Postmodifying Clauses Written by Students, Who Are Dutch

A Longitudinal Corpus-Based Study About Adnominal Participle Clauses and Relative Clauses

> Ilse de Wit S4499921 August 20th 2020 Primary Supervisor: Sanne van Vuuren Secondary Supervisor: Janine Berns Master Linguistics: Language and Communication Coaching Radboud University Nijmegen

Abstract

The aim of this thesis is to see how advanced Dutch students of English use adnominal participle clauses and relative clauses in their works. It analyzes data from the LONGDALE corpus to identify how the students' use of these postmodifying structures develops over the course of their bachelor program. The study, furthermore, pays special attention to a possible trade-off between the use of adnominal participle clauses and relative clauses. Relevant background knowledge and an analysis of previous research are provided. The results are compared to results found in previous research to check for possible traces of transfer. This study also explores the concept of interlanguage. The results suggest that, although these students are very advanced learners of English, they are still interlanguage speakers who are possibly influenced by transfer.

Key words: adnominal participle clauses, relative clauses, interlanguage, transfer, corpus research, longitudinal

Acknowledgments

The process of writing this thesis has felt a roller coaster with many unexpected twists, turns, and loop-de-loops. For quite some time, I felt like I just kept on climbing the hill, higher and higher, without being able to see when I had reached the top or what I would have to deal with on the way down. When I finally did reach it (after a year...), the process thankfully accelerated as I plummeted back to earth. What a ride. And I do not even like roller coasters.

It goes without saying that I could not have done this by myself, but I would like to take a moment to actually do say it. I am profoundly grateful to everyone who helped and supported me throughout this process. First and foremost, I am deeply indebted to my supervisor, Dr. Sanne van Vuuren, for her time, ideas, and support: I am certain that without your guidance, I would not have finished at this time (or at all). I would also like to thank the *Radboud Writing Lab* for providing a safe and dynamic (online) space in this crazy, quarantine life. My parents and sister cannot be forgotten in this list. Thank you for your unconditional love and support and for letting me use your house as an office. Finally, thank you to my friends for your invaluable support and feedback. I would specifically like to thank Amanda de Lannoy and Lisa Fiddelers for your unwavering support, for patiently listening to all my grievances, and for your profound feedback.

ABSTRACT			2
AC	KNOV	VLEDGMENTS	3
IN	TRODI	JCTION	6
1. I	BACKO	GROUND	9
	1.1.	PARTICIPLE CLAUSES	9
	1.	1.1. Adnominal Participle Clauses	10
	1.	1.2. Participle Clauses in Dutch	13
	1.2.	RELATIVE CLAUSES	14
	1.	2.1. Wh Relatives	18
	1.	2.2. Relativizer <i>that</i> and the <i>bare</i> relative	21
	1.	2.3. Relative Clauses in Dutch	23
	1.3.	ADNOMINAL PARTICIPLE CLAUSES AS AN ALTERNATIVE	25
	1.4.	TRANSFER AND INTERLANGUAGE	26
	1.5.	CORPUS RESEARCH	
	1.6.	PREVIOUS RESEARCH	
	1.7.	CURRENT STUDY	
2.	Μ	ETHODOLOGY	35
	2.1.	CORPUS	35
	2.2.	PROCEDURE	
	2.3.	QUANTITATIVE ANALYSIS	
3.	R	ESULTS	40
	3.1.	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40
	3.1. 3.2.	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42
	3.1.3.2.3.3.	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES ADNOMINAL PARTICIPLE CLAUSES PRESENT ADNOMINAL PARTICIPLE CLAUSES	40 42 46
	 3.1. 3.2. 3.3. 3.4. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES Adnominal Participle Clauses Present Adnominal Participle Clauses Past Adnominal Participle Clauses	40 42 46 47
	 3.1. 3.2. 3.3. 3.4. 3.5. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES ADNOMINAL PARTICIPLE CLAUSES PRESENT ADNOMINAL PARTICIPLE CLAUSES PAST ADNOMINAL PARTICIPLE CLAUSES RELATIVE CLAUSES	40 42 46 47 48
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 54
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 53 55 55
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 54 55 56 57
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 3.12. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	
	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 3.12. 3.13. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 53 54 55 56 56 57 58 59
4.	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 3.12. 3.13. D 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 54 55 56 57 58 59 60
4.	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 3.12. 3.13. D 4.1. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 54 55 56 57 58 59 60
4.	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 3.12. 3.13. D 4.1. 4.2. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 54 55 56 56 56 57 58 59 60 60
4.	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 3.12. 3.13. D 4.1. 4.2. 4.3. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 53 54 55 56 57 58 59 60 60 62 63
4.	 3.1. 3.2. 3.3. 3.4. 3.5. 3.6. 3.7. 3.8. 3.9. 3.10. 3.11. 3.12. 3.13. D 4.1. 4.2. 4.3. 4.4. 	COMPARING ADNOMINAL PARTICIPLE CLAUSES AND RELATIVE CLAUSES	40 42 46 47 48 51 53 54 55 56 57 56 57 58 59 60 62 63 64

4.6.	RELA	TIVIZERS	66
4.6	5.1.	Bare Relatives	66
4.6	5.2.	Compound Relativizer	67
4.6	5.3.	Relativizer That	68
4.6	5.4.	Relativizer When	68
4.6	5.5.	Relativizer Where	69
4.6	5.6.	Relativizer Which	69
4.6	5.7.	Relativizer Who	70
4.6	5.8.	Relativizer Whom	71
4.7.	LIMIT	ATIONS AND FUTURE RESEARCH	71
4.8.	IMPLI	CATIONS FOR TEACHING	74
CONCLUS	SION.		75
REFEREN	ICES.		77

Introduction

The Netherlands has more non-native speakers of English than any other country in Europe (Eurobarometer, 2012). Most Dutch people – especially Dutch students – are exposed to the English language on a daily basis, either actively by, for instance, talking to international people or passively by, for example, watching English TV shows. Only a small number of Dutch people, however, pursue a degree in the English language. The students examined in this study are Dutch students studying English Language and Culture (ELC) at Radboud University in Nijmegen. These students are expected to already have a high command of the English language when they start the study program. Van Vuuren (2017) found that the vast majority of first-year ELC students scored at C1 or C2 level on the CEFR scale (p. 58). One of the objectives of the ELC program is for students to become near-native speakers of English (Studiegids, 2019). This relates to several aspects of the English language, such as being able to express oneself in different registers, having knowledge of phonetics, and being able to apply theories of grammar analysis into spoken and written works (Studiegids, 2019). The application of grammar analysis into spoken and written works is the objective this study is concerned with. More specifically, this thesis looks at two postmodifying structures and how ELC students use them. These postmodifying structures are adnominal participle clauses and relative clauses.

In order to gain insights into how Dutch students use these postmodifying structures, corpus analysis is carried out using data from the *Longitudinal Database of Learner English* (LONGDALE) project. Adnominal participle clauses, relative clauses, and even the use of them by Dutch students have been studied before, but that research has typically focused on contrastive interlanguage analysis. This research was, furthermore, focused on data from a corpus that represented speakers' language abilities at a specific time. Students' knowledge and capabilities will, hopefully, advance over the course of their study program. Therefore, it

is interesting to see how the students' use of the postmodifying structures changes as their knowledge and skills of the language presumably improve.

Thus, to contribute to existing research, this thesis will focus on how the use of adnominal participle clauses and relative clauses develops over time. The results of this analysis will, furthermore, be compared to similar data of native speakers from previous research to provide a complete picture. The research question is: *How does the use of adnominal participle clauses and relative clauses by advanced Dutch students of English develop throughout their bachelor's program*?

Hundt et al. (2012) suggest that there seems to be a trade-off between the use of adnominal participle clauses and relative clauses (p. 236). This would indicate that the increase in use of one of the structures leads to a decrease in use of the other. To see if this is also the case for the Dutch students, this thesis also aims to answer an additional question: *Is there a trade-off between the use of adnominal participle clauses and relative clauses?*

Thus, the aim of this thesis is to see how the use of adnominal participle clauses and relative clauses by advanced Dutch students of English develops throughout their bachelor's program and to discover a possible trade-off between the use of adnominal participle clauses and relative clauses. To do this, texts, written by Dutch students doing a bachelor's in English Language and Culture, from two cohorts in the LONGDALE corpus are checked and analyzed. This study does not merely look at the two postmodifying structures as a whole, but also specifically at both present and past adnominal participle clauses and relativizers *bare*, *compound*, *that*, *when*, *where*, *which*, *who*, and *whom*. Hypotheses that are based on previous research are formed about how often each of these structures is expected to occur and how the use of them will develop over time.

This thesis consists of four chapters. The first chapter presents background knowledge on adnominal participle clauses and relative clauses in both Dutch and English, briefly details

the history and relevant concepts of corpus research, and provides an overview of previous research. The second chapter introduces the corpus, explains the corpus analysis procedure, and describes the statistical approach used to analyze the results. The third chapter details these results, and the fourth chapter provides a discussion of the findings, including implications of the study, suggestions for further research, and limitations of the current study. Finally, the conclusion summarizes the findings.

1. Background

1.1. Participle Clauses

There are three main structural types of clauses in the English language: finite, non-finite, and verbless clauses (Quirk et al., 1985, p. 993). Non-finite clauses can be divided into infinitive clauses and participle clauses, the latter of which can be further divided into nominal, adverbial, and adnominal participle clauses, exemplified below in (1), (2), and (3), respectively.

(1) I disliked spending my vacation in quarantine.

[nominal participle clause]

(2) As mentioned above, the use of participle clauses can be economical.

[adverbial participle clause]

(3) Students working from home have not fallen behind.

[adnominal participle clause (henceforth: APC)]

The form of the participle can be used as a verb (the water is *boiling*) and as an adjective (the *boiling* water) (Quirk et al., 1985, p. 75). A participle clause is a part of a sentence, i.e. a dependent clause, that uses the participle form of a verb, the subject of which is shared with the subject of the verb in the main clause. There are present and past participle clauses. The tense of a participle clause does not have to be the same as the tense of the verb in the main clause can be interpreted in several manners. Examples (4-7) below shows that the adnominal participle clause *calling you* can actually be attributed to different tenses of the verb *to call*. This example also shows that the tense in the main clause (*is* vs. *was*) does not have to correspond with the tense of the participle clause.

(4)	The person <i>calling you</i> is my doctor.	[APC – present]
(5)	The person who { <i>will call / will be calling / calls /</i>	
	is calling / called / was calling } you is my doctor.	[RC]
(6)	The person <i>calling</i> you was my doctor.	[APC – present]
(7)	The person who { <i>will call / will be calling / calls /</i>	
	<i>is calling / called / was calling } you</i> was my doctor.	[RC]

As mentioned earlier, this thesis focuses on postmodifying structures. Therefore, both nominal and adverbial participle clauses are excluded from this paper, seeing as these are not postmodifying structures. See figure 1 for a visual depiction of the categorization of participle clauses.



Figure 1 Categorizing Participle Clauses

1.1.1. Adnominal Participle Clauses

Adnominal participle clauses are also known as reduced relative clauses or postmodifying participle clauses. This is because they, like relative clauses, postmodify nouns or pronouns (Granger, 1997, p. 186). In example (8) below, the participle clause *produced by my favorite artist* has *album* as its antecedent, i.e. it postmodifies it. The participle in the clause must always be an object in the sentence. Adnominal participle clauses can either be restrictive, as in example (9) or non-restrictive, as in example (8).

(8) An album, produced by my favorite artist, was released last week. [APC - past - non-restrictive]

(b) The person calling you is my doctor.
 (c) The person calling you is my doctor.
 (c) [APC – present – restrictive]
 (c) One of the main reasons to use adnominal participle clauses is that they can be used as a tool to convey information in a more economical way. Adnominal participle clauses, for instance, do not require tense markers and modal auxiliaries, which makes them a means of "syntactic compression" (Quirk et al., 1985, p. 995). Example (3), for instance, can also be

written as Students who are working from home have not fallen behind, which is also a

grammatically correct sentence that conveys the same message. The adnominal participle clause *working from home* is evidently shorter than the relative clause *who are working from home*. It is important to note that adnominal participle clauses are not strictly "abbreviated progressive forms in relative clauses" (Quirk et al., 1985, p. 1263). Examples (10-13) below shows that an adnominal participle clause containing a stative verb, for instance, does not have the same tense as the corresponding relative clause.

(10) I sang a song reminding me of Christmas.	[APC – present]
(11) I sang a song that reminded me of Christmas.	[relative clause (henceforth: RC)]
(12) *I sang a song that is reminding me of Christmas.	[incorrect RC]

A disadvantage of using an adnominal participle clause is that it can cause ambiguity (Ahmed, 2017, p. 145). More specifically, the lack of tense markers and modal auxiliaries can cause confusion or inconclusiveness. This can be avoided by providing context or by using an alternative structure, such as a relative clause. Example (4), for instance, shows that in some cases, context is needed to be certain of which tense is meant with *calling*. Often, but not always, the tense that is attributed to the adnominal participle clause is the same as the tense in the finite clause that contains the noun phrase (Quirk et al., 1985, p. 1264).

The use of adnominal participle clauses steadily increased in scientific texts between the 1700s and the 1900s (Hundt et al., 2012, p. 230). Adnominal participle clauses were more prevalent in the British English (BrE) texts than in the American English (AmE) texts in the 1700s and the 1800s. However, in the 1900s, the use of these clauses actually decreased in BrE while it increased in AmE, making it more prevalent in AmE than in BrE. It is interesting to note that Hundt et al. also found that in all three centuries, past adnominal participle clauses were more commonly used than present adnominal participle clauses (2012, p. 230). A very substantial increase was present in past adnominal participle clauses in BrE between the 1700s and 1800s, more than doubling the frequency per 1,000,000 words (Hundt et al., 2012, p. 231). There was also an increase present in this time for AmE, though less substantial.

