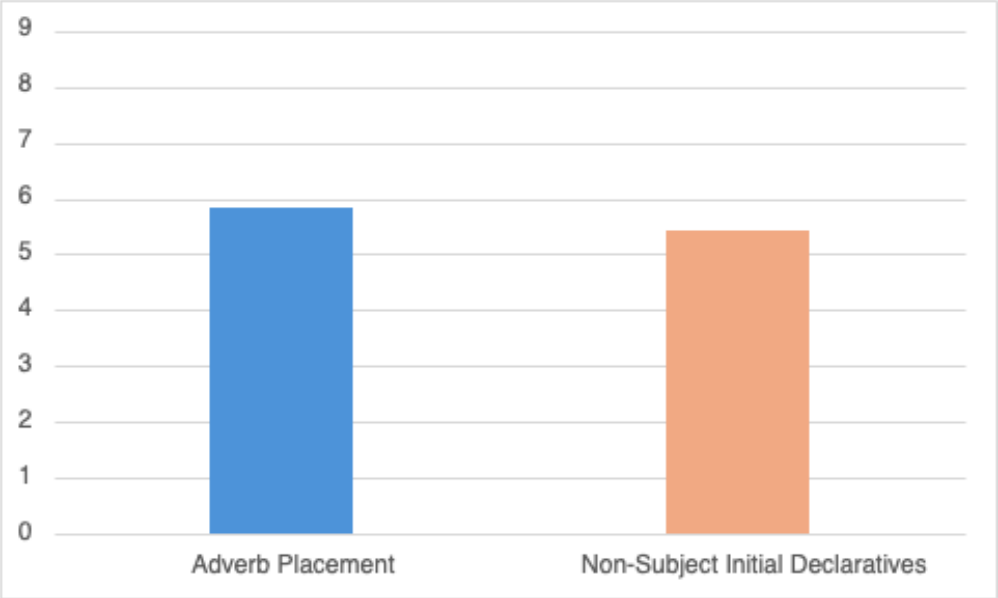


Figure 5.22. Heritage Language Hazaragi Results by Condition

Figure 5.22 illustrates the results of the heritage language speakers in the forced choice task in Hazaragi in both conditions being. The bar chart shows the accuracy scores of adverb placement with blue color and non-subject initial declarative in red color. while the children judged the sentences on a 4-point Likert scale, the results were analyzed as binary (good or bad). The accuracy rates are similar for both conditions: 5.83 for adverb placement and 5.41 for non-subject initial declarative.

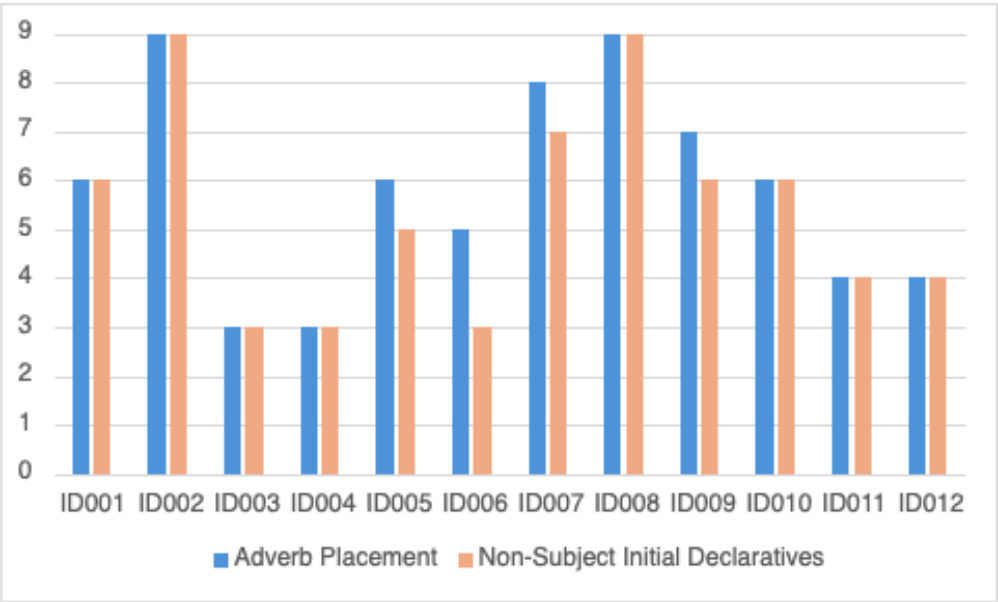


Figure 5.23. Heritage Language Hazaragi Individual Results by Condition

Figure 5.23 shows the individual results for the heritage language speakers in the forced choice task in Hazaragi in each conditions: non-subject initial declaratives and adverb placement. The bar graph shows the accuracy scores of each of the individuals in both conditions, where blue presents the adverb placement and red shows the non-subject initial declaratives. There is a high degree of individual variation. While the accuracy scores for each condition are similar for everyone, there is a lot of variation from participant to participant, with a range from 3 to 9 out of 9 correct judgements.

	XSOV	XSVO	XVSO	Adv-V	V-Adv	Adv-O-V
ID001	0	0	0	0	0	0
ID002	3	0	0	0	0	3
ID003	1	2	2	3	2	2
ID004	3	3	3	3	3	3
ID005	3	2	2	2	1	3
ID006	3	3	3	2	2	3
ID007	3	0	2	0	1	3
ID008	3	0	0	0	0	3
ID009	3	0	3	2	0	3
ID010	3	1	2	3	0	3
ID011	2	2	2	1	2	1
ID012	3	3	2	3	2	3
Mean	2.5	1.333333333	1.75	1.583333333	1.083333333	2.5

Table 5.3. Individual Word Order Preference in Heritage Language- Heritage Language Speakers

Table 5.3 shows the individual results of the word order preferences for the heritage language speaker group in Hazaragi. For non-subject initial declaratives, most participants show a strong preference for the target word order (XSOV) in Hazaragi: 2.5 out of 3 sentences are rated as good. However, two participants judge the three word orders as an equally good by rating all three sentences with XSOV word order, all three sentences with XSVO word order and all three sentences with XVSO word order as good. For adverb placement, most participants show a strong preference for the target word order (Adv-O-V) in Hazaragi: 2.5 out of 3 sentences are rated as good. However, one participant judge the three word orders as an equally good by rating all three sentences with Adv-O-V word order, all three sentences with Ad-V word order and all three sentences with V-Adv word order as good. Table 5.3 shows strong individual variation for word order preference in both conditions.

6. Discussion

In this chapter, the results of the present study are discussed with a focus on the research question: Which language is the source of cross-linguistic influence in third language acquisition, heritage language Hazaragi, majority language Norwegian, or both previously acquired languages?