Granger (1997) analyzed more recently created data and found that native speakers of English used present adnominal participle clauses with a frequency of 2.0 times per 1,000 words and past adnominal participle clauses with a frequency of 2.9 times per 1,000 words in a corpus of academic essays written by American English students (p. 189).

Granger, furthermore, states that participle clauses occur most frequently in academic writing, but also in narrative writing (1997, p.185). Rafajlovičová (2012) agrees that adnominal participle clauses occur more often in written texts than in spoken ones (p. 22). She found that adnominal participle clauses feature more often in academic texts than in newspapers and fiction, but that the difference between these genres is small. Additionally, Rafajlovičová (2012) looked at how often present and past adnominal participle clauses were featured in these genres and in spoken (colloquial) interviews. Whereas past adnominal participle clauses occur more often in academic prose than present adnominal participle clauses, in fiction the reverse is true: present adnominal participle clauses occurred more frequently than past adnominal participle clauses. The use of present adnominal participle clauses was found to be almost equally distributed across different types of newspaper texts, and past adnominal participle clauses most often occur in articles "dealing with political and social issues" (Rafajlovičová, 2012, p. 19). Neither of the two structures was found to occur frequently in the spoken interviews. Rafajlovičová concludes that the use of post-modifying non-finite clauses, such as adnominal participle clauses, has a "formal, academic association" (2012, p. 22). Gray (2015) found that non-finite relative clauses occur more often in the hard sciences than in the social sciences, and more often in the social sciences than in the humanities (p. 126).

Biber et al. (2011) created an index of developmental stages of student L2 writing. L2 learners of English learn (informal) spoken or written English before academic English, which means that "the complexity features of academic writing will be acquired in later

developmental stages" (2011, p. 29). They scale adnominal participle clauses in the 4th stage - which is the penultimate stage - because it is used more frequently in written, academic English than in informal conversations (Biber et al., 2011, p. 31). Parkinson and Musgrave (2014) investigated how often two groups of L2 learners of English used the grammatical structures mentioned in the developmental index by Biber et al. The two groups they looked at were international students in an English for Academic Purposes (EAP) program and international students doing a masters (MA). The MA group was more proficient in English than the EAP group. They found that the MA students used present and past adnominal participle clauses more often than the EAP students. This difference was more significant for present adnominal participle clauses than it was for the past adnominal participle clauses. The EAP students used present adnominal participle clauses 1.8 times per 1,000 words, compared to 3.8 times by the MA students. The MA students actually used this structure more often than the average in academic prose, which was found to be 3.5 times per 1,000 words (Parkinson and Musgrave, 2014, p. 55). The EAP students used past adnominal participle clauses 1.1 times per 1,000 words, compared to 2.3 times by the MA students and 2.5 times on average in academic prose (Parkinson and Musgrave, 2014, p. 55). This demonstrates that the use of adnominal participle clauses is something that is mastered by L2 learners when they are at an advanced stage in their studies.

1.1.2. Participle Clauses in Dutch

Present participle clauses used to "appear in great abundance in the written [Dutch] language" (Hoeksema, 2003, p. 1). Nowadays, however, they are very rare in Dutch (Aarts and Wekker, 1993, pp. 148-149). Instead, Dutch people often use relative clauses. *-ed* participle clauses are more common than their *-ing* counterpart in Dutch, but even with regards to past participle clauses, the language often "prefers a relative clause or a premodificational construction"

(Aarts and Wekker, 1993, p. 149). In fact, the *Schrijfwijzer* – a tool that can be used in Dutch writing – advises against frequent use of participle clauses in Dutch, stating that an alternative option is usually easily found (Renkema, 2002, p. 335). Examples (13-15) shows the incorrect present participle clause *bellend jou* and that the relative construction *die jou belt* is preferable. Examples (16-1) shows that the past participle clause *gemaakt door mijn favoriete artiest* is grammatically correct, although possessive prepositional phrase *van mijn favoriete artiest* will often be preferred. Like adnominal participle clauses, prepositional phrases, such as (19), are more frequently used in academic writing than in conversation, but the difference is significantly smaller (Biber and Gray, 2010, pp. 8-9).

(13) The person *calling you* is my doctor.

[APC – present]

- (14) *De persoon bellend jou is mijn dokter
- (15) De persoon die jou belt is mijn dokter
- (16) An album, produced by my favorite artist, was released last week. [APC past]
- (17) Een album, gemaakt door mijn favoriete artiest, was uitgebracht vorige week
- (18) Een album gemaakt door mijn favoriete artiest is vorige week uitgebracht.
- (19) Een album van mijn favoriete artiest is vorige week uitgebracht.

1.2. Relative Clauses

Relative clauses are semantically similar to adnominal participle clauses (Huddleston et al., 2002, p. 1265). Most relative clauses are, unlike adnominal participle clauses, finite (Huddleston et al., 2002, p. 1236). Relative clauses are subordinate clauses that are often introduced by a relative pronoun or adverb, i.e. a relativizer (Aarts and Wekker, 1993, p. 61). The relativizers used in the English language are typically, but not limited to, *who (whom)*, *which* or *that*, and there is also a structure known as a *bare* relative, in which the relativizer is absent (see examples below).

(20) The first book which we'll be reading is my favorite.	[which RC]
(21) The first book <i>that we'll be reading</i> is my favorite.	[that RC]
(22) The first book <u>we'll be reading</u> is my favorite.	[bare RC]
(23) The man <i>whom I love</i> lives abroad.	[whom RC]

Relative clauses postmodify the head of a noun phrase, i.e. relative clauses are used as a tool to add information to the main clause. In contrast to adnominal participle clauses, which can be ambiguous, relative clauses are not (supposed to be) ambiguous. They occur in a post-nominal position, as can be seen in the examples below. The relative clause *which we'll be reading* occurs after the clause that it is postmodifying: *the first book*. Relative pronouns are always placed at the beginning of a relative clause (Quirk et al., 1985, p. 365).

Relative clauses are "related by their form to an antecedent", hence the name *relative* clause (Huddleston et al., 2002, p. 1034). The anaphoric link to these antecedents can be either covert or overt. (25) below shows this link: the gap after the relative clauses can be traced back to the relativizer *that*, which, in turn, can be traced back to the antecedent *book*.

(25) The first book *that we'll be reading* ____ is my favorite.

Like adnominal participle clauses, relative clauses can be restrictive and nonrestrictive. Practically speaking, the difference between the two types is that non-restrictive relative clauses need to be preceded by a comma, whereas restrictive clauses cannot be preceded by one (Aarts and Wekker, 1993, p. 61). *That* can be used in a non-restrictive relative clause, but a strong preference is given to using *wh* relativizers instead (Huddleston et al., 2002, p. 1048). Restrictive relative clauses "provide essential information that is needed to specify or identify the head noun", which means that they cannot be left out without significantly changing the meaning of the main clause (Rafajlovičová, 2012, p. 23). Nonrestrictive relative clauses, on the other hand, can be left out without significantly changing the meaning of the main clause. The restrictive relative clause *that were mailed last week* in example (26) below means that only the letters that were mailed last week have arrived, whereas the non-restrictive relative clause in example (27) below means that all the letters under discussion have arrived.

[that RC]

(26) The letters that were mailed last week have arrived.

(27) The letters, which were mailed last week, have arrived.

Which relativizer is used in a relative clause depends on several factors, such as whether or not is a restrictive clause, what kind of noun the clause is about (inanimate vs. animate), whether the clauses postmodifies a reason (*why*), a time (*when*), or a place (*where*) (Rafajlovičová, 2012, p. 14). Examples 1-3 show that several relativizers are possible when creating relative clauses. All three of these sentences are grammatically correct and have the same meaning. When several relativizers are possible, I suspect personal preference might also play a role in deciding which one to use.

Historically, relativizer which occurred most often in American and British scientific texts (Hundt et al., 2012, pp. 220-221). In the 1700s, the relativizer that was used the most in an American scientific corpus was which (60%), followed by that (20%), bare (slightly more than 10%), and who (slightly less than 10%). Which increased its share in the 1800s at the cost of the other relativizers, but in the 1900s its use decreased again to approximately 60%. The use of relativizer *that* halved in the 1800s, but rapidly rose again in the 1900s, making up approximately 25% of the relativizers used (Hundt et al., 2012, p. 220). Relativizer who decreased slightly over time to about 7.5% in the 1900s. The bare relative almost disappeared entirely in the 1900s, making up only 1% of all the relativizers. The results of the British scientific corpus show a different trend. The distribution of the relativizers was similar to the American one in the 1700s: which (67.5%) occurred most frequently, followed by that (22.5%), bare (10%), and who (1%) (Hundt et al., 2012, p. 221). The use of relativizer which increased over time, to over 90% in the 1900s. The use of relativizer that halved in the 1800s and again in the 1900s, to a little more than 5%. The bare relative disappeared completely in the 1900s and, even though the use of relativizer who doubled in the 1800s, it decreased again in the 1900s to approximately 2% (Hundt et al., 2012, p. 221). This shows that American and British scientific writers used relative clauses with a different frequency in the past. It is also

interesting to note that the use of relative clauses steadily decreased over the three centuries for the BrE and AmE texts combined (Hundt et al., 2012, p. 232).

Focusing on more recently created data, Rafajlovičová (2012) also looked at how often relative clauses feature in spoken (colloquial) interviews, followed by fiction, newspapers, and academic prose. She concludes that relative clauses occur significantly more in spoken texts than in written ones (Rafajlovičová, 2012, pp. 12-13). The vast majority of the relative clauses Rafajlovičová found are restrictive. In addition, Rafajlovičová found that relativizer that is "by far the most frequently used relativizer in any register" (2012, p. 13). Relativizer *that* makes up almost half of the shares for academic prose, which shows that, compared to the research mentioned above about relative clauses in the 1700-1900s, there has been a change in the use of relativizers in academic texts in the last century. Rafajlovičová concludes that the use of relative clauses has "informal associations," which could explain why Rafajlovičová found them to occur most often in the spoken interviews 2012, (p. 22). Biber and Gray (2010), however, found that relative clauses occurred almost twice as often in academic writing than in conversation (p. 8). This differs from Rafajlovičová's results, which is why she claims that the fact that she found that relative clauses occur with the lowest frequency in academic prose is "surprising since generally postmodifiers are extremely common in academic prose" (Rafajlovičová, 2012, p. 15). The spoken corpus Biber and Gray used is a vast dataset consisting of AmE natural conversation, whereas Rafajlovičová's spoken corpus consists of ten BrE radio and talk show interviews. It could, therefore, be possible that there is a difference in the use of relative clauses by AmE and BrE speakers, or that interviews might warrant different grammatical constructions. The difference in size of the two corpora, however, should not be forgotten. Making broad generalizations based on a small dataset might not be as reliable as research based on a large dataset. Gray (2015) found

that non-finite relative clauses occur more often in the humanities than in the social sciences, and more often social sciences than in the hard sciences (p. 126).

A relative clause can have several functions, such as an object or subject function. (28) is an example of a subject relative clause: *the squirrel* is the subject of the verb *ran*. In the second example (29), however, *I* is the subject of the verb *freed*, and *the squirrel* is the object. Duinmeijer states that object relatives are more difficult to "comprehend and produce than subject relatives" (2016, p. 156). She explains that this is most likely because object relatives are harder to process (Duinmeijer, 2016, p. 157). *Bare* relatives can only occur in relative clauses in which the relativized element is something other than the subject.

(28) The man chased the squirrel <i>that ran away</i> .	[subject RC]
(29) The man chased the squirrel that I freed from its cage.	[object RC]

The index of developmental stages of student L2 writing Biber et al. (2011) created also includes relative clauses. They scale relative clauses in the 3rd stage – one stage below adnominal participle clauses – because it is used more frequently in written, academic English than in informal conversations (Biber et al., 2011, 30). Parkinson and Musgrave's research (2014) found that L2 MA students used relative clauses more often than L2 EAP students. The EAP students used relative clauses 6.9 times per 1,000 words, compared to 10.56 times by the MA students and 11 times on average in academic prose (Parkinson and Musgrave, 2014, p. 55). This shows that the use of relative clauses is, like adnominal participle clauses, something that is mastered by L2 learners when they are at an advanced stage in their studies.

1.2.1. Wh Relatives

Who and *which* are two relativizers that are used in a similar fashion. Which one is appropriate is based on the nature of the antecedent (Huddleston et al., 2002, p. 1048).

Personal antecedents call for the relativizer *who* (30) and non-personal antecedents call for the relativizer *which* (32).

- (30) He is talking to the woman *who gave all her money to charity*. [who RC personal]
- (31) He is talking to the woman. The woman gave all her money to charity.
- (32) I threw away my old charger, which died last week.
- [which RC non-personal]
- (33) I threw away my old charger. My old charger died last week.

Relativizer *whom* is also used with personal antecedents. *Whom* can only be used if the relativized element in a relative clause with a personal antecedent is functioning as an object, whereas *who* can be used for both object and subject functioning elements. Relativizer *whom* is considered to be more formal than its counterpart, *who* (Huddleston et al., 2002, p. 1058). To avoid having to choose between the two, it is also possible to use relativizer *that* instead. *My friend* in (34) functions as the antecedent for *whom*, which is the object of the relative clause *whom I have known for years*. This same sentence can be written with *who* instead of *whom*. *Someone* in (36) functions as the antecedent for *who*, which is the subject of the relative clause *who is running late*, which means that *who* cannot be replaced by *whom* in this relative clause.