In this study, the source of CLI in child L3 English by Hazaragi/Norwegian bilinguals was investigated with a focus on the grammatical conditions: non-subject initial declaratives and adverb placement by conducting a sentence ordering task and a forced choice in L3 English (and shorter versions in Norwegian and Hazaragi) to test word order preferences. The participants have performed close to target-like in the L3 acquisition of English which is due to learning rather than CLI which also is in line with our third prediction. While the participants have strong preferences for the target word order in English, there is also individual variation and overall no consistency in accepting one-word order and rejecting the other word order in all test tasks. Therefore, there is no clear evidence for CLI from the heritage language or the majority language. However, the heritage language and the majority language groups do not differ, which is most likely due to (i) learning and (ii) CLI from Norwegian. At the same time, the heritage speaker group allows slightly more word order variations in the sentence ordering task in English than the majority speaker group and also in the forced choice task when focusing on preferences not accuracy (see Table 5.1 and 5.2), i.e., the heritage speaker group rated the sentences with Norwegian target word order more often as good than the majority speaker group. The groups were matched based on their proficiency in L3 English. The Norwegian proficiency results show that the two groups have a high proficiency in Norwegian independent of speaking one or two further languages. In the sentence ordering task in Norwegian, the groups also pattern similarly. However, the heritage speaker group produces slightly more Adv-V word order which may be due to CLI from English. The forced choice task in Hazaragi shows a high degree of individual variation and non-target like performance. While most of participants rate the sentences with the target word order XSOV as good, participants also rate word orders XVSO and XSVO as good, even if it is too a lower degree. Thus, the participants show a preference for the target word order but also show some acceptance for word orders in line with Norwegian and English word orders. The same pattern was found for the forced choice task in English for the heritage speaker group but not the majority speaker group. Thus, overall the heritage speaker group allows more word order variation in both conditions in all three languages. Regarding the L3

models, these findings can be explained by co-activation of all languages involved which is in line with predictions by the LPM. However, another comparison group (L1 Hazaragi, L2 English) would be necessary to test the LPM. The fact that both comparison groups do not differ supports the TPM, even if the TPM focuses on early stages of acquisition, as due to more CLI from the typologically closer language Norwegian.

Overall, the high target-likeness in L3 English suggests that a follow-up study on earlier stages of L3 acquisition would provide us with more insight on CLI.

In the following, I will discuss the findings in more detail task by task.

In the English proficiency task, used as an English proficiency measure to match the comparison groups, the participants showed high proficiency in both the comparison groups.

In the sentence ordering task in English, both comparison groups were tested. We can observe similarity in the results of the heritage language speakers and majority language speakers with a target-like structure in both the conditions under investigation, but a slight variation in individual results of the heritage language speakers can be seen in non-subject initial declarative condition. The high accuracy rate of the majority language speakers in non-subject initial declarative with XSVO word order indicates their proficiency in the L3 English. Both the comparison groups have low preference but parallel in non-subject initial declarative with XVSO word order. Most of the majority language speakers preferred the target like structure i.e. XSVO word order than the heritage language speakers. Though, Norwegian is a V2 language and English is a V3 language which seems that the rejection of non-subject initial declarative condition with V2 word order is not due to CLI but due to learning. Heritage language speakers have preference for various other patterns, such as XOVS and XVOS than the majority language speakers. This might predict their difficulty with the target-like structure and influence from the heritage language as the colloquial Hazaragi in spoken form, has flexibility and verb can be placed anywhere in sentence. Heritage language speakers might be influenced from this in their preference for the productive English grammar.

For adverb placement condition in the sentence ordering task in English, we found similar target-like performance from both groups. No significant difference between the groups in adverb placement condition was found and target-like performance supports our prediction that it is due to learning but not due to CLI.

Another task used to test the participants' word order preferences in English, was forced choice task in English. The group results (see Figure 5.19), showed a close target-like performance by both groups in both conditions. However, the individual preference of participants in each condition under investigation differed from each other. XSVO word order was preferred by most of heritage speakers and some participants have followed XVSO word order which is ungrammatical in English. Furthermore, heritage language speakers also performed well in adverb placement in this task. The target structure i.e. Adv- V was preferred by most of the participants and few participants have followed V-Adv, the ungrammatical structure. This indicates acquisition of the L3 English rather than the influence from the either prior language which suggests our prediction that target-like performance is due to learning but not due to CLI. On the other hand, the incomplete individual results of the majority language speakers affected the results. This could be due to time constraints in the school and because of the participants' comprehension level where they might have been unable to comprehend the task completely which might be another factor of no clear evidence to ensure the source of CLI.

The participants were also tested in Norwegian for their proficiency and word order preferences. Norwegian proficiency task was used as a proficiency measure to control for proficiency in the ML Norwegian for both comparison groups. The HL speakers show a slightly higher proficiency than the ML speakers (Figure 5.13). This could be due to the dominancy of the language because Norwegian is a socially dominant language and the language of education. Heritage speakers might have become dominant in the majority language and have higher proficiency in the majority language than the heritage language. This result supports my first prediction. On the other hand, the majority language speakers also have proficiency in Norwegian, but we can also observe the gaps in the individual results of the majority language speakers in Norwegian proficiency task (see Figure 5.15). The gaps might be the reason that has affected the result and this gap existed due to time limit in the school where the researcher was allowed for a fixed time to collect the data in the class and all participants were unable to participate in all the test tasks. The major difference between the results of both groups is time constraint. The heritage language speakers participated individually in the tasks at a public space or library while the majority language speakers participated in the class in the tasks.

The sentence ordering task in Norwegian, was the second task where the participants of both groups were tested for their word order preferences in Norwegian in both the conditions under

investigation. In non-subject initial declarative condition, both groups have strong preference for XVSO word order which is the target word order in Norwegian and the similarity between the groups indicates their proficiency in the majority language which might have been acquired. The individual variation can also be observed from both the comparison groups in their individual results (see Figure 5.9 and Figure 5.10) and these individual results might be due to age or the exposure of participants to the majority language. Possibly age is a factor influencing the learning process as 8-14 was the age range of participants in the present study and less exposure to the majority language predict less proficiency while more exposure can be the reason of high proficiency in the majority language. Furthermore, both groups followed some other structure, such as; XVOS and XSOV which might indicate various other factors to be the source of influence or their interaction with their fellows who have a different language background.

For the adverb placement condition, the group results showed a preference for the target word order; V-Adv, whereas the individual results show variation between the groups. The majority language speakers produced more V-Adv pattern which is the target word order and the heritage language speakers produced slightly more Adv-V word order which is ungrammatical in Norwegian. In comparison to the heritage language speakers, the majority language speakers followed the V-O-Adv word order. These results do not indicate clear evidence for either of the prior language to affect the learning process. This might predict the typological similarity between the majority language and the target language which is facilitative for the learners in the productive grammar or could be due to the exposure of the participants from the early age (beginning of kindergarten) to the majority language.

The heritage language speakers were tested with a forced choice task, for their word order preferences in Hazaragi in both conditions under investigation where most of participants have preference for target word order i.e., XSOV and Adv-O-V pattern. This might be due to learning but due to CLI, as most heritage language speakers have more exposure to the heritage language at home. The Table 5.1 shows individual preference of the participants for the target word order with a mean of 2.5 in both the conditions being assessed. The heritage language speakers are mostly the elder or the middle child in the family and interact with parents and siblings at home or in local community and gatherings with friends. Possibly, the more a child gets exposure to learn a language, the more he/she becomes proficient in a language, or it might be possible that their parents prefer the child to learn the heritage language first and focus more on this through communicating with them at home. These can

be another source of their proficiency which has helped them in enhancing their heritage language. Some of the heritage language speakers have also adapted the XSVO, XVSO, V-Adv, and Adv-V patterns which are ungrammatical in Hazaragi. It may be due to the influence of the target and majority language which are simultaneously active.

In summary, fluctuating variation in the results of the present study was found where the participants were not consistent with one-word order in both the conditions being assessed. Both groups were accepting one-word order and rejecting the other did not present any significant influence from either of the prior language but target like performance can be observed from the results which might indicate proficiency of the participants. This proficiency could be due to acquiring but not due to CLI as both groups have similar target like preference for both conditions.

The aim of the present study was to determine the source of CLI in L3 English acquisition. The research question focused on whether CLI occurs from the heritage language, the majority language or both the previously acquired languages. Our findings suggest that high accuracy rates are due to learning. Possibly, both previously acquired languages influence the L3 as both prior languages are activated in the process of learning the L3. The individual data showed more individual variation in the results of both the comparison groups where similarities and differences can be observed in both conditions investigated in the present study. Thus, the findings might not suggest any of the prior languages as a source of CLI which might be due to the participants having acquired the L3 word order.

In the two main conditions, we found and almost target like performance between the two comparison groups in the written productive and comprehension tasks in Norwegian and Hazaragi. In both previously acquired languages, the performance of the participants is often target-like in both conditions being assessed. Moreover, the heritage language speakers score slightly higher in the Norwegian proficiency task than the majority language speakers. Their proficiency in the majority language Norwegian might indicate the dominance of language as Norwegian is a socially dominant language and language of communication and the participants have the exposure to it from the very first day of their kindergarten. Furthermore, the comprehension task i.e., forced choice task in the heritage language Hazaragi revealed the performance of heritage language speakers where we found variation in the results. Most of the participants have target like performance i.e., XSOV and Adv-O-V in both the conditions while few participants have adapted XSVO and XVSO for non-subject initial declarative, and few have followed Adv-V and V-Adv structure for adverb placement. This non target like

individual preference suggest influence from majority language and target language and their difficulty with the conditions that Hazaragi is dissimilar with Norwegian and English. Consequently, this indicates that the heritage language speakers have difficulties with acquiring morphosyntactic conditions in the heritage language.

As discussed in theoretical background (chapter 2), by studying the heritage bilinguals and by focusing on the L3 acquisition models, that is, order of acquisition, structural and typological similarity, and the language of communication. The present study considers the TPM which argues that CLI in the L3 could be from the typological similarity between the languages. The finding of the present study supports the prediction of TPM as the results revealed in sentence ordering tasks in English and Norwegian for both the conditions that English and Norwegian are typologically similar languages, and the influence could be due to typological similarity. Moreover, TPM predicts the influence at the initial stages of L3 acquisition but does not predict for the later stages of acquisition and this study also focused on child L3 acquisition. This also can be the reason that this study supports TPM.

The results of the present study do not clearly support the L3 acquisition models, other than TPM where we found typological similarity in Norwegian English. We found high accuracy rates in the results of the tasks which is a target like performance in both conditions investigated. It might suggest that participants have acquired the L3 to a target like and there not be any influence from the prior languages. Such findings do not support influence from either prior language or models of L3 acquisition clearly.

The findings of the present study align with previous research by Hopp (2019) in a study with Turkish-German bilinguals on the child L3 acquisition of English, which found typological similarity and language dominance as source of influence. Both the studies found the determining factors are typology and dominance which might influence the L3 acquisition. In this study, English and Norwegian are typologically similar languages and Norwegian is the dominant language, based on the scores of written productive tasks. Whereas, in this study by Hopp (2019), English and German were the typologically closer languages and according to the scores of productive vocabularies, German was the dominant language in that study.

The present study suffers from some limitations. Firstly, it would have been desirable to include parallel population for both the comparison groups to see whether they manifest the same findings. Unfortunately, we could not find more heritage language speakers of 5^{th} and 6^{th} grade students particularly. The researcher contacted some Hazara families, but they were

not willing to allow their child to participate in the tasks due to their individual personal reasons. The overall sample of the heritage language speakers was less than the majority language speakers and finding such participants practically proved impossible. Secondly, due to time constraint, gaps can be observed in the results of the majority language speakers. It would have been if we could have more time in the school for in-class tasks so that all the majority language speakers could participate in all the tasks, and we might have significant productive findings.

Despite these limitations, the results of the heritage language speakers and the majority language speakers in non-subject initial declarative and adverb placement suggest influence from dominant language and typological similarity in written productive and comprehension tasks in the acquisition of L3 English.

In sum, all participants performed close to target-like which is due to learning of the L3 English and the heritage and majority speaker groups perform similarly for both word order conditions.

7. Conclusion

This empirical study aimed to investigate which previously acquired languages are the source of cross-linguistic influence in the acquisition of English as a third language. This study focuses on the acquisition of morphosyntactic conditions, particularly in non-subject initial declarative and adverb placement that do not match in Hazaragi, Norwegian and English (see chapter 2 for further details).

In this study, written production and comprehension tasks were used to test non-subject initial declarative and adverb placement conditions. For the written production, participants were tested with sentence ordering tasks in English (target language) and majority language Norwegian, whereas, a forced choice tasks in English and heritage language Hazaragi for the comprehension task. All the tasks were paper-pencil tasks, and the participants were provided with instructions for each task. In the written production tasks, the participants were asked to use the provided chunks to produce a sentence and in comprehension task, the participants were asked to choose a sentence that sounds either "good" or "bad" to them in target and heritage languages. Twenty majority language speakers and twelve heritage language speakers participated in the tests. Majority language speakers had Norwegian as their L1 and English as their L2, while heritage language speakers had Hazaragi and Norwegian as their L1s, and English as their L3. A multiple choice task in Norwegian with 28 test items and vocabulary task with 20 test items in English were used as a proficiency measures for both comparison groups.