(34) This is my friend whom I have known for years.	[whom RC – object]
(35) This is my friend who I have known for years.	[who RC – object]
(36) You seem like someone who is running late.	[who RC – subject]
(37) *You seem like someone whom is running late.	[whom RC – subject]

Two other *wh* relativizers that are relevant to this thesis are relative adverbs *where* and *when. Where* uses a locative expression as its antecedent and it functions as "adjunct of spatial location, goal complement, or complement of a locative preposition" (Huddleston et al., 2002, p. 1050). In (38) below *where* replaces the complement *in* and the antecedent *town* in the relative clause, which signals that *where* has a spatial location function in this sentence. In (40) *where* replaces the complement *to* and the antecedent *bar*, which signals that *where* has a goal function in this sentence. In (42) *where* replaces the complement *from* and the antecedent

hill, which signals that *where* has a locative function. This sentence can also be written with the relative clause *from where they looked out onto the city*, in which *where* still has a locative function but is accompanied by a complement (44).

- (38) I am going to visit the town *where I used to live*. [where RC spatial location function]
- (39) I am going to visit the town. The town I used to live in.
- (40) We are going to the bar where we used to go every Sunday. [where RC goal function]
- (41) We are going to the bar. We used to go the bar every Sunday.
- (42) They climbed the hill where they looked out onto the city. [where RC locative function]
- (43) They climbed the hill. From the hill they looked out onto the city.
- (44) They climbed the hill from where they looked out onto the city.

[where RC – locative function with complement]

The relativizer *when* uses a temporal expression as antecedent and it functions as an "adjunct of temporal location" (Huddleston et al., 2002, p. 1051). *When* in (45) below has *time* as antecedent, which is a temporal expression.

(45) I am writing my thesis at a time *when people all over the world are in quarantine*. [when RC]

(46) I am writing my thesis at this time. People all over the world are in quarantine at this time.

Lastly, there are also relative clauses that feature a *wh* relativizer in combination with a preposition, also known as compound relatives (Huddleston et al., 2002, p. 1051). These compound relatives are be formed from relativizer *where* and preposition, such as *whereby* and *wherein*. Compound relativizers are quite formal and somewhat archaic and often an alternative is preferred (Huddleston et al., 2002, p. 1046). These relativizers can, for instance, be replaced by *by which* or *in which*, respectively. In (47), for example, relativizer *wherein* can be replaced by relativizer *which* in combination with preposition *in*. The preposition can either be fronted, as in (49) or stranded, as in (50).

- (47) This is the house *wherein I grew up*. [wherein RC](48) This is the house. I grew up in this house.
- (49) This is the house in which is grew up.
- (50) This is the house which I grew up in.

[preposition + which RC - fronted] [preposition + which RC - stranded]

1.2.2. Relativizer *that* and the *bare* relative

Relativizer *that* is often found in restrictive relative clauses (51). Relativizer *that* is more flexible than the *wh* relativizers as it can be used for both personal and non-personal antecedents and it can function as both the subject and the object in the relative clause. Relative clauses without a relativizer are known as *bare* relatives (52). These relatives always have the subject in the initial position (Huddleston et al., 2002, p. 1055).

(51) The first book <i>that we'll be reading</i> is my favorite.	[that RC]
(52) The first book <u>we'll be reading</u> is my favorite.	[bare RC]

Relativizers *who*(*m*), *which*, *when*, and *where* can often be replaced by relativizer *that*, or, in some cases, by the *bare* relative. Sentences (53-59) below demonstrate that replacing *wh* relativizers with *that* or *bare* relatives do not change the meaning of the sentences.

However, it is not always possible to replace a *wh* relativizer or to do so without changing the meaning of the sentence.

(53) He is talking to the woman <i>who gave all her money to charity</i> .	[who RC]
(54) He is talking to the woman that gave all her money to charity.	[that RC]
(55) I threw away my old charger, which died last week.	[which RC]
(56) I threw away my old charger that died last week.	[that RC]
(57) I fondly remember the day when I started my masters.	[when RC]
(58) I fondly remember the day that I started my masters.	[that RC]
(59) I fondly remember the day <i>I started my masters</i> .	[bare RC]

In the case of replacing compound relativizers, such as (60-62), the preposition cannot be left out with *that* or *bare* relatives. A preposition must also be added in combination with a relativizer when replacing most *where* relative clauses, such as (63-65). Only when the antecedent of relativizer *where* is a "very general noun such as place", can the preposition be left out if *where* is replaced by the *bare* relative, such as in (66-68) (Huddleston et al., 2002, p. 1046).

(60) This is the house wherein I grew up.[wherein RC](61) This is the house that I grew up in.[preposition + that RC]

(62) This is the house <u>I grew up in</u> .	[preposition + bare RC]
(63) We are going to the bar <i>where we used to go every Sunday</i> .	[where RC]
(64) We are going to the bar <i>that we used to go to every Sunday</i> .	[preposition + that RC]
(65) We are going to the bar <u>we used to go to every Sunday</u> .	[preposition + bare RC]
(66) I loved the place where we used to live.	[where RC]
(67) I loved the place that we used to live in.	[preposition + that RC]
(68) I loved the place <u>we used to live</u> .	[bare RC]

In some cases, a non-*wh* relativizer is preferred even when a *wh* relativizer is possible as well. For example, when the antecedent is a compound determinative (69), a non-personal fused determiner (70), or a nominal preceded by a superlative modifier (72). It must be noted that this preference is more pronounced for certain words than for others, as (71) and (73), for instance, are acceptable.

(69) I say hi to everyone <i>I meet</i> .	[bare RC]
(70) All I want for my birthday is to sleep in.	[bare RC]
(71) I don't know anyone who thinks that the earth is flat.	[who RC]
(72) Winning the lottery is the best thing that has ever happened to me.	[that RC]
(73) He was the only one <i>who believed in me</i> .	[who RC]

In other cases, a *wh* relativizer is preferred over a non-*wh* relativizer. For instance, when the distance between the head noun and the relative clause is increased by the addition of other post-head modifiers, a *wh* relativizer is favored. The head noun *TV shows* in (74) below is followed by the participle clause *featuring elaborate, complicated storylines and characters from different social classes*, works as the antecedent for *which*. The same head noun in (76) works as the antecedent for *that*, even though the relative clause and the main clause are almost identical (the word *also* is left out in the second example because the other postmodifying clause is missing).

(74) I love watching international TV shows featuring elaborate, complicated storylines and characters from different social classes *which also accurately portray mental health*.

[which RC (& APC – present)]

(75) I love watching international TV shows. The TV shows feature elaborate, complicated storylines and characters from different social classes. The TV shows also accurately portray mental health.

[that RC]

That relatives can be replaced with a *bare* relative in some relative clauses. As mentioned above, *bare* relatives can never occur in relative clauses in which the relativized element is the subject, whereas *that* relatives can occur in both. This means that relativizer *that* can only be omitted when it does not function as a subject in the relative clause. Relative clauses that do not have the subject as the relativized element typically have an object as the relativized element. Examples of other functions of the relativized element are a predicative complement, a complement of preposition, or an embedded subject (Huddleston et al., 2002, p. 1055). (77-81) below demonstrate the distinction between *that* functioning as a non-subject or as the subject. The relativized element in (77) is the object of the relative clause *that I freed from its cage* and therefore *that* can be omitted without changing the meaning of the sentence. Similarly, the relativized element in (79) is a predicative complement, which means *that* can be omitted. *That* in (81), however, cannot be omitted because without it, the relative clause no longer contains a subject, making it ungrammatical. Relativizer *that* is more likely to be omitted in informal texts and in cases in which the antecedent is short (Huddleston et al., 2002, p. 1056).

(77) The man chased the squirrel <i>that I freed from its cage</i> .	[that RC – object]
(78) The man chased the squirrel <i>I freed from its cage</i> .	[bare RC – object]
(79) I am not the person <i>that I was before I went on exchange</i> .	[that RC – predicative complement]
(80) I am not the person <i>I was before I went on exchange</i> .	[bare RC – predicative complement]
(81) The man chased the squirrel <i>that ran away</i> .	[that RC – subject]
(82) *The man chased the squirrel ran away.	[bare RC – subject – incorrect]

1.2.3. Relative Clauses in Dutch

There are two main relativizers in the Dutch language: *die* and *dat*. *Bare* relatives are not possible in Dutch (Aarts and Wekker, 1993, p. 145). The antecedent plays a role in which relativizer is used, but in a different manner than in English. Whether or not the antecedent is

personal, for instance, usually does not play a role in deciding which relativizer should be used. The article that matches the antecedent does affect which relativizer is used. *Die* is used in the case of the article *de* (83), and *dat* is used in the case of the article *het* (89) (Aarts and Wekker, 1993, pp. 156-157). Plural antecedents always require the relativizer *die*, following that they also always have the article *de* (92). Diminutive antecedents always require the relativizer *dat*, as they always have the article *het* (86).

(83) Ik ken de jongen <i>die daar zit</i> .	[die RC – singular, de antecedent]
(84) I know the boy who there sits.	
(85) "I know the boy who is sitting over there.	
(86) Ik ken het jongetje <i>dat daar zit</i> .	[dat RC – diminutive]
(87) I know the little boy who there sits.	
(88) "I know the little boy who is sitting over there."	
(89) Ik ken het kind <i>dat daar zit</i> .	[dat RC – singular, het antecedent]
(90) I know the child who there sits.	
(91) "I know the child who is sitting over there."	
(92) Ik ken de kinderen die daar zitten.	[die RC – plural]
(93) I know the children who there sits.	

(94) "I know the children who are sitting over there."

The use of Dutch relativizers, furthermore, does not depend on whether or not the relativized element is an object or subject in the relative clause (Aarts and Wekker, 1993, p. 147). Compound relativizers are made in the Dutch language by combining *waar* with a preposition, such as *waarmee, waarvan* (Aarts and Wekker, 1993, p. 146). Dutch compound relativizers are affected by whether or not the antecedent is personal. When the antecedent is personal, using relativizer *wie* in combination with a fronted preposition (95) is preferred over a compound relativizer (98) (Aarts and Wekker, 1993, p. 146).

(95) Dat zijn de mensen <i>met wie ik op vakantie ga</i> .	[preposition + wie RC]
(96) That are the people with who I on vacation go.	
(97) "Those are the people who(m) I am going on vacation with."	
(98) Dat zijn de mensen waarmee ik op vakantie ga.	[compound RC]
(99) That are the people wherewith I on vacation go.	
(100) "Those are the people who(m) I am going on vacation with."	

1.3. Adnominal Participle Clauses as an Alternative

Present and past adnominal participle clauses can be a suitable alternative to relative clauses. Research in the past has suggested that it is possible that there is a trade-off between the use of relative and adnominal participle clauses. Hundt et al.'s results (2012), for instance, suggest that "a slightly less expanded form of clausal postmodification increases at the expense of a more expanded one" (p. 236). The "slightly less expanded form of clausal modification" that Hundt et al. mention is the use of adnominal participle clauses and the "more expanded one" is the use of relative clauses. These results, however, were found in American and British scientific texts between the 1700s and 1900s, so it will be interesting to see if this trade-off also exists in current, learner data.

Whether an adnominal participle clause or a relative clause is chosen can depend on how a person wants to convey a message. The literal meaning of the message will be the same for both clause types, but relative clauses can convey extra information, such as tense. If that is deemed important, a relative clause is preferred. If the speaker wants to convey the message in a concise manner, an adnominal participle clause is preferred. Both clause types are, as mentioned above, used more often in written texts than in spoken works, but the difference in use between written and spoken works is greater for relative clauses than for adnominal participle clauses. Therefore, genre and register play a role in this decision as well. Examples of how a relative clause can be replaced by an adnominal participle clause are seen in (101-102) and (103-104) below. The relative clause *that is chasing the squirrel* can be replaced by the adnominal participle clause *chasing the squirrel* and *that is parked inside the garage* can be replaced by *parked inside the garage*.

(101)	The man that is chasing the squirrel fell down.	[that RC]
(102)	The man chasing the squirrel fell down.	[APC – present]
(103)	The bike that is parked inside the garage is mine.	[that RC]
(104)	The bike parked inside the garage is mine.	[APC – past]

There are cases in which an adnominal participle clause cannot replace a relative clause. As mentioned earlier, the antecedent connected to an adnominal participle clause must always be an object in the clause. Therefore, adnominal participle clauses are not possible in cases in which the relative clause is the subject, such as (105-106).

(105)	The man chased the squirrel <i>that ran away</i> .	[that RC – subject]
(106)	*The man chased the squirrel <i>running away</i> .	[APC – subject – incorrect]

1.4. Transfer and Interlanguage

The notion of transfer – also known as crosslinguistic influence – refers to the influence a learners' native language has on the acquisition and use of a target language (Kellerman, 1995). Additionally, a person's second or third language can also influence the target language's acquisition and use. Transfer can either positive or negative. An example of positive transfer, or facilitation, for native Dutch speakers that are learning English is the fact that both languages use the same alphabet, or that certain vocabulary is similar or even identical. Examples (107-108) shows that the word for *laptop* is exactly the same in both languages. This will, unsurprisingly, make it easy for Dutch people to "learn" how and when to use the word in English.

(107)	Dat is mijn laptop.	[Dutch]
(108)	That is my laptop.	[English]

An example of negative transfer, or interference, between Dutch and English is the fact that the English language often requires the word *do* in questions or negations, whereas the Dutch language does not. (109-111) below demonstrates how a Dutch novice learner of English could claim that something is not a good idea.

(109)	Ik denk niet dat dat een goed idee is.	[Dutch]
(110)	*I think not that is a good idea.	[Dutch speaker – incorrect]
(111)	I do not (don't) think that is a good idea.	[English]

Transfer can also lead to the over- or underproduction of certain words or structures. Under- and overproduction can unconsciously happen, or a learner could avoid a particular structure or word (and therefore automatically overuse an alternative structure) because they do not feel confident in correctly using it. This study focusses on the over- and underproduction of adnominal participle clauses and relative clauses.

It has been claimed in the past that all L1 errors are due to transfer. This, however, has been found to not be true as learners with different language backgrounds have been found to make similar mistakes in a learner language. Comparing similarities and differences between languages can help predict transfer, the results of which could be used in language teaching to minimize the effects of transfer. It should, however, be noted that merely charting the differences between two languages can lead to incorrect assumptions of which structures are problematic for the learner. An error analysis of L1 learners of the target language is, therefore, a good extension of such research.

An approach that combines the concept of transfer and error analysis is the interlanguage hypothesis created by Selinker in 1972, who describes it as:

Interlanguage is that linguistic/cognitive space that exists between the native language and the language that one is learning. Interlanguages are non-native languages which are created and spoken whenever there is language contact.

(Selinker, 2014, p. 223).

In other words, the concept of interlanguage refers to the language produced by nonnative speakers of a language. Some research indicates that it refers to "learner language", but, as Selinker points out, very advanced non-native speakers "cannot seriously be called language learners anymore, but they still have divergent phonetic, syntactic, semantic/pragmatic systems" (2014, p. 229). Interlanguages are linguistic systems separate from the L1 and L2 systems. Because interlanguage is a completely new language, new words and structures are created and used. Interlanguage is always erroneous compared to a native language (Selinker, 2014, p. 223). Selinker also coined the term *fossilization*, which occurs when a learner perpetually uses a linguistic feature, which is correct in their L1, in the target language, in which it is not correct (1972). In other words, a learner "gets stuck" in the learner curve, by consistently using this incorrect feature. There are five central processes that are the foundation for interlanguage: *language transfer*, *transfer-of-training*, *strategies of L2 learning*, *strategies of L2 communication*, and *overgeneralizations of target language linguistic material* (Selinker, 1972). Transfer and interlanguage are, thus, linked, but transfer is not the only aspect that influences interlanguage.

1.5. Corpus Research

Modern corpus linguistics was introduced in the 1950s, although the field of corpus research can be traced back to the thirteenth century when biblical scholars created a concordance of the bible by alphabetically indexing all the words in the book (McCarthy and O'Keeffe, 2010, pp. 3-4). A significant example of early corpus research is the creation of dictionaries, the words in which were compiled based on taking words from written works and spoken communication.

The late 1950s saw the birth of computer-generated concordances. This major development meant that large datasets could be analyzed in a significantly shorter amount of time. Advances in computer technology led this process to become increasingly quicker, more efficient, and more accessible over time. In the 1980s and '90s, corpus research gathered momentum and researchers started to realize the full potential of corpora (McCarthy and O'Keeffe, 2010, p. 5). Software created especially for corpus research made analyses even more efficient and accessible. Moreover, it is expected that big data will further the advancement of corpus research (Callies and Paquot, 2015, pp. 162-163).

Corpus research can give insights into how different language features, such as vocabulary, spelling, pronunciation, and grammar are used. Biber et al. (2004) explain that corpus analysis can help identify patterns of grammatical structures that would easily be missed in other types of grammar research (p. 376). This is because the frequency with which a word or grammatical structure is used in a large dataset is something that is virtually impossible to do without corpus research. It must be noted, however, that corpus-based analysis does not mean that the frequency with which such a grammatical structure or word is used is self-explanatory. In fact, Conrad (2010) argues that "frequency data identifies patterns that must be explained" (p. 229).

Bonelli (2010) states that "most corpora are 'snapshots' in time", which means they give a sample of a language at a given time (p. 20). An exception to this is a longitudinal corpus, the popularity of which is (slowly) increasing over time. A longitudinal corpus is comprised of data collected from the same people over a period of time. This means that a longitudinal learner corpus is "a representation of the evolution of [a learner's] knowledge through time" (Gilquin, 2015, p. 5).

(Sub)corpora can only significantly be compared when they are created with the same design criteria and when they are similar in size (Bonelli, 2010, p. 21). If this is not the case, the results of the comparison might not reflect reality. This is also relevant to longitudinal learner corpus analysis, seeing that it is important that the conditions for the learners need to be the same for each of the datasets, otherwise the differences could be due to the discrepancy in the conditions.

A learner corpus consists of materials produced by learners of a language. The data in learner corpora is grouped by variables just like any corpus. One way this is often done is by classifying according to a person's native language or the language level. Something else to keep in mind when doing learner corpus research, is whether or not the data was produced

under natural circumstances (Gilquin, 2015, p. 1). Learner data is often created in classrooms, which means the data's degree of naturalness is low. It is important to take this into consideration when making assumptions based on the data collection, seeing that a classroom setting can affect the results.

1.6. Previous Research

Granger (1997), who is one of the pioneers of learner corpus research, looked at features of participle clauses in academic English. She compares argumentative essays of American and French, Swedish, and Dutch speakers of English in two corpora. She divides participle clauses into three groups: nominal, adverbial, and postmodifying (or adnominal) participle clauses (Granger, 1997, p. 186). Granger advises future scholars to make a distinction between present and past participles, seeing that these groups "seem to have their own preferred patterns of use" (1997, p. 196). She found that adnominal participle clauses are more frequent in both the learner and the NS corpus than adverbial participle clauses. The learners used present adnominal participle clauses 1.0 times and past adnominal participle clauses 1.7 times per 1,000 words. The native speakers used these structures 2.0 and 2.9 times per 1,000 words, respectively (Granger, 1997, p. 5). This shows that the learners underused adnominal participle clauses. It is also interesting to note that there are considerable differences between the different NNS-groups and that, of these groups, the Dutch students use participle clauses the least (Granger, 1997, p. 188).

Cosme (2008) examined the use of participle clauses in learner English to establish whether transfer plays a role in this. She builds on Granger's work described above and focuses on the differences between English, French, and Dutch speakers of English. She examines original newspaper editorials and professionally translated works of fiction. Cosme found that transfer could be "one *potential* reason for the underuse of some participial

constructions by EFL learners" (2008, p. 193). Similar to Granger, Cosme found that Dutch speakers of English used participle clauses the least and she even emphasizes that present participles "occur with an amazingly low frequency" in the Dutch subcorpus (2008, p. 186).

O'Donnell et al. (2009) are using corpus research for curriculum design for Spanish students of English. They look at students with different proficiency levels, which indicates how students use certain grammatical structures as they become more proficient. They found that the percentage of students that do not use present or past participle clauses "decreases rapidly with increasing proficiency" and that all students with a C1 level of English on the CEFR scale correctly use these structures (O'Donnell et al., 2009, p. 14). Furthermore, they demonstrate that the students master past participle clauses later in the learning process than present participle clauses.

Bank (2018) found that advanced Dutch students of English use relative clauses significantly more often than native English speakers and that they, in turn, use adnominal participle clauses less frequently than native English speakers. She used Granger's contrastive interlanguage analysis method and compared data from Dutch and Czech learners of English with essays written by NSs. Bank concludes that the Dutch learners make less use of adnominal participle clauses due to L1 transfer. This conclusion leads her to suggest that both NSS groups have not yet mastered the "subtle pragmalinguistic strategy of prioritizing brevity in contextually appropriate situations" (Bank, 2018, p. 79). An interesting finding from Bank's research is that Dutch learners used adnominal participle clauses more frequently than Czech learners, even though adnominal participle clauses are much more common in the Czech language than in the Dutch language. This shows that it is possible that transfer is not the only reason why EFL learners use adnominal participle clauses less often than native speakers of English. Bank's results are used as the foundation for the expectations of the Dutch students. She found that the Dutch students used 11.45 relative clauses on average per 1,000 words (2018, p. 45). She, furthermore, found that the students proportionally used the relativizers in the following order of most to least frequent: *which* (32.2%), *who* (27.95%), *that* (22.82%), *bare* (9.83%), *where* (4.85%), *when* (2.44%), *whom* (2.48%), *compound* (1.61%) (Bank, 2018, p. 46). The Dutch students underused adnominal participle clauses with an average frequency of 2.6 per 1,000 words (Bank, 2018, p. 59). The students were found to use more past than present adnominal participle clauses, with an average frequency of 1.52 and 1.08 per 1,000 words, respectively (Bank, 2018, pp. 60-61).

Bank, Berns, and Van Vuuren (forthcoming) build on the works of Granger and Cosme described above. They are investigating whether the underuse of adnominal participle clauses by NNSs is compensated by an overuse of relative clauses or if they simply use less clausal postmodifying structures in general. Bank et al. are, furthermore, studying the role that transfer plays in the use of clausal postmodification. Their preliminary findings suggest that Dutch learners of English use adnominal participle clauses less often than Czech and French learners of English and less often than native speakers. They also found that the Dutch learners used relative clauses with a higher frequency than the other groups (Bank et al., forthcoming, p. 3). This overuse of relative clauses and the underuse of adnominal participle clauses mean that the Dutch speakers use clausal postmodifying structures almost as often as the native speakers. The preliminary findings suggest that the Dutch learners' obvious preference for relative clauses over adnominal participle clauses are likely transfer-related (Bank et al., forthcoming, p. 3).

1.7. Current Study

As mentioned above, Bank's results (2018) are used as the foundation for the expectations of this study. This study, furthermore, builds on O'Donnell et al.'s conclusion (2009) that learners of English master the use of participle clauses later on in their studies, suggesting that the use of adnominal participle clauses will likely increase over the course of the three years. Finally, Hundt et al.'s suggestion (2012) that there seems to be a trade-off between the use of adnominal participle clauses and relative clauses leads to the expectation that the use of relative clauses will decrease throughout the bachelor program. Van Vuuren and Laskin (2017) explain that the L2 production of very advanced learners is often characterized by a "very subtle form of transfer" (p. 2). The students in the present study are very advanced learners of English, making it likely that the language that they produce is affected by transfer. This research, combined with studies previously discussed, resulted in the following hypotheses:

H₁: The students will make increasingly more use of both past and present adnominal participle clauses over the course of their study program.

H₂: The students will make increasingly less use of relative clauses over the course of their study program.

H₃: As the use of adnominal participle clauses develops one way, the use of relative clauses will develop in the other way to the same extent.

H4: Transfer plays a role in the students' production of adnominal participle clauses and relative clauses.

Additional expectations are constructed for the use of adnominal participle clauses and relative clauses in general, as well as for each of the relativizers and for both present and past adnominal participle clauses separately. Bank's results (2018) were used to decide how often it can be expected that the postmodifying structures occur in the corpus. These expected average findings are summarized in table 1 below.

Clause	Expected Mean Per 1,000 Words	Expected Trend
Adnominal Participle Clauses	2.60	Increase
Present	1.08	Increase
Past	1.52	Increase
Relative Clauses	11.45	Decrease
Relativizer	Expected Occurrence Per 100 RCs	Expected Trend
Bare	9.83%	Decrease
Compound	1.61%	Decrease
That	22.82%	Decrease
When	2.44%	Decrease
Where	4.85%	Decrease
Which	32.2%	Decrease
Who	27.95%	Decrease
Whom	2.48%	Decrease

Table 1 Expected findings

2. Methodology

2.1. Corpus

To test the hypotheses, data from the Longitudinal Database of Learner English

(LONGDALE) project was used and analyzed. This database consists of data collected by an international collaboration of five teams and was started in 2008 (UCLOUVAIN). The corpus is composed of texts written by learners of English with different native languages. Different types of texts are included in the corpus, such as argumentative essays, literature essays, personal statements, and theses. Variables such as "age, gender, educational background, variables pertaining to the task, and when available, information on the proficiency levels of the students as measured by internationally recognized tests" are included in the database as well (Meunier, 2015, p. 124).

The texts written by Dutch students were compiled by researchers at Radboud University Nijmegen. The students selected to participate are native Dutch students doing a bachelor's in English Language and Culture. At Radboud University, ELC students can choose between two specializations: the main program by the same name, which focuses on the United Kingdom and in which the students learn British English, and American Studies, which focuses on the United States of America and in which the students learn American English. Students from both specializations graduate with the same degree and the core courses taught in both programs are the same (although taught in the respective English variety). The corpus, therefore, consists of texts written in British and American English. This should not be a problem, seeing that this thesis looks at how these students improve as a group.

Dutch high school students need to score at least B2-C1 level on the CEFR scale for English to graduate the highest level of high school (*vwo*) (Europees Referentiekader Talen, n.d.). This or a similar degree is a prerequisite for studying at a university in the Netherlands.

As mentioned before, the vast majority of ELC students at Radboud score C1 or C2 on the CEFR scale when they start the first year of their studies (Van Vuuren, 2017, p. 58). This means that the students are already advanced learners of English when they start their bachelor's. One of the goals of the ELC bachelor program is for students to become near-native speakers of English. Therefore, one would expect that students use participle clauses almost to the same degree as native speakers of English at the end of their study program.

The use of adnominal participle clauses is not necessarily a topic that is discussed in the courses that these students enjoy. Based on personal experience, this was not one of the topics discussed in any of the American Studies courses. It is possible that it was discussed in the study program in the past, or in the general ELC program. However, it is also feasible that adnominal participle clauses and relative clauses were not part of the curriculum.