The findings of the present study show high target-likeness in L3 English with some individual variations. The groups were matched based on their L3 English proficiency. The heritage language speakers scored slightly higher than the majority language speakers in the Norwegian proficiency task.

Some inconsistencies in the findings of the present study were found. Participants produced different word orders in the same condition and judged several word orders as good for the same condition. However, overall strong target-like performance in L3 English was found for both groups. We found that participants had target-like performance with high scores in the test designs. It might indicate their learning process of the majority language and the target language and their exposure to the various means of learning. In addition, we also found typological influence from the majority language. English and Norwegian are typologically similar languages, and it might indicate that the heritage language speakers have difficulty in

comprehension of the morph syntactic conditions between the language and Norwegian, being a socially dominant language could be a factor of influence.

The findings can also be used to improve the test designs in a context where learners may get more time to participate in all tests and could complete all tasks. The results of this study indicate that limited time where participants are unable to complete all tasks, age and use of language play a significant role when collecting data on the source of cross-linguistic influence.

Perhaps a similar study with a condition that is less marked in Norwegian than in English could be conducted as a follow-up investigation. If findings of such a study revealed strong typological and dominancy of Norwegian influence, it would support the argument that socially dominant language and typological similarity are the factors leading to CLI.

In future research, I would suggest research with this language triad i.e., Hazaragi, Norwegian and English with adult L3 English learners who speak Norwegian and Hazaragi, an understudied language which can be focused regarding various morphosyntactic properties.

This study contributes to the core questions of child L3 English acquisition and adds to the current discussion on which previously acquired languages (the heritage language or the majority language) is the source of cross-linguistic influence in the acquisition of English as L3.

References

Abdollahi Dehooei, F. (2022). *Cross-linguistic Influence in L3 Acquisition of English by Persian Heritage Speakers in Norway* (master's thesis, UiT Norges arktiske universitet).

Bardel, C., & Falk, Y. (2007). The role of the second language in third language acquisition: The case of Germanic syntax. *Second Language Research*, *23*(4), 459-484.

Busterud, G., Dahl, A., Kush, D., & Listhaug, K. F. (2023). Verb placement in L3 French and L3 German: The role of language-internal factors in determining cross-linguistic influence from prior languages. *Linguistic Approaches to Bilingualism*, *13*(5), 693-716.

Cabrelli, J., & Iverson, M. (2023). Why do learners overcome non-facilitative transfer faster from an L2 than an L1? The cumulative input threshold hypothesis. *International Journal of Multilingualism*, 1-27.

Cenoz, J., Hufeisen, B., & Jessner, U. (Eds.). (2001). *Cross-linguistic influence in third language acquisition: Psycholinguistic perspectives* (Vol. 31). Multilingual Matters.

Dąbrowska, E. (2010). Naive v. expert intuitions: An empirical study of acceptability judgments.

Dahl, A., Listhaug, K. F., & Busterud, G. (2022). The role of L1 Norwegian and L2 English in the acquisition of verb placement in L3 German. *Language Acquisition and Language Disorders*, 191-212.

De Cat, C., Kašćelan, D., Prévost, P., Serratrice, L., Tuller, L., & Unsworth, S. (2022). *Quantifying Bilingual Experience (Q-Bex): questionnaire manual and documentation*. DOI 10.17605/OSF.IO/V7EC8.

Dunn, D. M., Dunn, L. M., Styles, B., & Sewell, J. (n.d.). The British Picture Vocabulary Scale - Third Edition.

Fallah, N., Jabbari, A. A., & Fazilatfar, A. M. (2016). Source (s) of syntactic cross-linguistic influence (CLI): The case of L3 acquisition of English possessives by Mazandarani–Persian bilinguals. *Second Language Research*, *32*(2), 225-245.

Falk, Y., & Bardel, C. (2011). Object pronouns in German L3 syntax: Evidence for the L2 status factor. *Second Language Research*, *27*(1), 59-82.

Flynn, S., Foley, C., & Vinnitskaya, I. (2004). The cumulative-enhancement model for language acquisition: Comparing adults' and children's patterns of development in first, second and third language acquisition of relative clauses. *International Journal of Multilingualism*, *1*(1), 3-16.

Hermas, A. (2010). Language acquisition as computational resetting: Verb movement in L3 initial state. *International Journal of Multilingualism*, *7*(4), 343-362.

Hermas, A. (2015). The categorization of the relative complementizer phrase in third-language English: A feature re-assembly account. *International journal of Bilingualism*, *19*(5), 587-607.

Hopp, H. (2019). Cross-linguistic influence in the child third language acquisition of grammar: Sentence comprehension and production among Turkish-German and German learners of English. *International Journal of Bilingualism*, *23*(2), 567-583.

Jensen, I. N., Mitrofanova, N., Anderssen, M., Rodina, Y., Slabakova, R., & Westergaard, M. (2023). Crosslinguistic influence in L3 acquisition across linguistic modules. *International Journal of Multilingualism*, *20*(3), 717-734.

Jin, F. (2009). Third language acquisition of Norwegian objects: Interlanguage transfer or L1 influence. *Third language acquisition and universal grammar*, 144-161.

Johnson, K. (2008). *Quantitative methods in linguistics*. John Wiley & Sons.

Kolb, N., Mitrofanova, N., & Westergaard, M. (2022). Crosslinguistic influence in child L3 English: An empirical study on Russian-German heritage bilinguals. *International Journal of Bilingualism*, *26*(4), 476-501.

Listhaug, K. F., Busterud, G., & Dahl, A. (2021). French as a third language in Norway: The influence of the prior languages in the acquisition of word order. *Oslo Studies in Language*, *12*(1), 125-144.

Lorenz, E., Kolb, N., Jensberg, H., & van Osch, B. (2023). Cross-linguistic influence in L2 and L3 English acquisition: Norwegian and Norwegian-Heritage Language Children. *Heritage Languages at the Crossroads (HL@ Cross): Cultural contexts, Individual differences, and methodologies workshop*. Unpublished Workshop Presentation.

Montrul, S. (2011). Introduction: The linguistic competence of heritage speakers. *Studies in Second Language Acquisition*, *33*(2), 155-161.