When comparing (sub)corpora, it is important that they consist of comparable data. If this is not the case, the results of the analysis can be affected by the fact that, for instance, the texts in one of the data sets were written under different conditions or in different registers. These differences can make the results less reliable or meaningful. To avoid this, this thesis only looks at the literature essays in the corpus that were written at home. Two cohorts were chosen to see how the students' use of adnominal participle clauses and relative clauses changed over the course of their bachelor program. The different cohorts were compared based on which of them were most consistent with regards to the length of the subcorpora. It was found that the 2008 and 2009 cohorts together would provide a suitable dataset. The students in the 2008 cohort wrote three assignments, two of which were literature essays written at home. The students in the 2009 cohort wrote eight assignments, five of which were literature essays written at home. It is important to note that not every student participated in every assignment. See table 2 for an overview of the data.
Cohort	Year	Date	#texts	#tokens	Tokens / text	#texts AmE	#texts BrE	Topics
2008	1	March 2009	23	19,148	833	8	15	 The Harlem Renaissance American Isolationism and WW II
2009	1	Jan 2010	26	19,022	732	10	16	 American romanticism
2009	1	June 2010	28	25,729	919	8	20	 The Harlem Renaissance Gendered America The American Dream or Reality? All The President's Men And The Freedom Of Press Vietnam War
2008	2	March 2010	24	25,259	1,052	3	21	 Multiculturalism in North America Introduction to Middle English Literature - various
2009	2	Jan 2011	14	10,661	762	2	12	 Postmodern Properties in Poetry The Struggle for Identity The grotesque in 'The Ballad of the Sad Café' and 'A Streetcar Named Desire' War in Jarell and Salinger Carver and Updike, Universality in Autobiographical Writing
2009	2	June 2011	6	11,937	1,990	0	6	 Television is our God Radicalism and Conservatism in Lady Chatterley's Lover America's Identity Crisis Character vs. Narrator Lady Chatterley's Lover's overrated controversy Cary and Lanyer: Subverting Gender Representations
2009	3	Jan 2012	36	52,084	1,447	11	25	 Research proposal American Studies – various Shakespeare - various

Table 2 Overview dataset

2.2. Procedure

To produce a grammatical parse, the subcorpora were parsed utilizing the Stanford Parser (Klein and Manning, 2003). This tool produces a syntactic parse tree for all of the sentences in the subcorpora. The way that the Stanford Parser works is that it categorizes words and phrases by calculating which category is statistically the most likely. After the data had been parsed, adnominal participle and relative clauses were identified with *Corpus Editor for*

Syntactically Annotated Resources (CESAR) (version 1.1.0, 2017-2020). The Cesar application can be used for "defining, hosting and browsing syntactically annotated text corpora [...], and it allows for editing and executing searches through these corpora" (About CESAR, 2017-2020). The combination of these two tools is, therefore, very apt for this kind of analysis.

There are many advantages to automated corpus analysis. It is, for instance, an economical way to analyze large amounts of data and it eliminates human error. A limitation of automatically analyzing a corpus is, however, that the output generated by the tools can exclude related structures or include unrelated structures, which would obviously impact the findings. In order to make sure the findings represent only related structures, all of the outputted data was checked for overestimation. Over 40% of all the adnominal participle clauses that the parser found were deemed unrelated. In some cases, the parser incorrectly identified words or clauses. Quotations and titles were also removed from the dataset as those are not produced by the students. The parser is significantly better at correctly identifying relative clauses than it is at identifying adnominal participle clauses. Between 25% and 30% of all the relative clause structures that the parser found were deemed unrelated. The parser had trouble identifying *that* and *bare* relatives. See table 3 below for an overview of the overestimation.

	Year 1	Year 2	Year 3
Automated Adnominal Participle Clauses	222	130	162
APC: % Removed	43.24%	45.38%	41.36%
APC: Final Total	126	71	95
Automated Relative Clauses	897	639	717
RC: % Removed	29.21%	26.76%	27.34%
RC: Final Total	635	468	521

Table 3 Overview of Overestimation Outputted Data

A random sample of about 5% of the data was taken to manually check for adnominal participle clauses and relative clauses. It is evident that the parser mislabeled a significant amount of postmodifying structures. An average of 21.88% of the adnominal participle clauses and 14.68% of relative clauses was missed by the parser. Unfortunately, the only solution to the problem of underestimation is to check the entire corpus by hand, which was not possible due to time constraints. This underestimation obviously impacts the results of this study, which is further discussed in the limitations and future research section. See table 4 below for an overview of the underestimation.

	APC Found	APC Missed	APC % missed	RC Found	RC Missed	RC % missed
Year 1	9	3	25%	49	8	14.04%
Year 2	14	2	12.5%	25	4	13.79%
Year 3	2	2	50%	19	4	17.39%
Total	25	7	21.88%	93	16	14.68%

Table 4 Overview of Underestimation Outputted Data

2.3. Quantitative Analysis

After the outputted data was checked for quality, it was possible to compare the data from the different subcorpora. In order to compare the datasets, the frequencies of the relative clauses and adnominal participle clauses were normalized per 1,000 words.

Because not every student participated in every assignment, there was a significant amount of missing data. Furthermore, the data was found to not be normally distributed. These two conditions made it difficult to perform a significant quantitative analysis. Therefore, it was chosen to perform a *Mann-Whitney U* test, which made it possible to compare the ranked means of the different years. Frequency analysis was additionally performed to observe how different structures occurred in proportion to each other.

3. Results

3.1. Comparing Adnominal Participle Clauses and Relative Clauses

Figure 2 shows an overview of the average use of relative and adnominal participle clauses in the three years of study. The distribution of each clause type is discussed separately in this chapter. Comparing the two clause types, however, provides insights as well. Looking at the graph, it is immediately apparent that the students use relative clauses more frequently than adnominal participle clauses. A decline is visible for the use of adnominal participle clauses, whereas the relative clauses show an upward trend between the first and the second year, and a downward trend between the second and third year. Figure 2 also shows that there does not seem to be a trade-off between the use of relative and adnominal participle clauses. Looking at only the first two years might suggest a trade-off, but between the second and third year, a decrease is visible for both categories, making a trade-off unlikely.



Figure 2 Overview Average Use Postmodifying Structures

Figure 3 shows the proportional use of the postmodifying clauses in the corpus, which further emphasizes the difference in use of the two clauses. Relative clauses make up over 80% of the postmodifying structures in each year. Relatively speaking, the students use relative clauses increasingly more each year compared to adnominal participle clauses.











Figure 3 Proportional Use of Postmodifying Structures

3.2. Adnominal Participle Clauses

Figure 4 shows the mean occurrence and corresponding standard error of the total amount of adnominal participle clauses in the corpus, normalized per 1,000 words, for the three years of study. The mean is highest in the first year (M = 2.70, SD = 1.35). The students in the second year use adnominal participle clauses with a lower frequency (M = 2.18, SD = 1.31), and the students in the third year use them even less often (M = 1.89, SD = 1.05). The difference between the first and third year is significant and has a slightly less than medium effect size (U = 335, z = -2.367, two-tailed p = .017, r = -.289). The differences for the other years are not significant and those null hypotheses cannot be rejected. The effect size for the comparison of year 1 and 2 is of small to medium effect (U = 428, z = -1.622, two-tailed p = .106, r = -.195) and the effect size for the comparison between year 2 and 3 is slightly less than small (U = 278, z = -.660, two-tailed p = .519, r = -.093). Table 5 below shows an overview of the statistical results.



Figure 4 Means and Standard Error of Adnominal Participle Clauses per 1,000 words

	U value	z value	p value	Pearson' <i>r</i>
Year 1 – Year 2	428	-1.622	.106	195
Year 1 – Year 3	335	-2.367	.017	289
Year 2 – Year 3	278	660	.519	093

Table 5 Test Results of Mann-Whitney U Test of Adnominal Participle Clauses per 1,000 words

Present and past adnominal participle clauses are separately discussed in detail below, but it is also interesting to provide an overview showing the differences in use between them. Figure 5 below demonstrates the changes of the normalized means over the three years for both present and past adnominal participle clauses. It is immediately apparent from this line graph that present and past adnominal participle clauses are not used with the same frequency and that the change in use follows a different pattern for both of them. Table 6 below provides a more detailed picture of the mean occurrence of present and past adnominal participle clauses over the three years.



Figure 5 Line Chart Depicting the Means of Present and Past Adnominal Participle Clauses per 1,000 words

	Year 1	Year 2	Year 3
APC: Present	1.46206	.96869	.59616
APC: Past	1.23671	1.24684	1.28972
Total APC	2.69877	2.17668	1.88588

Table 6 Means of Adnominal Participle Clauses per 1,000 words

Figure 6 shows how the use of present and past adnominal participle clauses for each year is distributed. Present adnominal participle clauses were used more often than past adnominal participle clauses in the first year. However, in year two and three, the distribution changes as the students make more use of past than present adnominal participle clauses.











Figure 6 Proportional Use of Present and Past Adnominal Participle Clauses

3.3. Present Adnominal Participle Clauses

Figure 7 shows the mean occurrence and corresponding standard error of present adnominal participle clauses, normalized per 1,000 words, for the three years of study. The mean is the highest in the first year (M = 1.46, SD = 1.42). The students in the second year use present adnominal participle clauses with a lower frequency (M = .97, SD = 1.01), and the students in the third year use them even less often (M = .60, SD = .72). The difference between the first and third year is significant and has a slightly less than medium effect size (U = 336, z = -2.410, two-tailed p = .015, r = -.294). The differences for the other years are not significant and those null hypotheses cannot be rejected. The effect sizes for the comparison of year 1 and 2 (U = 458, z = -1.274, two-tailed p = .205, r = -.153) and between year 2 and 3 (U = 247, z = -1.298, two-tailed p = .197, r = -.184) are small to medium. Table 7 below shows an overview of the statistical results.



Figure 7 Means and Standard Error of Present Adnominal Participle Clauses per 1,000 words

	U value	<i>z</i> value	<i>p</i> value	Pearson' r
Year 1 – Year 2	458	-1.274	.205	153
Year 1 – Year 3	336	-2.410	.015	294
Year 2 – Year 3	247	-1.298	.197	184

Table 7 Test Results of Mann-Whitney U Test of Present Adnominal Participle Clauses per 1,000 words

3.4. Past Adnominal Participle Clauses

Figure 8 shows the mean occurrence and corresponding standard error of past adnominal participle clauses, normalized per 1,000 words, for the three years of study. The mean is similar in all three years with M = 1.24, SD = 1.12 in year 1, M = 1.25, SD = 1.01 in year 2, and M = 1.29, SD = 1.12 in year 3. The differences between the years are, furthermore, not significant and the null hypotheses cannot be rejected. The effect size for the comparison between year 1 and 2 is minuscule (U = 577, z = -.025, two-tailed p = .983, r = -.003). The effect sizes for the comparison of year 1 and 3 (U = 496.5, z = -.258, two-tailed p = .800, r = -.032) and between year 2 and 3 (U = 305.5, z = -.128, two-tailed p = .903, r = -.018) are also very small. Table 8 below shows an overview of the statistical results.



Figure 8 Means and Standard Error of Past Adnominal Participle Clauses per 1,000 words

	U value	z value	<i>p</i> value	Pearson' r
Year 1 – Year 2	557	025	.983	003
Year 1 – Year 3	496.5	258	.800	032
Year 2 – Year 3	305.5	128	.903	018

Table 8 Test Results of Mann-Whitney U Test of Past Adnominal Participle Clauses per 1,000 words

3.5. Relative Clauses

Figure 9 shows the mean occurrence and corresponding standard error of the total amount of relative clauses found in the corpus, normalized per 1,000 words, for the three years of study. The students in year 1 use relative clauses the least (M = 9.44, SD = 3.60). The use of relative clauses increases in the second year (M = 10.16, SD = 4.34), but decreases in the third year (M = 9.52, SD = 3.87). The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect size for the comparison of year 1 and 2 is very small (U = 1,135, z = -.590, two-tailed p = .559, r = -.059). The effect size for the comparison between year 1 and 3 is minuscule (U = 1,061, z = -.049, two-tailed p = .964, r = -.005) and the effect size for the comparison between year 2 and 3 is slightly greater than that of year 1 and year 2 (U = 639, z = -.648, two-tailed p = .523, r = -.075). Table 9 below shows an overview of the statistical results.



Figure 9 Means and Standard Error of Relative Clauses per 1,000 words

	U value	z value	<i>p</i> value	Pearson' r
Year 1 – Year 2	1,135	590	.559	059
Year 1 – Year 3	1,061	049	.964	005
Year 2 – Year 3	639	648	.523	075

Table 9 Test Results of Mann-Whitney U Test of Relative Clauses per 1,000 words

The different relativizers are discussed in detail below, but it is also interesting to provide an overview showing the differences in use between them. Figure 10 below demonstrates the changes of the normalized means over the three years for all of the relativizers. It is immediately obvious from this line graph that some relativizers are used much more frequently than others and that the change over the three years is not the same for each of them. Table 10 below provides a more detailed picture of the mean occurrence of all the relativizers over the three years.



Figure 10 Line Chart Depicting the Means of different relativizers per 1,000 words

	Year 1	Year 2	Year 3
RC: Bare	1.61830	1.75420	1.27686
RC: Compound	.00695	.010254	.00000
RC: That	1.98845	2.24611	2.67115
RC: When	.10476	.05184	.05519
RC: Where	.32933	.30439	.11399
RC: Which	3.41377	3.11583	3.03826
RC: Who	1.94519	2.67263	2.34137
RC: Whom	.03298	.00000	.02593
Total RC	9.43973	10.15524	9.52275

Table 10 Means of Relativizers per 1,000 words

Not all of the relativizers were found in each of the subcorpora. No *compound* relativizers were found in the third year and relativizer *whom* did not occur in the papers written in the second year.

Figure 11 shows how the use of relativizers for each year is divided. The relativizers that were used most often are the same for each of the years are. Relativizers *bare*, *that*, *which*, and *who* account for almost 95% of the relativizers in the first year, slightly more than 96% in the second year, and almost 98% in the third year.











Figure 11 Proportional Use of Relativizers

3.6. Bare Relative

Figure 12 shows the mean occurrence and corresponding standard error of the *bare* relativizer, normalized per 1,000 words, for the three years of study. The students in year 1 use *bare* relativizers with a frequency of M = 1.62, SD = 1.45. The use of the relativizer increases in the second year (M = 1.75, SD = .28), but decreases in the third year (M = 1.28, SD = 1.78). The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect size difference between year 1 and 2 is (U = 1,220,

z = .000, two-tailed p = 1.000, r = .000). This might be surprising considering there is a difference in means. As mentioned before, the Mann-Whitney U-test compares the distributions of two conditions by analyzing the ranks of the scores. The mean rank of year 1 and 2 are exactly the same (51.00), which is why the *z*-value is 0 even though the real mean of the two years is different. The effect size for the comparison of year 1 and 3 (U = 977, z = -.693, two-tailed p = .493, r = -.071) is similar to the effect size for the comparison between year 2 and 3 (U = 639, z = -.652 two-tailed p = .520, r = -.075). Table 11 below shows an overview of the statistical results.



Figure 12 Means and Standard Error of Bare Relatives per 1,000 words

	U value	z value	<i>p</i> value	Pearson' r
Year 1 – Year 2	1,220	.000	1.000	.000
Year 1 – Year 3	977	693	.493	071
Year 2 – Year 3	639	652	.520	075

Table 11 Test Results of Mann-Whitney U Test of Bare Relatives per 1,000 words

3.7. Compound Relativizers

Figure 13 shows the mean occurrence and corresponding standard error of the *compound* relativizer, normalized per 1,000 words, for the three years of study. The students in year 1 use *compound* relativizers with a frequency of M = .007, SD = .054. The use of the relativizer increases in the second year to M = .010, SD = .065. No *compound* relativizers were used in the third year (M = .00, SD = .00). The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect sizes for the comparison between year 1 and 2 (U = 1,210, z = -.288, two-tailed p < 1.000, r = -.029) and between year 1 and 3 (U = 1,050, z = -.757, two-tailed p < 1.000, r = -.077) are very small. The effect size for the comparison between year 2 and 3 is small (U = 682.5, z = -.935, two-tailed p < 1.000, r = -.108). Table 12 below shows an overview of the statistical results.



Figure 13 Means and Standard Error of Compound Relativizers per 1,000 words

	U value	z value	p value	Pearson' r
Year 1 – Year 2	1,210	288	< 1.000	029
Year 1 – Year 3	1,050	757	< 1.000	077
Year 2 – Year 3	682.5	935	< 1.000	108

Table 12 Test Results of Mann-Whitney U Test of Compound Relativizers per 1,000 words

3.8. Relativizer *That*

Figure 14 shows the mean occurrence and corresponding standard error of relativizer *that*, normalized per 1,000 words, for the three years of study. The students in year 1 use relativizer *that* with a frequency of M = 1.99, SD = 1.77. The use of the relativizer increases in the second (M = 2.25, SD = 2.50) and third year (M = 2.67, SD = 1.98). The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect size for the comparison between year 1 and 2 is minuscule (U = 1,211, z = -.063, two-tailed p = .951, r = -.006). The effect sizes for the comparison of year 1 and 3 (U = 845.5, z = -1.695, two-tailed p = .090, r = -.173) and between year 2 and 3 (U = 537.5, z = -1.730, two-tailed p = .084, r = -.200) is of small to medium effect. Table 13 below shows an overview of the statistical results.



Figure 14 Means and Standard Error of Relativizer That per 1,000 words

	U value	z value	<i>p</i> value	Pearson' r
Year 1 – Year 2	1,211	063	.951	006
Year 1 – Year 3	845.5	-1.695	.090	173
Year 2 – Year 3	537.5	-1.730	.084	200

Table 13 Test Results of Mann-Whitney U Test of Relativizer That per 1,000 words

3.9. Relativizer When

Figure 15 shows the mean occurrence and corresponding standard error of relativizer *when*, normalized per 1,000 words, for the three years of study. The students in year 1 use relativizer *when* with a frequency of M = .10, SD = .31. The use of the relativizer halves in the second year (M = .05, SD = .19), but increases slightly in the third year (M = .06, SD = .16). The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect sizes for the comparisons are all very small. That of year 1 and 2 is U = 1,166, z = .723, two-tailed p = .423, r = .072, that of year 1 and 3 is U = 1,056, z = .158, two-tailed p = .750, r = -.016 and that of year 2 and 3 is U = 678.5, z = -.452, two-tailed p = .699, r = -.052. Table 14 below shows an overview of the statistical results.



Figure 15 Means and Standard Error of Relativizer When per 1,000 words

	U value	z value	<i>p</i> value	Pearson' r
Year 1 – Year 2	1,166	723	.423	072
Year 1 – Year 3	1,056	158	.750	016
Year 2 – Year 3	678.5	452	.699	052

Table 14 Test Results of Mann-Whitney U Test of Relativizer When per 1,000 words

3.10. Relativizer Where

Figure 16 shows the mean occurrence and corresponding standard error of relativizer *where*, normalized per 1,000 words, for the three years of study. The students use *where* relativizers with a similar frequency in year 1 (M = .33, SD = .60) and year 2 (M = .30, SD = .62). However, the use of the relativizer decreases in the third year to M = .11, SD = .28. The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect size for the comparison between year 1 and 2 is very small (U = 1,162, z = -.504, two-tailed p = .619, r = -.050). The effect sizes for the comparison of year 1 and 3 (U = 898, z = -1.672, two-tailed p = .094, r = -.171) and between year 2 and 3 (U = 620, z = -1.038, two-tailed p = .284, r = -.12) are of small to medium effect. Table 15 below shows an overview of the statistical results.



Figure 16 Means and Standard Error of Relativizer Where per 1,000 words

	U value	z value	p value	Pearson' r
Year 1 – Year 2	1,162	504	.619	050
Year 1 – Year 3	898	-1.672	.094	171
Year 2 – Year 3	620	-1.038	.284	12

Table 15 Test Results of Mann-Whitney U Test of Relativizer Where per 1,000 words

3.11. Relativizer Which

Figure 17 shows the mean occurrence and corresponding standard error of relativizer *which*, normalized per 1,000 words, for the three years of study. The students in year 1 use relativizer *which* with a frequency of M = 3.41, SD = 2.22. The use of the relativizer decreases in the second (M = 3.12, SD = 1.93) and third year (M = 3.04, SD = 2.59). The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect sizes for the comparison between year 1 and 2 (U = 1,114.5, z = -.773, two-tailed p = .467, r = -.073) and between year 2 and 3 (U = 636, z = -.680, two-tailed p = .501, r = -.079) are very small. The effect size for the comparison of year 2 and 3 is small (U = 914, z = -1.169, two-tailed p = .245, r = -.119). Table 16 below shows an overview of the statistical results.



Figure 17 Means and Standard Error of Relativizer Which per 1,000 words

	U value	z value	<i>p</i> value	Pearson' r
Year 1 – Year 2	1,114.5	733	.467	073
Year 1 – Year 3	914	-1.169	.245	119
Year 2 – Year 3	636	680	.501	079

Table 16 Test Results of Mann-Whitney U Test of Relativizer Which per 1,000 words

3.12. Relativizer Who

Figure 18 shows the mean occurrence and corresponding standard error of relativizer *who*, normalized per 1,000 words, for the three years of study. The students in year 1 use relativizer *who* with a frequency of M = 1.95, SD = 1.61. The use of the relativizer increases in the second year (M = 2.67, SD = 2.37) and decreases in the third (M = 2.34, SD = 1.78). The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect sizes for the comparison between year 1 and 2 (U = 1,015, z = -1.425, two-tailed p = .155, r = -.142) and year 1 and 3 (U = 894.5, z = -1.318, two-tailed p = .189, r = -.135) are small. The effect size for the comparison of year 2 and 3 is miniscule (U = 694, z = -.064, two-tailed p = .952, r = -.007). Table 17 below shows an overview of the statistical results.



Figure 18 Means and Standard Error of Relativizer Who per 1,000 words

	U value	z value	p value	Pearson' r
Year 1 – Year 2	1,015	-1.425	.155	142
Year 1 – Year 3	894.5	-1.318	.189	135
Year 2 – Year 3	694	064	.952	007

Table 17 Test Results of Mann-Whitney U Test of Relativizer Who per 1,000 words

3.13. Relativizer Whom

Figure 19 shows the mean occurrence and corresponding standard error of relativizer *whom*, normalized per 1,000 words, for the three years of study. The students in year 1 used relativizer *whom* with a frequency of M = .033, SD = .155. The relativizer was not used in the second year (M = .00, SD = .00). The use of relativizer *whom* in the second year is M = .026, SD = .153. The differences between the years are, however, not significant and the null hypotheses cannot be rejected. The effect sizes for the comparison between year 1 and 2 (U = 1,160, z = -1.417, two-tailed p = .275, r = -.141) and between year 2 and 3 (U = 680, z = -1.069, two-tailed p = .467, r = -.123) are small. The effect size for the comparison between year 1 and 2 is very small (U = 1,046, z = -.473, two-tailed p = .905, r = -.048). Table 18 below shows an overview of the statistical results.



Figure 19 Means and Standard Error of Relativizer Whom per 1,000 words

	U value	z value	p value	Pearson' r
Year 1 – Year 2	1,160	-1.417	.275	141
Year 1 – Year 3	1,046	473	.905	048
Year 2 – Year 3	680	-1.069	.467	123

Table 18 Test Results of Mann-Whitney U Test of Relativizer Whom per 1,000 words

4. Discussion

The objectives of this study are to see how the use of adnominal participle clauses and relative clauses by advanced Dutch students of English develops throughout their bachelor's program and to see if there is a trade-off effect between the use of adnominal participle clauses and relative clauses for this group. It was predicted that the use of adnominal participle clauses and relative clauses would be similar to those found by Bank (2018). Finally, it was hypothesized that the frequency in use of adnominal participle and relative clauses by the Dutch students would suggest a trace of transfer.

4.1. Comparing Adnominal Participle Clauses and Relative Clauses

For the combined use of present and past adnominal participle clauses, it was expected that the average of use per 1,000 words would be approximately 2.6. Regarding relative clauses, it was expected that the average use per 1,000 words would be approximately 11.45. It was also predicted that the students would make increasingly more use of adnominal participle clauses and increasingly less use of relative clauses while they advance through their studies.

The students display a distinct preference of relative clauses over adnominal participle clauses, as expected. In the first year, the students use relative clauses almost five times as often as they use adnominal participle clauses. In the second year the distribution is slightly more than 7:1 and in the third year it is almost 7.5:1. The results show that the students in year 1 make slightly more use of adnominal participle clauses than expected and less use of relativizers than expected, averaging 2.7 and 9.4 per 1,000 words, respectively. It was, furthermore, hypothesized that, as the use of adnominal participle clauses develops one way, the use of relative clauses will develop in the other way to the same extent because of a trade-off between the two categories. Surprisingly, the results show that this was not the case, making a trade-off unlikely. The proportional use of the two postmodifying structures

demonstrates that, relatively speaking, the students made increasingly more use of relative clauses compared to adnominal participle clauses as their studies progressed. It is noteworthy that the students make proportionally more use of relative clauses than adnominal participle clauses in the third year compared to the second year, even though the use of both clause types decreases in this time. The decrease in use must therefore be greater for the adnominal participle clauses than for the relative clauses, which is supported by the data.

It is difficult to suggest explanations for the results without doing further (qualitative) research. The fact that there does not seem to be a trade-off between adnominal participle clauses and relative clauses for the Dutch students might be explained by the fact that the Dutch language does not often use adnominal participle clauses. It might be more natural for a Dutch person to use relative clauses, which are common in Dutch. This could suggest that transfer plays a role in the students' use of adnominal participle clauses and relative clauses.

Another explanation of why there does not seem to be a trade-off between the students' use of adnominal participle clauses and relative clauses is that the students were, as mentioned in the Methodology chapter, presumably not specifically taught to use adnominal participle clauses. This means that they most likely learned to use them by being exposed to them in English texts. It is possible that the students first learn to use specific adnominal participle clauses that are commonly found in (academic) texts as phrases, before they start using the clause type in a more natural manner. An example of these commonly found phrases could be the present adnominal participle clause "written by ..." or the past adnominal participle clause "discussed above ...". If this were the case, this might mean that the students do not see such phrases as alternatives for relative clauses. And if the students do not see the phrases as alternatives for relative clauses, a trade-off effect would not be expected, because in the minds of the students there is no link between the two. This explanation is, however, purely speculative and must not be taken as the truth.

4.2. Adnominal Participle Clauses

As mentioned above, it was predicted that the combined use of present and past adnominal participle clauses would average approximately 2.6 times per 1,000 words and that the students would make increasingly more use of adnominal participle clauses while they advance through their studies. Remarkably, the results show that, although the average in the first year (2.7 per 1,000 words) was indeed similar to the expected value, the average use of adnominal participle clauses actually decreases over time. The average use in the third year was found to be only 1.9 per 1,000 words, which was significantly less than in the first year. The differences between the first and second, and second and third year were not found to be significant. The differences are mostly due to the changing frequency of present adnominal participle clauses, as the use of past adnominal participle clauses is quite constant.