Novogradec, M. V. J. CROSS-LINGUISTIC INFLUENCE IN ENGLISH LANGUAGE ACQUISITION. *МЕТОДИЧКИ ВИДИЦИ*.

Paradis, M. (2009). *Declarative and procedural determinants of second languages* (Vol. 40). John Benjamins Publishing.

Paradis, J. (2023). Sources of individual differences in the dual language development of heritage bilinguals. *Journal of Child Language*, *50*(4), 793-817.

Polinsky, M., & Kagan, O. (2007). Heritage languages: In the 'wild' and in the classroom. *Language and linguistics compass*, *1*(5), 368-395.

Ranong, S. N., & Leung, Y. K. I. (2009). Null objects in L1 Thai-L2 English-L3 Chinese: An empiricist take on a theoretical problem. *Third language acquisition and universal grammar*, 162-191.

Rothman, J. (2009). Understanding the nature and outcomes of early bilingualism: Romance languages as heritage languages. *International journal of bilingualism*, *13*(2), 155-163.

Rothman, J., & Cabrelli Amaro, J. (2010). What variables condition syntactic transfer? A look at the L3 initial state. *Second Language Research*, *26*(2), 189-218.

Rothman, J. (2011). L3 syntactic transfer selectivity and typological determinacy: The typological primacy model. *Second language research*, *27*(1), 107-127.

Rothman, J. (2013). Cognitive economy, non-redundancy and typological primacy in L3 acquisition: Initial stages of L3 Romance and beyond. In S. Baauw, F. Drijkoningen, L. Meroni, & M. Pinto (Eds.), Romance Languages and Linguistic Theory (Vol. 5, pp. 217– 248). John Benjamins Publishing Company.

Rothman, J., & Halloran, B. (2013). Formal linguistic approaches to L3/Ln acquisition: A focus on morphosyntactic transfer in adult multilingualism. *Annual Review of Applied Linguistics*, *33*, 51-67.

Rothman, J. (2015). Linguistic and cognitive motivations for the Typological Primacy Model (TPM) of third language (L3) transfer: Timing of acquisition and proficiency considered. *Bilingualism: language and cognition*, *18*(2), 179-190.

Rothman, J., Alonso, J. G., & Puig-Mayenco, E. (2019). *Third language acquisition and linguistic transfer* (Vol. 163). Cambridge University Press.

Saraeva, A. (2023). *Cross-linguistic Influence in L3 Acquisition of English by child heritage speakers of Russian in Norway* (master's thesis, UiT Norges arktiske universitet).

Schwartz, B. D., & Sprouse, R. A. (1996). L2 cognitive states and the full transfer/full access model. *Second language research*, *12*(1), 40-72.

Sharwood Smith, M. (2021). Language transfer: a useful or pernicious concept? *Second Language Research*, *37*(3), 409-414.

Slabakova, R. (2017). The scalpel model of third language acquisition. *International Journal of Bilingualism*, *21*(6), 651-665.

Smith, M. A. S. (1989). 11. Crosslinguistic influence in language loss. *K. Hyltenstam*.

Smith, M., S., (2019). CHAPTER ONE REPRESENTING REPRESENTATION: THREE PERSPECTIVES AND THE CASE. *Explorations in Second Language Acquisition and Processing*, 2.

Sprouse, J., & Almeida, D. (2011). Power in acceptability judgment experiments and the reliability of data in syntax. *Ms., University of California, Irvine & Michigan State University*.

Stadt, R., Hulk, A., & Sleeman, P. (2018). The influence of L1 Dutch and L2 English on L3 French: A longitudinal study. *Journal of the European Second Language Association*, *2*(1).

Stadt, R., Hulk, A., & Sleeman, P. (2020). L1 Dutch vs L2 English and the initial stages of L3 French acquisition. *Third language acquisition: Age, proficiency and multilingualism*, *3*, 237.

Valdés, G. (1995). The teaching of minority languages as academic subjects: Pedagogical and theoretical challenges. *The Modern Language Journal*, *79*(3), 299-328.

Walla, D. (2023). Assessing knowledge of English verb placement and subject-verb agreement among multilingual students in grades 5–7 in Norway. *Pedagogical Linguistics*.

Westergaard, M. (2003). Unlearning V2: Transfer, markedness, and the importance of input cues in the acquisition of word order in English by Norwegian children. *EUROSLA yearbook*, *3*(1), 77-101.

Westergaard, M., Mitrofanova, N., Mykhaylyk, R., & Rodina, Y. (2017). Crosslinguistic influence in the acquisition of a third language: The Linguistic Proximity Model. *International Journal of Bilingualism, 21*(6), 666-682.

Westergaard, M. (2019). Microvariation in multilingual situations: The importance of property-by-property acquisition. Second Language Research, 37(3), 379–407.

Westergaard, M. (2021). L3 acquisition and crosslinguistic influence as co-activation: Response to commentaries on the keynote 'Microvariation in multilingual situations: The importance of property-by-property acquisition'. *Second Language Research, 37*(3), 501-518.

Westergaard, M. K. R., Mitrofanova, N., Rodina, Y., & Slabakova, R. (2023). Full Transfer Potential in L3/Ln Acquisition: Crosslinguistic Influence as a Property-by-Property Process. In: Cabrelli J, Chaouch-Orozco A, González Alonso J, Pereira Soares SM, Puig-Mayenco E, Rothman J, (eds.), *The Cambridge Handbook of Third Language Acquisition and Processing*. Ch.9, pp.219-242.

Appendix 1

Table 1. Q-BEx questionnaire- overview of test questions.

1. Please enter your name and surname.
2. Please list all the languages that you speak and/or understand - no matter how well or how often
3. What is your date of birth?
4. What is your gender?
5. How many brothers and/or sisters do you have?
6. Select your birth order. I am...
7. Which country were you born in?
8. Did you go to day care (e.g., nursery or preschool)?
9. When did you start going to day care (e.g., nursery or preschool)?
10. Are you going to school?
11. When did you start going to school?
12. Have you ever missed school for a long period of time (except for school holidays)? For example, because of a longer illness, the effects of the pandemic, or for any other reason.
13. List every adult that you live with (at least some of the time).
14. Please select up to two main caregivers that you have. A main caregiver is a parent, a grandparent, or someone who takes care of you most of the time.
15. Who are other children living in your home, at least some of the time? If there are no other children, please move to the next question.
16. Think about the people who live with you. Do any of them not speak (for example, because they are too young to talk)? If irrelevant, please move to the next question.
17. Think about a typical week in the current year.

    At home, how often do **people** use each language when speaking to you?

    At home, how often do **you** use each language when speaking to other people?
18. Think about a typical week in the current year.