It was also hypothesized that the students would use past adnominal participle clauses more often than present adnominal participle clauses. Surprisingly, this was only true in the second and third year. The proportional distribution of present and past adnominal participle clauses in the three years shows that the students use more present than past adnominal participle clauses in the first year, but that the reverse is true in the second and third year. This is due to the fact that the students gradually use fewer present adnominal participle clauses while using almost the same amount of past adnominal participle clauses throughout the three years.

Bank (2018) found that native speakers of English use adnominal participle clauses more frequently than advanced Dutch students of English (p. 59). On average, native speakers used 4.37 adnominal participle clauses per 1,000 words, which is much higher than the averages found in this study. This shows that the students are not nativelike in their use of adnominal participle clauses. Given the fact that adnominal participle clauses are uncommon in the Dutch language, the underuse of the structure could be due to transfer. It would be

interesting for future research to study whether this underuse is due to conscious avoidance or due to a possible ignorance of the structure.

An explanation for why the use of adnominal participle clauses decreases over time cannot be given without doing further (qualitative) research, but it is obvious that this research should focus on the decrease of present adnominal participle clauses. The fact that the use of past adnominal participle clauses is consistent throughout the three years suggests that students might not be incentivized (either by themselves or by their professors) to increase the frequency of use, although that is conjecture.

4.3. Present Adnominal Participle Clauses

It was expected that the use of present adnominal participle clauses would average approximately 1.08 times per 1,000 words. The students used present adnominal participle clauses with a higher than expected frequency in the first year, namely 1.46 times and with a lower than expected frequency in the second and third year, 0.97, and 0.60 per 1,000 words, respectively. An additional prediction was that the students would make increasingly more use of present adnominal participle clauses while advancing through their studies. Surprisingly, the results show that the average use actually decreased over time. The difference in use was significant when comparing the texts of the students in the first and third year, but when comparing the other years, the results were insignificant.

Bank (2018) found that native speakers of English use present adnominal participle clauses more frequently than advanced Dutch students of English (p. 60). On average, native speakers used 1.99 present adnominal participle clauses per 1,000 words, which is much higher than the averages found in this study.

4.4. Past Adnominal Participle Clauses

It was expected that the use of past adnominal participle clauses would average approximately 1.52 times per 1,000 words. The students used past adnominal participle clauses with a lower than expected frequency in all three years, namely 1.24, 1.25, and 1.29 per 1,000 words, respectively. An additional prediction was that the students would make increasingly more use of past adnominal participle clauses while advancing through their studies. Surprisingly, the results show that the average stays almost congruent over time. The small differences were found not to be significant.

Bank (2018) found that native speakers of English use past adnominal participle clauses more frequently than advanced Dutch students of English (p. 61). On average, native speakers used 2.37 past adnominal participle clauses per 1,000 words, which is much higher than the averages found in this study.

4.5. Relative Clauses

As mentioned above, it was predicted that the use of relative clauses would average approximately 11.45 times per 1,000 words. The findings, however, do not support this prediction. The students used relative clauses with a lower average frequency than the expected value in all three years, 9.4, 10.2, and 9.5 per 1,000 words, respectively. It was also expected that the students would make increasingly less use of relative clauses while they advance through their studies. This prediction was also not found to be true. The use of relative clauses was actually found to rise in the second year. The average did decrease in the third year, but it was still higher than the average of the first-year students. Furthermore, the differences were found to be insignificant, i.e. the use of relative clauses did not significantly change over time.

The proportional distribution of the different relativizers in the three years highlights that the students used relativizers *bare*, *that*, *which*, and *who* the most often and that they rarely used compound relativizers or relativizer *whom*. The proportional findings were found to be similar to those of Bank (2018), who found that Dutch students use relativizers in the following order of most frequent to least frequent: *which*, *who*, *that*, *bare*, *where*, *when*, *whom*, *compound* (p. 46) The largest four and smallest four categories are the same for Bank's results and for each of the three years. However, the order differs from year to year and is never exactly the same as Bank's. She found that relativizers *bare*, *that*, *which*, and *who* accounted for 94.31% of the relative clauses in the corpus, which is slightly less than the 95%, 96%, and 98% found for years 1 - 3, respectively. A noteworthy dissimilarity is the use of relativizer *that* in the first and third year, which is proportionally higher than the use of relativizer *who*.

Bank (2018) found that advanced Dutch students of English use relative clauses more frequently than native speakers of English (p. 45). On average, native speakers used 9.41 relative clauses per 1,000 words, which is slightly lower than the averages found in this study. The average of the overall use of relative clauses might not be considerably different between the Dutch students and the native speakers, the distribution, however, is. Native speakers used relativizers in the following order of most frequent to least frequent: *that*, *who*, *which*, *bare*, *where*, *when*, *whom*, *compound*. The frequency of average use of relativizers *which* and *that* is especially different for the native speakers and the Dutch students.

The overproduction of the *which* relativizer and underproduction of the *that* relativizer do not suggest transfer. The Dutch language uses relativizers *die* and *dat*, which share syntactic and semantic features with relativizer *that* but are also used in cases where *which* would be appropriate in English. An overuse of relativizer *that* would have, therefore, been a possible indication of transfer. Seeing that the opposite is true, transfer likely does not play a

role in the use of these relativizers. It would be very for future research to study what is the cause of the overuse of relativizer *which* and the underuse of relativizer *that*. The overproduction of the *bare* relative does also not suggest a trace of transfer as *bare* relatives are not used in Dutch.

As mentioned earlier, the findings do not suggest a trade-off between adnominal participle clauses and relative clauses, which helps explain why the use of relative clauses did not decrease as expected. Further (qualitative) research is needed to provide an explanation for the difference between the expected and actual average use of relative clauses. The discrepancies in the proportional use of the different relativizers are also worth to be studied further. It could be concluded that because the use of relative clauses did not significantly change over time, the students might not be incentivized (either by themselves or by their professors) to increase the frequency of use, although, as before, that is conjecture.

4.6. Relativizers

No predictions were made for the average use of the different relativizers, as Bank's results show the occurrence of different relativizers per 100 relative clauses, rather than per 1,000 words. The expectations for the different relativizers therefore focused on how often they occurred compared to the total amount of relative clauses.

4.6.1. Bare Relatives

It was predicted that the use of the *bare* relativizer would account for approximately 11.34% of all relative clauses. Surprisingly, the students were found to use *bare* relatives much more frequently. *Bare* relatives account for 17.14%, 17.27%, and 13.41% of all relative clauses in years 1 - 3, respectively. It was, furthermore, expected that the students would make increasingly less use of *bare* relatives while they advance through their studies. This

prediction did also not come true. The students use *bare* relatives 1.6 times per 1,000 words on average in their first year of studies. In the second year this increases to 1.8 times and in the third year this decreases to 1.3 times. This shows that, overall, the students do use *bare* relatives with a lower frequency in the third year than in the first year. The differences were, however, found to be insignificant.

Bank (2018) found that native speakers of English use the *bare* relativizer more frequently than advanced Dutch students of English (p. 46). On average, the *bare* relativizer accounted for 13.69% of all relative clauses for the English students, which is less frequent than the Dutch students in this study.

4.6.2. Compound Relativizer

It was predicted that the use of compound relativizers would account for approximately 0.27% of all relative clauses. The students were found to use compound relativizers less frequently than that. Compound relativizers account for 0.07% of all relative clauses in the first year and 0.10% in the second year. No compound relativizers were used in the third year. An additional prediction was that the students would make increasingly less use of compound relativizers while they advance through their studies. This prediction did also not come true. The use of compound relativizers was incredibly rare. In fact, it occurred once in the first year and once in the second year (not normalized for 1,000 words). Technically speaking the use did decrease from the first to the third year, but the differences were found to be completely insignificant.

Bank (2018) found that native speakers of English use *compound* relativizers more frequently than advanced Dutch students of English (p. 46). On average, *compound* relativizers accounted for 0.32% of all relative clauses for the English students, which is more frequent than the Dutch students in this study.

4.6.3. Relativizer *That*

It was predicted that the use of relativizer *that* would account for approximately 22.82% of all relative clauses. In the third year, relativizer *that* accounted for almost that same percentage: 28.05%. The students in the first and second year were found to use relativizer *that* less frequently, as it accounted for 21.06% and 22.12% of all relative clauses in the first and second year, respectively. In the first and third year, relativizer *that* occurred most second to relativizer *which*. In the second year, however, relativizers *which* and *who* both occurred more often than relativizer *that*. It was, furthermore, expected that the students would make increasingly less use of relativizer *that* while advancing through their studies. Surprisingly, the opposite turned out to be true. The use of relativizer *that* increased from an average of 1.99 times per 1,000 words in the first year to 2.25 and 2.67 times in the second and third year. These differences, however, were not found to be significant.

Bank (2018) found that native speakers of English use relativizer *that* more frequently than advanced Dutch students of English (p. 46). On average, relativizer *that* accounted for 36.93% of all relative clauses for the English students, which is considerably more frequent than the Dutch students in this study.

4.6.4. Relativizer When

It was predicted that the use of relativizer *when* would account for approximately 1.61% of all relative clauses. The students were found to use relativizer *when* less frequently in all three years, as it accounted for 1.11%, 0.51%, 0.58% of all relative clauses in years 1 - 3, respectively. An additional prediction was that the students would make increasingly less use of relativizer when while advancing through their studies. The use of relativizer *when* did decrease from an average of 0.10 times per 1,000 words in the first year to only 0.05 times in

the second year, but it slightly increased again to 0.06 times in the third year. These small differences were found to be insignificant.

Bank (2018) found that native speakers of English use relativizer *when* more frequently than advanced Dutch students of English (p. 46). On average, relativizer *when* accounted for 1.11% of all relative clauses for the English students, which is similar to the Dutch students in this study.

4.6.5. Relativizer Where

It was predicted that the use of relativizer *where* would account for approximately 3.4% of all relative clauses. The students were found to use relativizer *where* with almost the same frequency in year 1 and 2, with it accounting for 3.49% and 3.00% of all relative clauses, respectively. The third year, however, saw a sharp decline to only 1.2%. It was also predicted that the students would make increasingly less use of relativizer *where* while advancing through their studies. It was found that the use of the relativizer decreased over time, but the differences were not found to be significant. The average use of relativizer *where* declined from 0.33 times per 1,000 words in the first year to 0.30 times in the second year and 0.11 times in the third year.

Bank (2018) found that native speakers of English use relativizer *where* more frequently than advanced Dutch students of English (p. 46). On average, relativizer *where* accounted for 2.86% of all relative clauses for the English students, which is considerably less often than the Dutch students in the first and second year, but more often than the students in the third year.

4.6.6. Relativizer Which

It was expected that the use of relativizer *which* would account for approximately 32.20% of all relative clauses. The students were found to use relativizer *which* with a higher frequency

in the first year and with a lower frequency in the second and third year: it accounted for 36.16%, 30.68%, 31.91% of all relative clauses, respectively. Relativizer *which* was the relativizer that was used most often in all three years. It was also predicted that the students would make increasingly less use of relativizer *which* while advancing through their studies. It was found that the use of the relativizer did indeed decrease over time, but the differences were found to be insignificant. The average use of relativizer *which* declined from 3.41 times per 1,000 words in the first year to 3.12 times in the second year and 3.04 times in the third year.

Bank (2018) found that native speakers of English use relativizer *which* more frequently than advanced Dutch students of English (p. 46). On average, relativizer *which* accounted for 18.23% of all relative clauses for the English students, which is considerably less frequent than the Dutch students in this study.

4.6.7. Relativizer Who

It was predicted that the use of relativizer *who* would account for approximately 27.95% of all relative clauses. The students were found to use relativizer *who* less frequently in all three years, as it accounted for 20.61%, 26.32%, 24.59% of all relative clauses in years 1 - 3, respectively. The relativizer was the second most frequently used relativizer in the second year and the third most often used relativizer in the first and third year. An additional prediction was that the students would make increasingly less use of relativizer *who* while advancing through their studies, which turned out not to be the case. The use of relativizer *who* increased from an average of 1.95 times per 1,000 words in the first year to 2.67 times in the second year, but it slightly decreased again to 2.34 times in the third year. The differences were not found to be significant.

Bank (2018) found that native speakers of English use relativizer *who* more frequently than advanced Dutch students of English (p. 46). On average, relativizer *who* accounted for 26.47% of all relative clauses for the English students, which is quite similar to the Dutch students in this study.

4.6.8. Relativizer Whom

It was predicted that the use of relativizer *whom* would account for approximately 0.42% of all relative clauses. The students were found to use relativizer *whom* with almost the same frequency in year 1 and 3, with it accounting for 0.35% and 0.27% of all relative clauses, respectively. The relativizer was not used in the second year. It was, furthermore, expected that the students would make increasingly less use of relativizer *whom* while advancing through their studies. This prediction also did not hold. It was found that the use of the relativizer decreased from 0.03 times per 1,000 words in the first year to 0.00 times in the second year, after which it increased to 0.03 times in the third year. These small differences were found to be insignificant.

Bank (2018) found that native speakers of English use relativizer *whom* more frequently than advanced Dutch students of English (p. 46). On average, relativizer *whom* accounted for 0.38% of all relative clauses for the English students, which is similar to the Dutch students in the first and third year.