    At school, how often do **people** use each language when speaking to you?

    At school, how often do **you** use each language when speaking to other people?
19. Think about a typical week in the current year.

    In the local community (outside school), how often do **people** use each language when speaking to you?

In the local community (outside school), how often do **you** use each language when speaking to other people?

20. Think about a typical day during the school holidays in the last 12 months (spent in Norway or abroad).
21. How often did **people** use each language when speaking to you?
22. How often did **you** use each language when speaking to other people?
23. How old were you when people started talking to you in Hazaragi?
24. How old were you when people started talking to you in Norsk (Norwegian)?
25. How old were you when people started talking to you in English?
26. Where did people first start talking to you in Hazaragi?
27. Where did people first start talking to you in Norsk (Norwegian)?
28. Where did people first start talking to you in English?

(Q-BEx questions by De Cat et al., 2022).

Table 2. Sentence ordering task in English- overview of test items in English.

Item	**phrases provided**	**Sentences**	**Target word order in English**
Example	Plays- the game- the girl	The girl the game plays.	
1	To music- listen- often- the brothers	The brothers often listen to music.	Adv-V
3	Games- always- play- the friends	The friends always play games.	Adv-V
8	The man- the window- often- cleans	The man often cleans the window.	Adv-V
11	The girl- never- video games- plays	The girl never plays video games.	Adv-V
12	The woman- always- the bed- makes	The woman always makes the bed.	Adv-V

14	The girl- builds- the castle- often	The girl often builds the castle.	Adv-V
15	The cat- outside- goes- never- in winter	The cat never goes outside in winter.	Adv-V
17	The boy- throws- always- the ball	The boy always throws the ball.	Adv-V
19	The girls- lunch- eat- always	The girls always eat lunch.	Adv-V
20	The boys- the bus- on Friday- take- never	The boys never take the bus on Friday.	Adv-V
2	Now- the apple- the girl- picks	Now the girl picks the apple.	XSVO
4	On Monday- travels- the family- to Spain	On Monday the family travels to Spain.	XSVO
5	Now- plays- the boy- the guitar	Now the boy plays the guitar.	XSVO
6	Now- the dog- catches- the toy	Now the dog catches the toy.	XSVO
7	On Monday- gets- a new dog- the family	On Monday the family gets a new dog.	XSVO
9	Every day- their homework- the boys- do	Every day the boys do their homework.	XSVO
10	On Monday- at the theater- works- the actor	On Monday the actor works at the theater.	XSVO
13	Every day- their books- bring- to class- the students	Every day the students bring their books to class.	XSVO
16	On Monday- to the store- goes- the man	On Monday the man goes to the store.	XSVO
18	Every day- the bus- the sisters- take- to school	Every day the sisters take the bus to school.	XSVO

(Items by Lorenz et al., 2023).

Table 3. Sentence ordering task in Norwegian- overview of test items in Norwegian.

Item	Phrases provided	Sentences	Target word order in Norwegian
Example	Mannen- på butikken- går- på tirsdager	Mannen går på butikken på tirsdager.	
1	Jentene- lunsj- spiser- alltid	Jentene spiser alltid lunsj.	V-Adv
4	Mannen- vindu- ofte- vasker	Mannen vasker ofte vindu.	V-Adv
5	Gutten- kaster- alltid- ballen	Gutten kaster alltid ballen.	V-Adv
6	Guttene- buss- på fredager- tar- aldri	Guttene tar aldri buss på fredager.	V-Adv
10	Jenta- bygger- slott- aldri	Jenta bygger aldri slott.	V-Adv
2	Nå- eplet- jenta- plukker	Nå plukker jenta eplet.	XVSO
3	På mandag- reiser- familien- til Spania	På mandag reiser familien til Spania.	XVSO
7	Hver dag- leksene sine- gutten- gjør	Hver dag gjør gutten leksene sine.	XVSO
8	Nå- spiller- gitar- gutten	Nå spiller guten gitar.	XVSO
9	På mandag- får- en ny hund- familien	På mandag får familien en ny hund.	XVSO

(Items by Lorenz et al., 2023).

Table 4. Norwegian proficiency task- overview of test items.

Example: Jeg ___ i Tromsø.

- ☐ bo
- **X** bor
- ☐ bu
- ☐ er
- ☐ I don't know

1. Hei! Jeg ____ Nils.

- navn
- heter
- være
- sier
- I don’t know

2. Han ____ 18 år gammel.

- har
- hadde
- gjør
- er
- I don’t know

3. Jeg ____ en bok i forrige uke.

- leser
- å lese
- leste
- skrive
- I don’t know

4. Mari ____ middag hver dag.

- spise
- lage
- spiser
- måltid
- I don’t know

5. Hvor ____ du?

- arbeid
- arbeidere

- arbeider
- har arbeidetet
- I don’t know

6. Vet du hvor han ____ nå?

- var
- er
- være
- bli
- I don’t know

7. Jeg ____ så godt jeg kan!

- prøve
- prøv
- prøvd
- prøver
- I don’t know

8. Jeg _____ å kjøre buss.

- ikke liker
- liker ikke
- ikke lik
- like ikke
- I don’t know

9. Alle husene er _____.

- gul
- røde
- hvitt
- svartere
- I don’t know

10. Jeg vil ta _____ til Bergen.

- toger
- togene
- toget
- togs
- I don't know

11. Vil du komme på besøk til____?

- oss
- vi
- dere
- disse
- I don't know

12. Dette brødet er gammelt! Det _____!

- smaker vondt
- er god
- være vondt
- ikke godt
- I don't know

13. Da _____ i morgen!

- vi ser
- sees vi
- vi se
- du ser
- I don't know

14.____ er galt?

- Hvorfor
- Hva
- Når

- Hvordan
- I don’t know

15. Dette må vi finne _____!
    - i
    - ut av
    - ned
    - hva
    - I don’t know

16. Kari har ikke jobb. Hun er _____.
    - ikke arbeid
    - uarbeider
    - arbeid ikke
    - arbeidsløs
    - I don’t know

17. Han kjøpte mange _____.
    - fin suvenir
    - fint suvenirer
    - fine suvenirer
    - en fin suvenir
    - I don’t know

18. Denne ____ går veldig fort.
    - bil
    - biler
    - bilen
    - bilene
    - I don’t know

19. Hva _____ han gjøre nå?

- har
- skal
- skalle
- villet
- I don’t know

20. Hvorfor ____ du det slik?

- gjort
- gjøre
- gjorde
- gjorte
- I don’t know

21. Hun liker ikke _____ hva hun skal spise.

- fortelle
- å bli fortalt
- å bli fortelle
- blir fortalt
- I don’t know

22. Han liker den nye jobben _____ godt.

- seg
- sitt
- sin
- sine
- I don’t know

23._____ spiste gress.

- Kuen
- Ku
- To ku
- En kuer
- I don’t know

24. Kan du gå _____ for meg, vær så snill?

- på butikken
- til butikk
- ved butikker
- butikkene
- I don’t know

25. Jeg er ____. Jeg vil spise nå!

- mat
- tørst
- sulten
- trøtt
- I don’t know

26. _____ var fine og billige, syntes hun.

- Denne kjolen
- Disse kjolene
- Den kjolen
- De kjolen
- I don’t know

27. Hvordan står det til?

- Jo takk, bare bra!
- Bare fine!
- Takk!

- Ja!
- I don’t know

28. Barna hans var veldig _____.

- liten
- små
- mindre
- lille
- I don’t know

Table 5. Proficiency measure in English (British Picture Vocabulary Scale)- overview of test items.

Item	**Word**	**Picture**			
Example 1.	Fire	1	2	3	4
Example 2.	Dancing	1	2	3	4
1.	Duck	1	2	3	4
2.	Spoon	1	2	3	4
3.	Jumping	1	2	3	4
4.	Money	1	2	3	4
5.	Farmer	1	2	3	4
6.	Necklace	1	2	3	4
7.	Empty	1	2	3	4
8.	Fence	1	2	3	4
9.	Happy	1	2	3	4
10.	Dressing	1	2	3	4
11.	Mountain	1	2	3	4
12.	Branch	1	2	3	4
13.	Sharing	1	2	3	4
14.	Diving	1	2	3	4
15.	Target	1	2	3	4
16.	Measure	1	2	3	4

17.	Terrified	1	2	3	4
18.	Island	1	2	3	4
19.	Valley	1	2	3	4
20.	Luggage	1	2	3	4

(Items by Dunn et al., 2009).

Table 6. Forced choice task in English- overview of test items.

Item	Sentence
1a	Now the boy plays the guitar.
1b*	Now plays the boy the guitar.
2a*	The boy throws always the ball.
2b	The boy always throws the ball.
3a	The dog always hides the bone.
3b*	The dog hides always the bone.
4a*	Now closes the girl the window.
4b	Now the girl the window.
5a	The boy often builds the wall.
5b*	The boy builds often the wall.
6a	Now the man picks the apple.
6b*	Now picks the man the apple.

(Items by Lorenz et al., 2023).

Table 7. Forced choice task in Hazaragi as a heritage language- overview of test items.

Item	Sentence	Translation
1a*	یالی بچه بازی مونه گیتار.	The boy plays the guitar.
1b*	یالی بازی مونه بچه گیتار.	
1c	یالی بچه گیتار بازی مونه.	
2a*	بچه پرتوه مونه همیشه گیند ره.	The boy always throws the ball.
2b*	بچه همیشه پرتوه مونه گیند ره.	
2c	بچه همیشه گیند ره پرتوه مونه.	
3a	سگ همیشه استخو ره پوٹ مونه.	The dog always hides the bone.
3b*	سگ همیشه پوٹ مونه استخو ره.	
3c*	سگ پوٹ مونه همیشه استخو ره.	
4a*	یالی بند مونه دختر کیلکن ره.	Now the girl closes the window.
4b*	یالی دختر بند مونه کیلکن ره.	
4c	یالی دختر کیلکن ره بند مونه.	
5a*	بچه غالبا جور مونه دیوال ره.	The boy often builds the wall.
5b*	بچه جور مونه غالبا دیوال ره.	
5c	بچه غالبا دیوال ره جور مونه.	
6a	یالی مرتکه سیوه ره میچنه.	Now the man picks the apple.
6b*	یالی مرتکه میچنه سیوه ره.	
6c*	یالی میچنه مرتکه سیوه ره.	

Appendix 2

Sikt Notification Form

Appendix 3

Consent Form

Sikt

Notification Form

Reference number
216091

Which personal data will be processed?

- Name
- Date of birth
- Voice on audio recordings
- Background information that, when combined, can be used to identify an individual

Describe the background information
age, gender, education, family background (parents' education and language use), country of birth, country of residency (i.e., Norway), time of arrival in Norway, length of residency in Norway, language exposure and use (at home, school, on social media, watching movies etc.), literacy skills.

Project information

Title
a study on cross-linguistic influence in acquisition of English as third language by Hazaragi/ Norwegian bilingual heritage speakers.

Summary
In this study, we investigate acquisition and use of English as a foreign language in a primary school setting in Norway (age 8-14). Second language (L2) learners of English (native speakers of Norwegian) are compared to third language (L3) learners (heterogeneous group of heritage bilinguals growing up and attending school in Norway) to examine whether there are differences between these two groups based on their English production. This research aims to answer which of the previously acquired languages is the source for cross-linguistic influence by comparing L3 to L2 learners.

What is the purpose for processing personal data?
This project aims to investigate whether second and third language learners of English differ in their language production. Collecting personal data is an integral part of the study. Personal data, such as gender, age, education and spoken languages, will be used in statistical analyses that aim to correlate these types of personal data with language outcomes.

External funding
Ikke utfyllt
Type of project
Master's

Contact information, student
Arifa Batool, arifabatool24@yahoo.com, tlf: +4791277524

Data controller

Institution responsible for the project
Universitetet i Stavanger / Fakultet for utdanningsvitenskap og humaniora / Institutt for kultur- og språkvitenskap

Project leader
Nadine Kolb, nadine.kolb@uis.no, tlf: +4741379137

Do multiple institutions share responsibility (joint data controllers)?
No

Sample 1

Describe the sample
Norwegian native speaker children who live in Norway and are second language learners of English

Describe how you will identify or contact the sample
Participants will be recruited via primary schools in Norway. The only selection criterion is to be a child second language learner of English. The information letter (uploaded here) will be translated into Norwegian.

Age group
8 - 14

Are any of these groups included in the sample?
- Vulnerable groups

Which data relating to sample {{i}} will be processed? 1
- Name
- Date of birth
- Voice on audio recordings
- Background information that, when combined, can be used to identify an individual

How will data relating to sample 1 be collected?

Personal interview

Attachment

QBex questionnaire questions.xlsx

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

Other

Describe
Production data in written form: a pencil and paper version of a sentence ordering task Production data in oral form: a sentence repetition task

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

Sampla 1 and sample 2 Consent CLI.pdf

Sample 2

Describe the sample
Children who live in Norway and are second language learners of Norwegian and third language learners of English

Describe how you will identify or contact the sample
Participants will be recruited via primary schools in Norway. The only selection criterion is to be a child second language learner of Norwegian and a third language learner of English. The information letter (uploaded here) will be available to parents in English and Norwegian.