4.7. Limitations and Future Research

As mentioned in the methodology section, there are drawbacks to automatically analyzing corpus data. The data was checked for overestimation, but time constraints made it impossible to manually check the corpus for underestimation. A selection of approximately 5% of the data was manually checked for missing structures, which showed the imperfections of the

automatic parser. Approximately 22% of all adnominal participle clauses and almost 15% of all relative clauses was missed by the parser. Especially instances of the *bare* and *that* relativizers were frequently missed, while relativizers *who, whom,* and *compound* were never missed in the process. This is a problem that is, unfortunately, quite common in corpus research. Another limitation of the automatic parser is that it, understandably, does not process mistakes. If a student made a mistake, such as a spelling mistake or an interpunction mistake, the parser would not correctly interpret those words and possibly even the words connected to the error. Ideally, further research would reduce these limitations by manually checking all of the data for underestimation and errors made by the students. This, however, would require a substantial time investment of the researchers. Future research could also focus specifically on the mistakes made that relate to relative and adnominal participle clauses. It would be interesting to outline what kind of mistakes are made, how often they occur, and if the students make fewer mistakes over time.

There was a substantial amount of missing data in the corpus. Only eight students wrote texts in all three years, which is too limited to use for quantitative analysis. The other students did not participate every year. Therefore, a Mann-Whitney U test was used to compare the means between the different years. This means that the analysis is not longitudinal in nature and can therefore not trace learners' development over the three years. Furthermore, the Mann-Whitney U test uses ranked data to compare means, thus the analysis provides a more general idea of the use of relative clauses and adnominal participle clauses in each of the three years of study, but future research is needed to conduct a true longitudinal analysis.

Furthermore, no data was available for the third-year students of the 2008 cohort, which accounts for a large portion of the missing data. It was chosen to still include the 2008 cohort to increase the amount of data and to make the different subgroups of more equal size.
This thesis looks at texts written by students at home, which meant that the students did not have a time-constraint. Future research would be needed to see if there is a difference between timed and untimed texts for the students in this corpus and to see if the place of creation (at home or in class) affects the results as well. The texts written by both American Studies students and British Language and Culture students were combined into one dataset. It would be interesting to see if the use of the postmodifying structures is different between those groups. Additionally, the texts written by the students were all academic texts, but the nature and topic of the texts differed, as can be seen in the methodology section. It is possible that the fact that not every student wrote a paper about the exact same topic or research question within on subcorpus influenced the use of adnominal participle clauses and relative clauses as well. The LONGDALE corpus also contains argumentative essays and nonacademic texts about the students' expectations for the coming year. Further research could focus on whether there is a difference between different text types or on all of the data for one cohort as it is possible that the results for those studies differ from the results in this study. Additionally, longitudinal research about the use of the postmodifying structures in other settings, such as (colloquial) spoken conversations or narrative writing might provide a more complete picture regarding the degree of naturalness and the impact of genre and register.

Finally, it would be very interesting to do qualitative research to complement the findings of this thesis, which would essentially provide the *why* to explain the results. An analysis of the education and specifically the grammar education related to relative and adnominal participle clauses that the students enjoyed would help indicate why students seem to prefer certain structures over others. Additionally, an experimental study consisting of a group of students who were specifically taught how and when to use adnominal participle and relative clauses and a control group that did not get these lessons would help provide insights. Such a study could, for instance, highlight how these structures are best taught and whether

73

the notable preference of relative clauses over adnominal participle clauses is simply due to the inexperience with adnominal participle clauses.

4.8. Implications for Teaching

The findings of this study could be used to influence the teaching of relative and adnominal participle clauses to Dutch students of English. The students' evident preference of relative clauses is not ungrammatical, which presumably affects curriculum developers in their choice of whether or not to include adnominal participle clauses in their courses. One of the goals of the English Language and Culture bachelor is for students to become near-native speakers of English (Studiegids, 2019). To help achieve this, it could be interesting to include adnominal participle clauses into the study program. Students may benefit from mastering adnominal participle clauses so they can use it as an alternative to relative clauses, making their works more diverse and of higher academic level.

Conclusion

The aim of this thesis was to see how the use of adnominal participle clauses and relative clauses by advanced Dutch students of English develops throughout their bachelor's program and to discover a possible trade-off between the use of adnominal participle clauses and relative clauses. To do this, texts from two cohorts of the *LONGDALE-NL* were checked and analyzed. This study did not only look at the two postmodifying structures as a whole, but also specifically at both present and past adnominal participle clauses and relativizers *bare*, *compound*, *that*, *when*, *where*, *which*, *who*, and *whom*. Based on previous research, it was hypothesized how often each of these structures would occur. It was, furthermore, predicted that the use of adnominal participle clauses would increase over time, while the use of relative clauses would decrease over time.

The results of the quantitative analysis showed that the students used relative clauses much more frequently than adnominal participle clauses, with a distribution of approximately 5:1 in the first year and 7-7.5:1 in the second and third year. Transfer could be a possible explanation for these findings, as adnominal participle clauses are not very common in the Dutch language and relative clauses are. It was, however, unlikely that transfer influenced the use of specific relativizers for the Dutch students.

The use of present adnominal participle clauses significantly decreased over time, which is in complete contrast to the hypotheses. It was, unfortunately, not possible to explain this trend within the present study. The use of the other structures, both the past adnominal participle clauses and all of the relative clauses, did not significantly differ between the three years. This might indicate that the students are not taught these structures or that the use of such postmodifying clauses is not given emphasis in the study program. The students used more present than past adnominal participle clauses in the first year, which was unexpected. However, in the second and third year, the students realized this expectation in the second and third year by using more past than present adnominal participle clauses, similarly to Dutch students in previous research. The distribution of the different relativizers was also slightly different from previous research, although the most and least common were the same, albeit in a different order of frequency. Noteworthy is the use of relativizers *which* and *that*. The Dutch students used relativizer *which* much more frequently than native speakers in previous research, while using relativizer *that* less often. This, however, was not surprising as Bank (2018) also found these results.

Unfortunately, the results did not seem to suggest a trade-off between the use of adnominal participle clauses and relative clauses. This could be explained by the fact that adnominal participle clauses are not very common in the Dutch language which might not make adnominal participle clauses a conscious alternative to relative clauses. In closing, the differences between the native speakers and the Dutch students show that, although these students are very advanced learners of English and are even near-native speakers at the end of the bachelor program, they are still interlanguage speakers.

The results of this study can be used to influence the teaching of relative and adnominal participle clauses to Dutch students of English. Students may benefit from mastering adnominal participle clauses so they can use it as an alternative to relative clauses, making their works more diverse, of higher academic level, and more comparable to that of native speakers.

References

- Aarts, F., & Wekker, H. (1993). A contrastive grammar of English and Dutch. Groningen: Nijhoff.
- About CESAR (2017-2020). *About*. Retrieved July 20, 2020, from Radboud University Nijmegen website: https://cesar.science.ru.nl/about
- Ahmed, H. A. (2017). Diagnosing of the Non-Finite Clauses in Terms of their Functions in the Main Clauses in English Legal Texts. *Mustansiriyah Journal of Arts*, (76), 1-26.
- Bank, M. (2018). *Relative clauses in advanced EFL writing : A corpus-based study on the influence of a first language.*
- Bank, M., Berns, J., & Van Vuuren, S. (forthcoming). *Syntactic complexity and L1 influence in nominal postmodification*.
- Biber, D., & Gray, B. (2010). Challenging stereotypes about academic writing: Complexity, elaboration, explicitness. *Journal of English for Academic Purposes*, *9*(1), 2-20.
- Biber, D., Conrad, S., & Cortes, V. (2004). If you look at ...: Lexical bundles in university teaching and textbooks. *Applied Linguistics*, 25(3), 371–405. https://doi.org/10.1093/applin/25.3.371
- Biber, D., Gray, B., & Poonpon, K. (2011). Should we use characteristics of conversation to measure grammatical complexity in L2 writing development? *TESOL Quarterly*, 45(1), 5–35. https://doi.org/10.5054/tq.2011.244483
- Bonelli, E. T. (2010). Theoretical overview of the evolution of corpus linguistics. In O'Keeffe,A., & McCarthy, M. (Eds.), *The Routledge handbook of corpus linguistics* (pp. 14–28).Routledge.
- Callies, M., & Paquot, M. (2015). An interview with Yukio Tono. *International Journal of Learner Corpus Research*, 1(1), 160–171. https://doi.org/10.1075/ijlcr.1.1.06lee

CESAR (Version 1.1.0.) (2017-2020). Nijmegen: Radboud University.

- Conrad, S. (2010). What can a corpus tell us about grammar?. In O'Keeffe, A., & McCarthy, M. (Eds.), *The Routledge handbook of corpus linguistics* (pp. 227–240). Routledge.
- Cosme, C. (2015). Participle clauses in learner English: the role of transfer. *Linking up Contrastive and Learner Corpus Research*, 1997, 177–198. https://doi.org/10.1163/9789401206204_008
- Duinmeijer, I. (2016). Persistent grammatical difficulties in Specific Language Impairment: Deficits in knowledge or in knowledge implementation?
- ERK. (n.d.) *Streefniveaus HAVO/VWO*. Retrieved June 1, 2020, from http://www.erk.nl/docent/streefniveaus/havo/.
- Eurobarometer. (2012). Europeans and their Languages. Conducted by TNS Opinion & Social at the request of Directorate-General Education and Culture, Directorate-General for Translation and Directorate-General for Interpretation. Survey co-ordinated by the European Commission, Directorate-General for Communication (DG COMM Research and Speechwriting Unit).
- Gilquin, G. (2015). From design to collection of learner corpora. In Granger, S., Gilquin, G.,
 & Meunier, F. (Eds.), *The Cambridge Handbook of Learner Corpus Research* (pp. 9-34).
 Cambridge University Press. https://doi.org/10.1017/CBO9781139649414.002
- Granger, S. (1997). ON IDENTIFYING THE SYNTACTIC AND DISCOURSE FEATURES OF PARTICIPLE CLAUSES IN ACADEMIC ENGLISH: NATIVE AND NON-NATIVE WRITERS COMPARED. In J. Aarts, I. de Mönnik, & H. Wekker (Eds.), Studies in English Language and Teaching (pp. 185–198). Rodopi.
- Gray, B. (2015). Linguistic Variation in Research Articles: When Discipline Tells Only Part of the Story. Amsterdam and Philadelpia: John Benjamins Publishing Company.
- Hoeksema, J. (2003). Verb movement in Dutch present-participle clauses. In H. van
- Huddleston, R., Pullum, G. K., Bauer, L., Birner, B., Briscoe, T., Collins, P., et al. (2002).

- Hundt, M., Denison, D., & Schneider, G. (2012). Relative complexity in scientific discourse. *English Language and Linguistics*, 16(2), 209–240. https://doi.org/10.1017/S1360674312000032
- Kellerman, E. (1995). Crosslinguistic influence: Transfer to nowhere?. *Annual review of applied linguistics*, *15*, 125-150.
- Klein, D., Manning, C. (2003). The Stanford Parser.
- Meunier, F. (2015). Introduction to the LONGDALE project. In Castello, E., Ackerley, K., & Coccetta F. (Eds.), Studies in learner corpus linguistics: Research and applications for foreign language teaching and assessment (pp. 123-126). Bern, Switzerland: Peter Lang.
- O'Keeffe, A., & McCarthy, M. (Eds.). (2010). *The Routledge handbook of corpus linguistics*. Routledge.
- O'Donnell, M., Murcia, S., García, R., Molina, C., Rollinson, P., MacDonald, P., ... Boquera,
 M. (2009). Exploring the proficiency of English learners The TREACLE project. In
 Proceedings of the Fifth Corpus Linguistics.
- Parkinson, J., & Musgrave, J. (2014). Development of noun phrase complexity in the writing of English for Academic Purposes students. *Journal of English for Academic Purposes*, 14, 48–59. https://doi.org/10.1016/j.jeap.2013.12.001
- Quirk, R., Greenbaum, S., Leech, G., & Svartvik, J. (1985). A Comprehensive Grammar of the English Language Longman. London New York. London & New York: Longman.
- Rafajlovičová, R. (2012). The distribution and role of relative clauses in different text types. *English Matters III (a collection of papers by the Institute of English and American Studies Faculty)*, 11-24.
- Renkema, J. (2007). Schrijwijzer. Den Haag: SDU uitgevers, 4.
- Riemsdijk, & J. Koster (Eds.), *Germania et Alia: A Linguistic Webschrift for Hans den Besten* Groningen: University of Groningen.

- Selinker, L. (1972). Interlanguage. *IRAL International Review of Applied Linguistics in Language Teaching*. https://doi.org/10.1515/iral.1972.10.1-4.209
- Selinker, L. (2014). Chapter 10. Interlanguage 40 years on: Three themes from here. In Z. Han & E. Tarone (Eds.), *interlanguage forty years later* (pp. 229–263). John Benjamins Publishing Company. https://doi.org/10.1075/lllt.39.12ch1
- Studiegids (2019). Doelstelling & vervolgopleidingen Engelse Taal en Cultuur. Retrieved July 28, 2020, from Radboud University Nijmegen website: https://www.ru.nl/studiegids/2019/letteren/bachelor/bachelor/engelse-taalcultuur/algemene-informatie/doelstelling-vervolgopleidingen/

The Cambridge Grammar of the English Language (5th ed.). Cambridge University Press.

- Van Vuuren, S. (2017). Traces of Transfer: Pragmatics in the Use of Initial Adverbials in the Interlanguage of Advanced Dutch Learners of English. Utrecht: LOT.
- Van Vuuren, S., & Laskin, L. (2017). Dutch learner English in close-up. *International Journal of Learner Corpus Research*, 3(1), 1–35. https://doi.org/10.1075/ijlcr.3.1.01van