Age group
8 - 14

Are any of these groups included in the sample?
- Vulnerable groups

Which data relating to sample {{i}} will be processed? 2
- Name
- Date of birth
- Voice on audio recordings

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

How will data relating to sample 2 be collected?

Personal interview

Attachment

QBex questionnaire questions.xlsx

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

Other

Describe
Production data in written form: a pencil and paper version of a sentence ordering task Production data in oral form: a sentence repetition task

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 2

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

Sampla 1 and sample 2 Consent CLI.pdf

Third persons

Will the project collect information about third persons?
Yes

Describe the third persons
parents or caretakers of sample 1 and sample 2

Which personal data relating to third persons will be processed?

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

Which sample will give information relating to third persons?

- Sample 1: Norwegian native speaker children who live in Norway and are second language learners of English
- Sample 2: Children who live in Norway and are second language learners of Norwegian and third language learners of English

Will third persons consent to the processing of their personal data?
Yes

Will third persons receive information about the processing of their personal data?
Yes

Information letter

Sampla 1 and sample 2 Consent CLI.pdf

Documentation

How will consent be documented?

- Electronically (email, e-form, digital signature)
- Manually (on paper)

How can consent be withdrawn?
The participants can inform the data collector at any time before, during or after the data collection procedure in person, by phone or by email and (1) change, update, remove their personal information, (2) withdraw at any time from the project without having to provide any reason.

How can data subjects get access to their personal data or have their personal data corrected or deleted?
It is stated in the consent letter that the subjects can ask the data collector to provide access to their personal data at any time during the research project. Upon their request, parts of the personal data can be corrected, or parts or the entirety of their personal data can be deleted immediately.

Total number of data subjects in the project
1-99

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
- Restricted access
- Encrypted transmission
- Encrypted storage
- Record of changes

Where will the personal data be processed
- Hardware
- Mobile devices
- ?

Who has access to the personal data?
- Project leader
- Internal co-workers
- External co-workers/collaborators inside the EU/EEA
- Data processor

Which data processor will be processing/have access to the collected personal data?
The study is hosted on a server in UiS's cloud computing platform (delivered by Azure Microsoft, with which UiS has a data processing agreement). All participant and study data is directly collected, processed, and stored on this secure server.

Will personal data be transferred to a third country?
No

Closure

Project period
15.08.2023 - 01.06.2024

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

Personal data will be processed and stored at UiS only.

Nettskjema

Form of Consent: Cross-linguistic influence in second and third language acquisition of English

Are you interested in taking part in the research project "Cross-linguistic influence in second and third language acquisition of English"?

This is an inquiry about participation in a research project on multilingualism. In this letter we will give you information about the purpose of the project and what your/your child's participation will involve.

Purpose of the project
The aim of the project is to investigate how previously acquired languages influence third language learning in 4-6 grade students in Norwegian schools. The investigation will include both public schools and international schools.

Who is responsible for the research project?
UiT The Arctic University of Norway and the University of Stavanger are the institutions responsible for the project.

Why are you being asked to participate?
Your child is being asked to participate because s/he is enrolled in grades 4 to 6 in a public or international school in Norway.

What does participation involve for you?
If you chose to let your child participate in the project, it involves the following:

- The child takes part in different tasks at school where s/he will be asked to order words to form a sentence and to pick which word correctly describes one of four pictures, to pick one of four possible answers to fill a gap in a sentence and to judge sentences.
- The child will complete a short questionnaire about his/her language situation at school (i.e., which languages does your child currently speak at home and which languages has s/he spoken earlier).

The child will do the tasks with the researcher, in the classroom, and/or in groups. We will use sound recording and handwritten student texts to be able to analyze the data afterwards. Sound files will be transcribed and anonymized. The children will receive codenames, so that the results cannot be used to identify the children.

Participation is voluntary
Participation in the project is voluntary. If your child chose to participate, you can withdraw your consent at any time without giving a reason. All information about you/your child will then be made anonymous. There will be no negative consequences for you/your child if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data
We will only use your/your child's personal data for the purpose(s) specified in this information letter. We will process your/your child's personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act). The data collected (personal data, linguistic data) will be stored on a two-factor authentication protected database with restricted and exclusive access to the project's principal investigators (Sara Mehraban, Arifa Batool, Shayan Aqdas, Nadine Kolb, Eliane Lorenz, Helene Jensberg, Brechje van Osch), stored on a secured server at

UiT and UiS. To further ensure that no unauthorized persons are able to access the personal data, your/your child's name and contact details will be replaced with a code. Names and respective codes will be stored separately from the rest of the collected data. Only general statistics about language development will be published. You will therefore not be recognizable in publications. The project has been approved by the Data Protection Services for Norwegian research (NSD).

What will happen to the personal data at the end of the research project?
The project is scheduled to end in January 2026. After the end of the project the collected data will be stored in anonymous form. Personally identifiable information will be removed, re-written and categorized.

Your rights
So long as you/your child can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you/your child
- request that your/your child's personal data is deleted
- request that incorrect personal data about you/your child is corrected/rectified
- receive a copy of your/your child's personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your/your child's personal data

What gives us the right to process your personal data?
We will process your/your child's personal data based on your consent.

Based on an agreement with UiT The Arctic University of Norway, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?
If you have questions about the project, or want to exercise your rights, contact:

- UiT The Arctic University of Norway and the University of Stavanger via the principal investigators Dr. Nadine Kolb, Dr. Eliane Lorenz, Helene Jensberg, Dr. Brechje van Osch by email nadine.kolb@uis.no, helene.r.jensberg@uit.no.
- Our Data Protection Officer: Joakim Bakkevold at personvernombud@uit.no
- NSD – The Norwegian Centre for Research Data AS, by email: personverntjenester@nsd.no or by telephone: +47 55 58 21 17.

Yours sincerely,
Sara Mehraban, Arifa Batool, Shayan Aqdas, Dr. Nadine Kolb, Dr. Eliane Lorenz, Helene Jensberg & Dr. Brechje van Osch
Principal Investigators

Consent form

I have received and understood information about the project *Cross-linguistic influence in second and third language acquisition of English* and have been given the opportunity to ask questions. I give consent:

for my child to participate in all the tasks involved in the experiment.

Yes

No

for my child's personal data to be processed until the end of the project period, at the end of 2026.

Yes

No

for the anonymized data to be stored after the end of the project for future research.

Yes

No

The name of the child, what class s/he is in and the name of the child's school

Name of parent/legal guardian